

**REPORT OF THE FIFTH MEETING  
OF THE ASIA REGIONAL ADVISORY GROUP ON  
AQUATIC ANIMAL HEALTH**



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

**Bangkok, Thailand**

**22-24 November 2006**

**Preparation of this document:**

This report was prepared by the Asia Regional Advisory Group (AG) on Aquatic Animal Health (AGM-5) that met at NACA Secretariat, Bangkok, Thailand, on the 22<sup>nd</sup> - 24<sup>th</sup> November 2006.

The Advisory Group was established by the Governing Council of the Network of Aquaculture Centres (NACA) to provide advice to NACA members in the Asia-Pacific region on aquatic animal health management, through the following activities: (a) Review and evaluation of quarterly regional aquatic animal disease reporting; (b) Review and evaluation of implementation of the *Technical Guidelines*; (c) Revision of the *Technical Guidelines*<sup>1</sup>, *Manual of Procedures*<sup>2</sup> and *Asia Diagnostic Guide for Aquatic Animal Diseases*<sup>3</sup> as required; (d) Development of procedures for advising on Technical Guideline implementation; and (e) Advise on identification and designation of regional aquatic animal health resources, including specialist advisers, Regional Reference Laboratories and Resource Centres. 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.

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Reference: NACA 2007. Report of the Fifth Meeting of the Asia Regional Advisory Group on Aquatic Animal Health. Published by the Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand.

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<sup>1</sup> Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing consensus and Implementation strategy, 2000. FAO/NACA. Fisheries Technical Paper No 402

<sup>2</sup> FAO/NACA. 2001. Manual of Procedures for the Implementation of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals. *FAO Fisheries Technical Paper*, No. 402, Suppl. 1. FAO, Rome. 2001. 106 p.

<sup>3</sup> Bondad-Reantaso, MG, McGladdery SE, East, I and Subasinghe, RP. (Eds.). *Asia Diagnostic Guide to Aquatic Animal Diseases*. *FAO Fisheries Technical Paper*, No. 402, Suppl. 2. FAO, Rome. 2001. 236 p.

## Abbreviations and Acronyms

AADCP-RPS	ASEAN Australia Development Cooperation Program-Regional Partnership Scheme
AAHRI	Aquatic Animal Health Research Institute
AAHSC	Aquatic Animal Health Standards Commission of the OIE
ADG	Asia Diagnostic Guide
AG	Advisory Group
AGM	Advisory Group Meeting
APAN	Asia Pacific Agriculture Network
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
BKD	Bacterial Kidney Disease
BMP	Better Management Practices
BP	Baculovirus Penaei
CVO	Chief Veterinary Officer
DAFF	Australian Government Department of Agriculture, Fisheries and Forestry
DFID	Department for International Development
FAO	Food and Agricultural Organization of the United Nations
FHS	Fish Health Section of the Asian Fisheries Society
FIGIS	Fisheries Global Information System
GAV	Gill Associated Virus
GC	Governing Council of NACA
GCRV	Grass Carp Reo Virus
HPVD	Hepatopancreatic Parvo-like Virus Disease
ICES	International Council for Explorations of the Seas
ICT	Information Communication Technology
IMN	Infectious Myonecrosis
IMNV	Infectious Myonecrosis Virus
IHHNV	Infectious Hypodermal and Haematopoietic Necrosis Virus
IPN	Infectious Pancreatic Necrosis
IRA	Import Risk Analysis
KHV	Koi Herpes Virus
KHVD	Koi Herpes Virus Disease
LMSS	Loose Mucus Septicaemia Syndrome
LSNV	Laem Singh Virus
MBV	Monodon Baculovirus
MoVD	Mouriliyan Viral Disease
MPEDA	Marine Products Export Development Authority
MRC	Mekong River Commission
MrNV	<i>Macrobrychium rosenbergii</i> Noda Virus
MSGA	Monodon Slow Growth Syndrome Agent
MSGS	Monodon Slow Growth Syndrome
NACA	Network of Aquaculture Centres in Asia-Pacific
NAQDA	National Aquaculture Development Authority of Sri Lanka
NARA	National Aquatic Research and Development Agency
NC	National Coordinator
NHP	Necrotising hepatopancreatitis
OIE	World Organisation for Animal Health
PCR	Polymerase Chain Reaction
QAAD	Quarterly Aquatic Animal Disease
RLC	Regional Lead Centre
RRC	Regional Resource Centre
RRE	Regional Resource Expert
RRL	Regional Reference Laboratory
SAARC	South Asian Association for Regional Cooperation
SEAFDEC	Southeast Asian Fisheries Development Center

SPC	Secretariat for the Pacific Community
SPF	Specific Pathogen Free
SFR	Specific Pathogen Resistant
SVC	Spring Viraemia of Carp
SVCV	Spring Viraemia of Carp Virus
TAC	Technical Advisory Committee of NACA
TG	Technical Guidelines
TGAV	Tegumental Gland Associated Virus
TS	Taura Syndrome
TSV	Taura Syndrome virus
USDA	United States Department of Agriculture
VNN	Viral Nervous Necrosis
WAHIS	World Animal Health Information System
WAHID	World Animal Health Information Database
WSD	White Spot Disease
WSSV	White Spot Syndrome Virus
WTD	White Tail Disease
WTO	World Trade Organization
XSV	Extra Small Virus

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## **Opening session**

The fifth meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AGM-5) was held at the NACA Secretariat, Bangkok, Thailand on 22<sup>nd</sup>-24<sup>th</sup> November 2006.

Professor Sena De Silva, Director General of NACA formally opened the meeting. He welcomed the Advisory Group (AG) members and the co-opted members to Bangkok and thanked them for their active involvement in the regional aquatic animal health program. Considering the risks posed by aquatic animal diseases to the sustainable development of aquaculture in the region, Professor De Silva highlighted the significant role played by the AG. Following the welcome remarks, Dr Supranee Chinabut took over as Chairperson of the Meeting and requested the AG members to review the agenda. The participants reviewed and adopted the AG Meeting agenda (Annex A). The list of participants is given as Annex B.

## **Session 1: Progress since AGM-4 and expected outputs from AGM-5**

### **1.1 Progress report from NACA on progress since AGM-4 and expected outputs from AGM-5**

The AG was informed of the progress made since AGM4. The report dealt in detail about the major regional activities and identified issues for discussions during the meeting. The presentation provided details about the following key activities to the AG.

- Highlights of AGM4
- Outcomes of the 17<sup>th</sup> NACA governing council meeting
- QAAD reports and disease status
- Progress on implementation of Technical Guidelines
- Progress on implementation of projects
  - MPEDA/NACA shrimp BMP project in India
  - ACIAR regional shrimp health project
  - AADCP-RPS project on Aquatic animal health and Biosecurity
  - AADCP-RPS project on Operationalize guidelines for responsible movement of live food finfish within ASEAN
  - PCR calibration and harmonization
  - Technical missions to Cambodia, Lao PDR and Myanmar
- Details of ongoing collaborations and new project proposals being developed
- Training programmes and capacity building activities conducted

Following the presentation, the report was opened for questions and comments. The AG congratulated NACA for the excellent progress made, adopted the progress report and made the following key recommendations.

### ***Recommendations***

- Considering the direct and indirect impacts of various ongoing NACA regional aquatic animal health activities (e.g. projects, training programs, technical missions, harmonization exercise) towards progressing the implementation of TG in several countries in 2005-2006, the AG strongly felt that such an holistic approach is more appropriate and practical than undertaking a compartmentalized approach of addressing individual TG elements. The AG recommended that such approach should be continued and further strengthened
- The AG also recognized that building capacity on aquatic animal health still represents a major requirement for the region and efforts should be continued
- Attempts should be made to verify the validity and accuracy of disease reports and where possible clarifications must be sought before publishing the QAAD

- Considering the enormous success of BMP programme in India, which provided tangible evidence of economic returns to farmers, the AG strongly recommends that the lessons learned should be widely disseminated and NACA should consider writing a case study for the benefit of other member governments

The AG was informed of the recognition given to NACA by the Committee on Fisheries, Sub-Committee on Aquaculture during their 3<sup>rd</sup> meeting (New Delhi, September 2006) for the work conducted towards the development and implementation of international principles and better management practices for the responsible production of shrimp.

### ***Recommendations***

- GC should be made aware of the progress in different countries and at the same time requested to consider providing additional funds to National Coordinators and relevant national authorities to take up aquatic animal health work with technical assistance from NACA to progress the implementation of various elements identified in the Asia Regional Technical Guidelines

The development of SOPs for responsible movement of live food finfish within ASEAN under the AADCP-RPS project was seen as a good regional initiative towards harmonization.

### ***Recommendations***

- The AG suggested that such focussed approaches for specific commodities tend to have better impact and application compared to generic guidelines, which are hard to implement
- The recommendation of the 17<sup>th</sup> GC to develop a protocol for assessment of economic losses associated with aquatic animal diseases in member governments was welcomed by the AG and, although recognising the difficulties in performing this task, the AG suggested that NACA consider undertaking the activity over the next year

The AG was informed that core funding from NACA is being used to support and sustain only limited activities (e.g. holding of Annual AG meetings, publication of QAAD reports), while all other activities have to be supported through national and regional projects. Since these projects have defined outcomes and target countries, many times it will not be possible to extend the benefits to all the member governments. The AG appreciated the support (in kind and cash) being provided by countries to the programme.

### ***Recommendations***

- In view of these limitations, the AG strongly felt that more support should be secured to the health programme from governments, private sector and donor agencies
- The AG recommends that the GC of NACA should be requested to increase the support from individual countries in cash and kind
- The AG suggested that for progressing the implementation of the AAH programme a backstopping fee should be included while developing project proposals. Similar approaches are being used successfully in other organizations

## **1.2 Outcomes from the OIE General Session (May 2006) and the Aquatic Animal Health Standards Commission meeting (October 2006)**

### ***Summary of outcomes from 74th GS (May 2006)***

The AG was informed that, as specified in the 9<sup>th</sup> Edition (2006) of the OIE *Aquatic Animal Health Code (Aquatic Code)*, KHVD and abalone viral mortality were included in the OIE list of aquatic animal diseases. Legal reporting obligations for OIE Member Countries for these diseases will commence from 1<sup>st</sup> of January 2007. To facilitate and support disease reporting, OIE is developing

disease cards, taking into account the disease card already developed by NACA (for example abalone viral mortality and KHVD).

The AG was informed that the OIE International Committee had adopted the delisting of IPN, BKD and infection with *Mikrocytos mackini*, while no changes were made to the OIE list of crustacean diseases, with NHP and IMN still being listed as [under study] and, as such, not being subjected to specific obligatory reporting by OIE Member Countries.

It was clarified that the list of diseases relates to the reporting obligations of Member Countries, while the disease-specific chapters in the *Aquatic Code* serve to assist Member Countries to develop their import regulations. The AG was also informed that for some delisted diseases, *Aquatic Code* chapters may be retained and updated to continue to provide guidance for trade, while there may also be listed diseases without a disease chapter in the *Aquatic Code*. Similarly, disease chapters for delisted diseases may also be retained in the *OIE Manual of Diagnostic Tests for Aquatic Animals* (*Aquatic Manual*).

The new format of the disease chapters of the OIE *Aquatic Code*, now applied to all fish and mollusk diseases (and proposed for crustacean diseases) was presented to the AG. The new disease chapter format uses a commodity-based approach. First, commodities can be listed as “safe”; this means that for the disease in question, an importing country should not request any measures from the exporting country even if the disease occurs in the exporting country. For a second group of commodities, import measures are suggested taking into account the health status of the exporting country for the disease in question, whether the commodity is live or dead, and what its intended use is. For each disease, there are also commodities where a risk analysis is recommended.

The scope of the *Aquatic Code* disease chapters includes only those susceptible species that are internationally traded. The full list of susceptible species is given in the *Aquatic Manual*. Several pathways to achieve, maintain and regain freedom in countries, zones or compartments (e.g. absence of susceptible species, historical freedom, implementation of targeted surveillance) are now included.

Definitions for “infection” and “susceptible species” were adopted by the OIE as follows:

- **Infection** means the presence of a multiplying or otherwise developing or latent *disease agent* in or, for ectoparasites, on a host.
- **Susceptible species** means a species of *aquatic animal* in which *infection* by a *disease* has been demonstrated by natural cases or by experimental exposure to the *disease agent* that mimics the natural pathways for *infection*.

The AG was informed of the major changes made to the OIE *Aquatic Manual* in its 5<sup>th</sup> Edition (2006). These included updating of most general provision chapters, the inclusion of general information chapters for each of the 3 commodity groups (i.e. fish, molluscs and crustaceans) and the adoption of an entirely new template for the diagnostic chapters. The new disease chapter template now consists of the following sections:

- Case definition for the disease
- Information for the design of surveillance programmes
- Diagnostic methods
- Rating of tests against purpose of use
- Corroborative diagnostic criteria with definitions of both suspect and confirmed case
- Diagnostic/detection methods to declare disease freedom
- References



The AG was informed of changes made to the list of OIE Reference Laboratories for aquatic diseases. These were:

- Dr Isabelle Arzul: New expert at the Reference Laboratory for *Bonamia ostreae*, *B. exitiosa*, *Mikrocytos roughleyi*, *Marteilia sydneyi* and *M. refringens*, IFREMER, La Tremblade, France.
- New Reference Laboratory for infection with *Xenohaliotis californiensis*: University of Washington, School of Aquatic and Fishery Sciences, USA, with Dr Carolyn Friedman as the expert.

### **Summary of meeting of the October 2006 meeting of the AAHSC**

A summary of the October 2006 meeting of the AAHSC was also presented. Concerning the *Aquatic Code*, the AAHSC suggested the listing of NHP and IMN, therefore removing the [under study] label, and of WTD, HPVD and MoVD. Member Countries are asked to provide comments on these changes by 11 February 2007. The following changes to disease chapters were suggested by the AAHSC:

- Diseases of fish
  - Draft revision for chapter on gyrodactylosis
  - New draft chapter for KHVD
- Diseases of molluscs
  - Some changes to most mollusc disease chapters
- Diseases of crustaceans
  - Draft revisions for all currently listed disease chapters
  - New draft chapters for IMN, NHP, WTD, HPVD and MoVD

Concerning KHV, the AG was also informed that new chapters are being developed for both the *Aquatic Code* and the *Aquatic Manual*, a disease card is in preparation and a nomination for an OIE Reference Laboratory for KHV was received and supported by the AAHSC.

The following new and revised definitions for the *Aquatic Code* were suggested by the AAHSC:

- **Disease** means clinical or non clinical *infection* or *infestation* with one or more of the aetiological agents of the diseases referred to in the *Aquatic Code*.
- **Infection** means the presence of a multiplying or otherwise developing or latent disease agent in a host.
- **Infestation** means the presence in large numbers of a multiplying parasitic, or commensal, agent on a host so as to cause damage or *disease*.

On the basis of the most recent update of the OIE *Terrestrial Animal Health Code* chapter on zoning and compartmentalisation, the AAHSC produced a new draft for the *Aquatic Code*. The AAHSC addressed its *ad hoc* groups' recommendations on the issue of risks associated with transport water, recommending updating the *Aquatic Code* to better address the treatment of the transport water, especially for gametes, eggs and larvae.

The AG was informed that although ballast water is recognized as very important in the transboundary movement of pests and pathogens, it is not a part of the OIE *Aquatic Code*

### **Recommendation**

- The AG recommends that the OIE considers including pathogen movement through ballast water in its remit. The official mechanism for communication of this recommendation to the OIE should be followed

The AG was informed of the formation of an *ad hoc* group on aquatic animal health surveillance to perform revisions of chapters for the *Aquatic Manual* and the development of a new Appendix on surveillance for the *Aquatic Code*.

An update was provided on the development of guidelines for aquatic animal welfare.

The AG was informed that the *ad hoc* group on amphibian diseases will submit a report to the AAHSC with a recommendations on whether to include amphibian diseases in the remit of the OIE. The AAHSC discussed a suggestion from the OIE Central Bureau to consider including diseases of aquatic reptiles (turtles, crocodiles, etc.) diseases in the remit of the OIE and considered that this issue would be better addressed once a decision on including amphibian diseases has been taken.

The AG was also provided information on the following international meetings:

- OIE Regional Commissions' conferences, for which AAHSC now has standing invitations
- International Forum on Infectious Myonecrosis in farmed shrimp, 8-9 August 2006, Managua, Nicaragua
- First OIE Global Conference on Aquatic Animal Health, 9-12 October 2006, Bergen, Norway
- First International Conference of OIE Reference Laboratories and Collaborating Centres, 3-5 December 2006, Florianopolis, Brazil

The AG received clarification on listing and delisting of aquatic animal diseases and the role played by *ad hoc* groups in the process. Crustacean disease experts attending the meeting felt that BP and MBV should not be listed. In view of this, the AG agreed that RREs with assistance from some of the AG members should consider developing a proposal for delisting of BP and MBV from the OIE list and submit the proposal to the OIE Director General, following formal procedures. It was suggested that Thailand and Malaysia would take the lead in pursuing this proposal which should then be circulated by NACA Secretariat to the RRE for their input.

The AG Chairperson thanked the President of the AAHSC for providing very clear and useful information and commended the AAHSC for their continuous collaboration with the NACA and the AG.

### ***Recommendation***

- The AG felt that the recent development within the OIE should be disseminated within countries by the NC and should be taken into account by the AG during its deliberations

### **1.3 Global issues of relevance to aquatic animal health management in the region**

FAO recognized the importance of aquatic animal health management in the region. FAO also informed the AG on the importance of responsible transboundary movements, presenting the outcome of the recent consultation on introduction of *Penaeus vannamei* in India, during which FAO advised the Indian Government to base a decision on whether to permit importation on a thorough risk analysis.

The AG congratulated India for holding such consultation and emphasized that conducting an Import Risk Analysis (IRA) is of critical importance in making informed decisions on importations and movements for aquatic animals.

### ***Recommendations***

- In view of the significant economic losses witnessed because of the introduction of organisms associated with irresponsible introductions of alien species, the AG felt the need to redraw the attention of the GC and countries towards the need to conduct IRAs, underlining that IRAs can be conducted also with limited financial and technical resources

- The AG encouraged the dissemination (e.g. through website posting) of IRAs already conducted in the SPC and Thailand and which proved extremely useful to address the transboundary movements being considered (i.e. importation of *P.stylirostris*, *Macrobrachium rosenbergii* and milkfish)
- The AG also encouraged holding IRA training courses to build capacity within member governments
- It was also decided to emphasize the above issues at the upcoming RLC meeting to be held in Bangkok on 28-29 November 2006

The OIE reminded the AG of the availability of OIE and WTO documents containing standards and criteria for performing IRA. It was noted also that IRAs should be conducted consistent with the OIE guidelines for risk analysis to have value in trade disputes.

## **Session 2: Review of Regional disease status**

### **2.1 Emerging crustacean diseases in the region**

The AG was informed of emerging crustacean diseases in the region. The following points were highlighted:

- The cryptic nature of crustacean viruses and their ability to cause multiple infections raises important issues to be addressed when considering the transboundary movement of crustaceans.
- TSV is still an important problem of *P.vannamei* and it now appears to be increasingly affecting local species such as *P.monodon*, *M.rosenbergii*, *P.japonicus* although the effects are still poorly understood. Differences in TSV pathogenicity have been detected and in some cases are poorly understood. TSV outbreaks would appear to originate from PL which are not SPF, although carriers such as wild crabs, which have been shown to be susceptible to long-term infection, may play an important role.
- IMNV was first reported in Brazil in 2002 and it was associated with gradual mortality reaching up to 70%. IMNV was reported for the first time in the region (Indonesia) in June 2006 and, for its close similarity (99.6%) with the Brazilian strain it would appear to have been associated with the movement of crustaceans from Brazil to the region. PCR kits are available although some issues with their accuracy are emerging.
- Monodon slow growth agent (MSGA) is the most significant problem of shrimp in Thailand, associated with production loss in the range of 40,000 million baht in 2002 and responsible for the major switch to *P.vannamei* farming. MSGA was most likely a pathogen introduced into the region. An RNA virus, tentatively named tegumental gland associated virus (TGAV), would appear to be a candidate for MSGA. A program for screening shrimp seed for TGAV and assessing whether this approach contributes to the control of MSGS is being developed.
- The RNA-virus Laem Singh virus (LSNV) was found in Thailand in both MSGS ponds and non-MSGS ponds, hence appears not to be associated with MSGS. LSNV appears to be associated with retinopathy in *P.monodon* in ponds that had problem with MSGS. In Australia, retinopathy has been attributed to GAV but may need re-examination to check for evidence of LSNV.
- Although not affecting survival, the occurrence of bamboo shrimp syndrome in *P.vannamei* farms in Thailand and Indonesia is associated with deformities that lead to a reduction in market prices of about 10 baht/kg, therefore leading to significant financial losses. The syndrome is becoming more and more common in Thailand and it maybe associated with a local virus.
- Rickettsia and rickettsia-like organisms seem to be a problem primarily in super-intensive farming systems.

- NHP is still exotic to the region and considered a potential threat and should be retained in the QAAD regional list.
- It would appear as if XSV does not play a major role in WTD occurrence and MrNV is the agent responsible for the disease.

### **Recommendations**

- The AG appreciated the report given by the crustacean disease expert and recommended that input from RRE should be sought before a decision on the inclusion of the above diseases in the QAAD regional list is taken

## **2.2 Status of emerging finfish diseases in the region**

The AG was informed of emerging finfish diseases in the region. The following points were highlighted:

- The “normal” mortality rate in Asian finfish farms remains high (20 – 60%)
- The number of publications on finfish diseases in the region is still limited although it appears to be increasing
- Epidemiological data on finfish disease is needed
- A large number of health problems in finfish have been detected in several countries in the region (Annex C)
- *Edwardsiella tarda* was identified as a problem in several countries and associated with outbreaks in red seabream, Japanese flounder, turbot and eel.
- “BB” or big belly is associated probably with a new *Vibrio* sp. causing high mortality in seabass fry. The syndrome can be easily diagnosed based on the occurrence of clinical signs
- *Streptococcus dysgalactiae* is an emerging disease of yellowtail in Japan, affecting primarily larger fish and detected also in China
- *Francisella* sp. is an emerging problem of cod and salmon, which is now causing emerging problems in tilapia in Indonesia. This is the first *Francisella* sp described in fish.
- Visceral toxicosis in catfish is a major problem in the US and now similar clinical disease signs have been seen in catfish in China. No agent has been identified with the disease
- LMSS (loss of mucus and septicemia syndrome) is a major problem of European eel in China. No agent has been identified with the disease although it would appear to be associated with a virus.
- *Streptococcus iniae* remains a major problem in the marine environment and is found also in freshwater environments. The disease is associated with an estimated annual impact on aquaculture of over US\$ 100 million
- *Tenacibaculum maritimum* is a global problem affecting most aquaculture marine species with mortalities up to 90% in fingerlings. Its isolation is difficult, leading most likely to an underestimation of the problem
- *Nocardia seriolae* is a problem of increasing importance, being associated with higher mortality and showing an increasing geographical spread
- Streptococcal diseases (mainly *Streptococcus agalactiae*) are a major problem in freshwater environments and especially in tilapia culture
- *Edwardsiella ictaluri* is a major problem in catfish in the US. A vaccine is registered in the US.
- *Flavobacterium columnare* is a global problem in the freshwater environment and particularly important in tilapia culture.
- Other important pathogen/diseases include:
  - *Lactococcus garvieae*
  - *Vibrio anguillarum* O1
  - *Aeromonas salmonicida* subsp. *salmonicida*

- *Photobacterium damsela* subsp. *piscicida*
- Red Sea bream Iridovirus and other iridoviruses
- VNN
- KHV
- SVC
- GCRV
- Channel Catfish Virus (exotic to the region)

### **Recommendations**

- The AG appreciated the report given by the Finfish disease expert and recommended that input from RRE should be sought before a decision on the inclusion of the above diseases in the QAAD regional list is taken.
- In view of the fact that health problems in finfish are often underestimated, the AG recommended conducting surveys to identify the impact of finfish diseases and the development of extension material (i.e. disease cards) to build capacity on the diagnosis of these problems.
- The AG also recognized the need for risk factor epidemiological studies to identify management strategies associated with a reduced occurrence of finfish diseases.
- Because of the difficulties in isolating some of the pathogens associated with the occurrence of important diseases of finfish, the AG recommended the development of surveillance systems based on the occurrence of abnormal clinical signs (syndromic surveillance).
- NACA should also communicate to the NC the importance of reporting also diseases that are not listed in the QAAD regional list but appear to be important health problems

### **2.3 Emerging mollusk diseases in the region**

The AG was informed of emerging mollusk diseases in the region, with special focus on Thailand. The following points were highlighted:

- Marteiliosis has been reported to cause problems in cultured green mussel (*Perna viridis*)
- In 1999, a *Marteilia* – like species was found in rock oyster (*Saccostrea forskali*) in Thailand
- Through a survey of parasitic diseases in green mussels conducted in Thailand, unidentified turbellarians were identified on gills.
- Gregarines were also seen in gill filament and connective tissues, although not associated with tissue damage.
- Virus like inclusion bodies were found in the digestive gland of green mussel
- No *Marteilia* was identified through the survey.
- Mass mortality in *Babylonia areolata* farms reported in Vietnam and, informally, in China does not appear to be a problem in other countries in the region
- Mass mortalities have been reported in scallop (*Chlamys farreri*) in China. A viral agent (Acute Viral Necrobiotic Virus, AVNV) is suspected

### **Recommendations**

- The AG appreciated the report given by the Mollusk disease expert and recommended that input from RRE should be sought before a decision on the inclusion of the above and potentially other diseases in the QAAD regional list is taken.

The AG recognized that the FAO/NACA training course in mollusk health helped to initiate some mollusk disease activities in the region. A 3<sup>rd</sup> phase of the training course is yet to be implemented.

## 2.4 Lessons being learned from the introduction of *Penaeus vannamei* to the region

The AG was reminded of the (potential) risk associated with the movement of *P. vannamei* (e.g. TSV, IMNV, Rickettsia-like bodies, NHP) and of the fact that disease spread still occurs in spite of quarantine measures having been put in place. Reasons for disease spread include limited capital & human resources available to governments; the sheer volume of commodities traded; the diversity of forms in which trade occurs; the lack of simple and accurate diagnostic tools; the time delay between first recognition of a serious pathogen and when accurate diagnosis is made. The risks posed by *P.monodon* and other local crustaceans to *P.vannamei* was also presented to the AG.

The AG was informed of the potential identification of NHP in *P. monodon* and the mass mortalities associated with the disease.

The AG was also informed of the fact that *P. vannamei* may not be offering increased profits to farmers when compared with *P. monodon*. This is leading at least some stakeholders/countries to refocus their attention to *P.monodon*. Low profits gained by *P.vannamei* farmers may induce to a shift towards larger farms or more intensive production, which, as opposed to smaller enterprises, may be capable of making profits in spite of the low margins.

Potential management solutions to reduce the risks associated with the introduction and farming of exotics were also presented and highlighted the following:

- Development of clearer quarantine protocols & guidelines
- Optimization of resources
- Improved collaboration between relevant authorities
- Development of contingency plans
- Careful consideration to the imposition of bans and the need to legislate not only on the importation but also on the farming and trading.

The AG recognized that there are clear indications of the proliferation of non-SPF stocks being traded as SPF.

### **Recommendations**

- The AG recommended pursuing the implementation of projects aimed at assessing the impact of *P. vannamei* on *P.monodon*, especially in view of the importance of *P.monodon* for small-scale producers in several countries in the region
- The need to conduct cost-benefit analysis of *P.vannamei* farming was also recognized.
- The AG recognized the value of exploring the farming of indigenous species and the development/use of SPF stocks for those, also in view of the fact that SPF *P.monodon* stocks will most likely become increasingly available in the future
- Recognizing the widespread misconception of SPF and SPR shrimp, the AG recommended the development of extension material aimed at clearly explaining what SPF and SPR are and advising on how to best assess the credibility of SPF/SPR allegations by suppliers
- The AG also recommended the risk posed by transboundary movements and, more importantly, introductions to be communicated to governments (e.g. using a 1-page document which highlights key issues).

### **Session 3: Review of QAAD Regional Reporting System**

#### 3.1 Regional disease status and progress in regional reporting

The AG was informed about the progress in regional reporting. The FAO/NACA/OIE regional quarterly aquatic animal disease (QAAD) reporting came into effect from the 3<sup>rd</sup> quarter of 1998. Until June 2006, a total of 32 reports have been published. Of the 21 participating countries, reports could be obtained from 14 (2005/3), 16 (2005/4), 14 (2006/1) and 15 (2006/2) countries for the respective quarters. The quality of reports and epidemiological comments provided by countries has improved significantly over the years. The advantages of the regional reporting especially in terms of supporting countries in the region to address diseases which are significant beyond trade considerations were reported.

The AG was informed that the quality of epidemiological comments provided by some of the countries (e.g. Philippines, Indonesia, Thailand, Vietnam, Iran) has improved significantly. Improved understanding of the implications of regional reporting by NCs appears to be the underlying reason for quality of reports. From the number of downloads (2005/3-723; 2005/4-587; 2006/1-170; 2006/2-70), it appears that there is considerable demand for regional disease information

From the disease occurrence reports published in the last 4 QAAD reports, the following diseases were recognized as important

- Fish
  - Infection with koi herpes virus
  - Viral nervous necrosis
  - Epizootic ulcerative syndrome
  - Grouper iridoviral disease
- Shrimp
  - White spot disease
  - Taura syndrome
  - Infectious myonecrosis
- Prawn
  - White tail/muscle disease
- Mollusk
  - Abalone viral mortality
  - *Babylonia* mortality

The AG took note of the present status of occurrence of important diseases in the region and appreciated the improvements achieved over the years in the quality of reports submitted.

The AG agreed that there is a need to improve the quality of QAAD reports. As per the present reporting requirement, QAAD reports are submitted after 75 days of the end of the reporting quarter. In view of this, it is suggested that in emergency situations regarding all diseases listed in the QAAD as well as non-listed diseases, immediate notification should be conducted following the provisions of the OIE *Aquatic Code* for such situations.

#### ***Recommendation***

- Recognising that, unlike under the OIE mechanism, countries contributing to the NACA AAH programme do not have a legal obligation to report on the presence of diseases listed in the regional QAAD list, the AG recommended to assess as much as possible the accuracy of QAAD reports.

### 3.2 Way forward with regional reporting

FAO informed the meeting that, since QAAD reports are being compiled since the 3<sup>rd</sup> quarter of 1998 and now more than 32 reports have been published and considering the vast amount of regional disease data, it is now timely to store the data in a searchable database (e.g. AAPQIS) and conduct data analysis to determine trends and perhaps even forecasting, current health profiles, patterns of disease spread or reduction, risk factors (depending on other data available), and how the database information can be converted to disease control information. Such an analysis should also consider the impact of regional efforts on aquatic animal health management (through various mechanisms - capacity building, research, other relevant projects/activities) *versus* disease status *versus* aquaculture production. The meeting was informed that FAO will be interested to collaborate on this activity.

Concerning the identification of criteria for the regional listing of diseases, the AG agreed that a disease listed in the QAAD regional list is a disease that requires a certain degree of management and capacity to recognize it. The fact that a disease is listed does not *per se* provide a justification for sanitary measures. Diseases considered important for the region are listed in QAAD to encourage surveillance and stimulate reporting.

The AG strongly endorsed the need for developing a set of criteria for listing of diseases in the QAAD. Some of the criteria suggested were:

- Need to create or maintain awareness within the region
- Presence of susceptible species in the region
- Susceptible species widely cultured and/or widely moved in the region
- Perceived economic impact of the disease
- Occurrence of shared watersheds and porous land borders
- Need for epidemiological information for the benefit of the countries in the region to assist in preventing the spread of the disease

The OIE informed the AG that the WAHIS is presently running in parallel to the regional OIE reporting and that is yet to be fully functional. The AG therefore felt that continuing the QAAD reporting system would not represent a duplication of effort during the transition period.

#### **Recommendations**

- Continue the QAAD reporting system during the transition period and explore opportunities to further improve the quality of reports
- Develop a one page document explaining the purpose of regional reporting and bring it to attention of member governments
- Develop a set of criteria for listing of diseases in the QAAD in consultation with RRE
- Considering the interest of FAO to analyse QAAD data, the AG suggested that NACA collaborate with FAO in identifying a mechanism for carrying out the analysis

### 3.3 Review of diseases listed in QAAD, revision of reporting form and instructions

The relation between the OIE and regional reporting was noted. To help OIE Member Countries meet their reporting obligations to the OIE at the same time as reporting through the QAAD systems, it was agreed that all OIE listed diseases (Annex D) should be included in the regional reporting system. However, delisting of diseases by the OIE should not lead to their automatic delisting from the regional list because a globally delisted disease may still have relevance to the region.



The AG considered the revisions required to the regional QAAD list. Revisions take into account changes in the OIE list plus diseases of regional concern not listed by OIE. The QAAD list will include all diseases listed by the OIE plus diseases of regional concern. The following revisions to the QAAD list were approved by the AG. The revised list effective for reporting in 2007 is provided in Annex E

### ***Recommendations***

- The AG agreed to retain all the 2006 OIE delisted diseases in the QAAD for the year 2007 and seek expert opinion from RRE for their retention or otherwise. This will be taken into consideration while revising the list at AGM-6
- KHVD should be moved from non-OIE listed diseases to OIE-listed diseases under the diseases prevalent in the region category
- Bacterial kidney disease and Infectious pancreatic necrosis should be listed under non-OIE listed diseases under the diseases prevalent in the region category
- Necrotizing hepatopancreatitis should be moved from under diseases prevalent in the region to diseases exotic to the region
- Infectious myonecrosis virus disease should be moved from non-OIE listed under diseases exotic to the region to non-OIE listed disease under the diseases prevalent in the region category
- Infection with *Mikrocytos mackini* should be listed under non-OIE listed diseases under the diseases prevalent in the region category
- The AG suggested to develop a potential list of emerging diseases based on the reviews presented in 2.1, 2.2 and 2.3 (Annex F) and circulate to RRE to obtain expert opinion for further evaluation by the AGM
- The AG recommended that RRE be requested to evaluate also the non-OIE listed diseases in the QAAD list
- Recognising that by sending the list of diseases to RRE, it would allow broader consultation and benefit from regional expertise, the AG suggested that RRE use a 3-level scoring system (high, average and low) to determine the importance of a disease and to justify its proposed listing/delisting

### **Session 4: Review and evaluate implementation of the Technical Guidelines**

FAO informed the AG the outcomes of the FAO Expert consultation (Dambulla, Sri Lanka, November 2005) on “Technical Guidelines on Health Management for Responsible Movement of Live Aquatic Organisms”. The document is expected to be available by the end of the year. FAO (both Rome and RAPA office) and NACA will coordinate the distribution of the document in the region. In addition, FAO informed the AG of its past and ongoing regional activities, which are contributing to progress the implementation of TG in the Asia-Pacific region.

#### ***4.1 National Aquatic Animal Health Strategies***

##### **4.1.1 Experiences from Vietnam and other countries in progressing the implementation of TG**

Experiences for in-country projects implemented in Vietnam and other countries in the region were presented to the AG. Activities presented were conducted as part of 7 major items:

1. Reducing risks of aquatic animal disease outbreaks (Vietnam); Danida-funded
2. Maximizing the uptake of aquatic animal epidemiological methods (Vietnam, Laos, Cambodia and Thailand); DFID funded with additional support from MRC, AAHRI and NACA

3. Impact assessment of aquatic animal health information and interventions in Asia (Vietnam, Thailand and Asian region); DFID funded
4. Environmental management of aquaculture investments in Vietnam; World Bank funded
5. Training course on aquatic animal epidemiology (I.R. Iran)
6. Responding to the newly introduced USDA regulation to control SVC (Vietnam)
7. Other activities supporting AAH management (VN and Thailand)

The AG showed its appreciation for the quantity and quality of work conducted through the above mentioned in-country projects and how they contributed to the progress of AAH management in the region.

- More specifically, the AG recognized the value of the training format adopted during training programs on aquatic epidemiology (i.e. consisting of a strongly integrated hands-on component) and recommended the wider adoption of this approach for further training on epidemiology and on more generally on AAH management
- The AG also recognized the need for wider dissemination and recommended for the BMP extension material developed as part of the projects implemented in Vietnam to be translated and disseminated more widely in the region.
- The AG also recommended countries to:
  - Develop harmonized national AAH strategies
  - Increase their preparedness to deal with both emerging diseases and new AAH regulations
  - Increase inter-country sharing of experiences
  - Develop surveillance system prioritizing available resources, even if limited
  - Maximize the use of regional expertise (e.g. RR Base)
  - Comment on documents produced by the OIE
- The AG recommended NACA to:
  - Disseminate the strengths of RR Base and promote its use
  - Promote wide BMP implementation
  - Assist in identifying emerging issues (also trade-related)
  - Strengthen links with regional ICT organizations (eg. APAN) for the development of regional and national surveillance systems
- The AG recommended NACA and its member governments to:
  - Build capacity in epidemiology
  - Promote the development of farmer groups/organizations

#### 4.1.2 Implementation of two AADCP-RPS projects in ASEAN to support TG implementation

The AG was informed about the progress made in the implementation of 2 AADCP-RPS projects in ASEAN to support TG implementation. The first project “Strengthening aquatic animal health capacity and Biosecurity” has the objective to develop harmonized approaches to aquatic animal health management and biosecurity in ASEAN and improve capacity to implement ASEAN harmonized national aquatic animal health and biosecurity strategies. Under the project one policy workshop, one training programme and 3 technical missions were completed. The second project “Operationalize guidelines for responsible movement of live food finfish within ASEAN” is expected to produce standard operating procedures for responsible movement of live food finfish within ASEAN. As an outcome of one policy workshop and one working group leaders meeting, draft SOPs were developed and is now ready for discussion and adoption at the second policy workshop in February 2007.

The AG appreciated the progress made in the implementation of 2 projects and stressed the importance of projects in progressing the TG implementation.

#### 4.1.3 Progress in implementation of the ‘Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals’ - Outcomes of Technical Missions to CLM

The AG was informed about the outcomes of the Technical missions carried out in Cambodia, Lao PDR and Myanmar under the AADCP-RPS project. The technical missions took place in Cambodia from July 2-9, Lao PDR from July 11 – 18 and Myanmar from 3-8 September 2006. Conducted by a small team of experts, these missions aimed to support the development and implementation of national strategies on aquatic animal health, provide assistance to the project policy workshop and training participants, and follow up on the identified country specific action plans. The following provides the details of some of the important tasks accomplished in all the three countries.

- Identification of national priorities
- Identification of institutions and responsibilities
- Formation of tentative National Committee on aquatic animal health
- Development of a framework for national strategies
- Development of national list of diseases
- Evaluation of capacity for national list of diseases
- Development of a framework for passive surveillance
- Development of a framework for contingency plan
- Identification of national staff trained in Aquatic animal health
- Development of concept proposals for piloting surveillance

The AG appreciated the tasks accomplished by the technical missions. Expertise to the missions are provided by RRE

#### 4.1.3 Evaluation of implementation of TG in each country by AG

The AG was informed of the progress in implementation of the various elements in the ‘Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals’. The report highlighted differences between member governments in TG implementation as an issue of concern. The AG was informed about the progress matrix used to monitor the TG implementation and its usefulness for recognizing and prioritizing the needs of countries.

#### ***Recommendations***

- Considering the differences in TG implementation across countries, the AG recommended that the status of TG implementation highlighting the differences should be presented to the NACA GC;
- A country specific strategy for TG implementation should be developed to bridge the differences between countries;
- The AG suggested that all risk assessment documents must be made available on the website and brought to the attention of the countries;
- The AG suggested that priority must be given to capacity building in risk analysis, surveillance and contingency planning. In comparison, resources for programmes aimed at zoning are of a lower priority because this strategy is very resource-intensive;
- NACA should initiate activities to assess the economic impact of aquatic animal diseases and the consequence of poor implementation of TG elements and point out that there will be an economic driver to implement TG;

- NACA should encourage member governments to identify the contribution given by the fisheries sector to countries' economies and to promote a more balanced allocation of resources for aquatic animal health management, where needed;
- The AG recommended that more responsibilities should be given to the countries to progress implementation of TG.
- The AG recognised the importance of the “progress matrix” as a tool to assess overall regional progress in the implementation of TG and suggested NACA to continue using this tool in its monitoring efforts;

#### 4.1.4 Discussions on NACA's position - expressing opinion to governments and or institutions concerning bilateral or multilateral health related regulations with trading implications (e.g. SVC requirements in USA)

The issue of NACA and AG expressing opinion on matters of bilateral or multilateral health related issues affecting trade was discussed by the AG. The USA's new requirements for SVC certificates and their impact on some of the NACA member governments was presented as an example. Following elaborate discussions, the AG agreed that the AG and NACA should not take a role in trade disputes. However, AG and NACA may facilitate access to scientific information upon request. The AG recognized the need for improving awareness and understanding on trade related issues among member governments and provide relevant guidance to members on how to improve their ability to address these concerns.

#### ***Recommendations***

- The AG agreed that NACA and/or AG should not become involved in trade disputes
- To assist member governments, NACA should provide comments on the science if possible, on a case by case basis and the head of the aquatic animal health program should decide on the most appropriate mechanism to be followed.
- The AG recommended that NACA to alert member governments on emerging health issues with trade implications and mechanisms to address such trade issue (e.g. OIE, IPPC, Codex, WTO) by posting information on NACA website and through other mechanisms

### ***4.2 Strengthening National Coordination and Communication***

#### 4.2.1 Meeting of National Coordinators

The AG was informed of initiatives taken by NACA to promote communication between NCs in the region and the difficulties (often financial) often associated with such initiatives. The meeting was informed that only through regional or sub-regional projects such activities are possible. The AG was informed that under the AADCP-RPS projects, NCs from all the 10 ASEAN countries were brought together and will again meet as part of the project activities. The AG appreciated the efforts of NACA in this direction. The AG discussed the need for a workshop/meeting of NCs and appreciated the difficulties in securing the required funds to bring all the NCs together.

#### ***Recommendations***

- Considering the advantages of bringing National Coordinators together, the AG recommend that NACA should continue explore opportunities to bring National Coordinators together at regional and sub-regional levels, where possible
- The AG suggested that NACA should pursue the concept to have parallel meetings with GC and NC as a back to back activity.

#### 4.2.2 Promoting cooperation between veterinary and fisheries authorities

Progress on the model for cooperation between veterinary and fisheries authorities proposed for Sri Lanka at the last AGM4 was presented to the AG. The meeting was informed that a national advisory committee with representatives from key national fisheries and veterinary organizations, private sector and industry (e.g. Veterinary authority, NAQDA, NARA, Department of Fisheries and Aquatic resources and Universities) had been established. The Committee has been assigned to develop a policy framework, decide on the organization, exchange of information, agree on strategies and programs and act as advisory body to the OIE delegate. The committee has met three times and drawn up action plans to implement some of the following activities

- Epidemiological surveys on aquatic animal health to establish baseline information
- Surveillance system
- Disease reporting
- Improve quarantine and health certification system using OIE guidelines
- Developed system for dissemination of OIE papers and for collection of comments

The AG appreciated the progress made in Sri Lanka in improving cooperation between fisheries and veterinary authorities.

### ***Recommendations***

- The AG suggested that NACA and FAO should disseminate these activities and use Sri Lanka as a model for other countries
- Sri Lanka should consider securing funding support from national projects (e.g. ADB funded project) to invite teams of RRE to assist with implementation of activities identified by the national advisory committee
- To sustain the veterinary-fisheries cooperation model developed in Sri Lanka, NACA should consider supporting some training and capacity building activity in Sri Lanka.

The AG was informed about the outcomes of the OIE Global Conference on Aquatic Animal Health held at Norway (9-12 October 2006) which was attended by over 150 delegates from 35 countries. The conference made recommendations to the OIE and its Member Countries on the need of defining roles and responsibilities of veterinary and other authorities and the private sector. The Conference recommended a governance framework for aquatic animal health, national aquatic animal health strategies and commitment to shared responsibilities for their implementation. The recommendations are currently with the Conference steering committee and will be presented to AAHSC in March 2007, with the view to propose them for endorsement at the OIE General Session in May 2007.

### ***Recommendation***

- The AG suggested that NACA circulate the report to NACA member governments when the final report becomes available

The attention of the AG was drawn to the Nouméa Recommendations to the member countries, which states that “Where primary responsibility for aquatic animal health rests with an authority other than the Veterinary Services, nominate an ‘aquatic national focal point’ from the other authority, so that the OIE may circulate Aquatic Animal Commission reports to the ‘aquatic national focal point’ at the same time as when circulating to national Delegates (providing comments back to the OIE must take place through, and with the endorsement of, the national Delegate to the OIE). “

Progress made on the implementation of the “Nouméa Recommendations” through the OIE and through Member Countries was presented to the meeting. As of October 2006, 10 countries in the Asia-Pacific region had nominated an aquatic national focal point. Those focal points could obtain access to WAHIS for online reporting once it is operational.

### **Recommendation**

- The AG appreciated the role played by NACA in working with the fisheries authorities towards helping member countries to send comments to reports of AAHSC and in the nomination of aquatic national focal points. The AG recommended that NACA continues working in this direction and facilitates implementation of “Nouméa OIE recommendations” in the region.

### **4.3 Revision of the Technical Guidelines<sup>4</sup>, Manual of Procedures<sup>5</sup> and Asia Diagnostic Guide for Aquatic Animal Diseases<sup>6</sup> as required**

#### **4.3.1 “What does the OIE Aquatic Animal Health Standards Commission expect from OIE Member Countries?”**

The President of the AAHSC presented to the AG the scope and process of development of OIE standards (*Aquatic Code* and *Manual*). Emphasis was placed on the consultative and democratic process that ensures the standards’ accuracy and consensus. It was explained that the process of consultation flows from the AAHSC (who – often with the help of experts – produces draft documents) to the OIE Member Country Delegates who then submit their country’s consolidated comments to the OIE Central Bureau, for consideration at the AAHSC’s next meeting. This process may be reiterated until consensus is built and the draft adopted at the OIE’s General Session..

The President of the AAHSC highlighted that, unfortunately, only few countries consistently provide comments on draft OIE aquatic standards.

### **Recommendations**

- The AG recommended to:
  - Raise awareness about aquatic animal health and the relevance of OIE standards among member governments
  - Stimulate further the submission of comments on aquatic diseases.
  - Strengthen the links between NCs and the OIE Aquatic Focal Point within countries

#### **4.3.2 Revision of the Technical Guidelines and Manual of Procedures**

The need for revision of the TG and Manual of Procedures was discussed in detail. The AG members felt that these two documents are very broad and cover all the aspects required for responsible movement of live fish and saw no need for revision at this time. In addition, the AG felt that the outputs of the FAO expert consultation for developing internationally agreed guidelines for responsible movement of live aquatic organisms would cover many of the issues.

#### **4.3.3 Development of detailed plan of action for ADG revision**

The AG recognized that ADG has been very useful in the region in supporting disease diagnosis and surveillance. The need for updating the ADG was agreed at AGM4. The AG was informed that funds are now available from FAO to undertake the revision exercise. The current proposal of FAO and NACA on revising ADG was presented to the AG. Key elements of the revision proposal include the following:

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<sup>4</sup> Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing consensus and Implementation strategy, 2000. FAO/NACA. Fisheries Technical Paper No 402

<sup>5</sup> FAO/NACA. 2001. Manual of Procedures for the Implementation of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals. *FAO Fisheries Technical Paper*, No. 402, Suppl. 1. FAO, Rome. 2001. 106 p.

<sup>6</sup> Bondad-Reantaso, MG, McGladdery SE, East, I and Subasinghe, RP. (Eds.). Asia Diagnostic Guide to Aquatic Animal Diseases. *FAO Fisheries Technical Paper*, No. 402, Suppl. 2. FAO, Rome. 2001. 236 p.

- The list of diseases will be updated using recent OIE and QAAD list and will be global in scope
- The template will be improved to include available information relevant to supporting pathogen risk analysis (information particularly needed when doing the risk assessment part (i.e., release assessment, exposure assessment and consequence assessment) and risk management measures.
- Individual disease chapters will be developed by an invited author convener who will be responsible for forming a team of experts that will develop the individual chapters.
- FAO will publish the document as an FAO (+ partners') publication.
- Editors will remain the same plus additional one from NACA.

### ***Recommendations***

- The AG appreciated the funding support extended by FAO for ADG revision and requested NACA to work closely with FAO to undertake the revision of the document.
- Considering the several issues involved with the revision, the AG suggested that a scoping document detailing the extent of revision should be developed by the editors as a concept to AG to be considered by the AG out of session.
- The AG suggested that as far as possible the author conveners should be the RRE as part of regional capacity building activities.
- In view of the importance of Chinese aquaculture, the AG requested FAO to consider the translation of the ADG at least to Chinese, in addition to other regional and FAO official languages.

#### 4.3.3 Discussions on plan of action for updating AAPQIS database and agree on new formats and approach.

The current thinking of FAO and NACA on updating AAPQIS was presented to the AG. The inclusion of QAAD data in AAPQIS would be desirable. At present the QAAD information is available only in the form of PDF files available for download from the NACA website and is not in a searchable format. The inclusion of QAAD data into AAPQIS would increase the searchability of the QAAD database.

The AG was also informed that the AAPQIS in the present form is exclusively an information database on pathogens and has nearly complete information on about 30 pathogens of relevance to the region. The database at present does not have provision for uploading QAAD information. In addition, the regional and national AAPQIS databases have only home news pages and the central AAPQIS database is not diversified by region or country.

The AG was informed that FAO is also developing an online Fisheries Global Information System (FIGIS) aimed at connecting data from different FAO databases (including AAPQIS) therefore potentially allowing more in-depth data analysis.

The AG was informed of the fact that the QAAD data – as submitted by OIE Member Countries - are hosted in a searchable format by the OIE regional office in Tokyo. QAAD data are also included in the searchable OIE Collaborating Centre for Information on Aquatic Diseases database.

### ***Recommendations***

- The AG suggested that as an interim action, missing information, particularly photos of those diseases listed in the ADG should be updated
- Regional (North America, Africa, Latin America) and national (India, Indonesia) AAPQIS should be revisited and decisions as to what needs to be done to make them useful to the target regions/countries assessed.

- While undertaking restructuring of AAPQIS, considerations should be given to update the database to conform with the design of FIGIS
- The AG welcomed the proposal of FAO to hold the Regional Workshop on AAPQIS and Information Needs for Aquatic Animal Biosecurity as a back to back activity with the AADCP-RPS ASEAN project policy workshop in Philippines (February 2007)
- Considering the complexities of updating the AAPQIS database (e.g. open community approach, use of National focal points, sensitive issues surrounding the use of maps, etc), it was suggested that the approach to be used for updating should be carefully thought about and the proposed FAO information and AAPQIS workshop should be used to define the approach and identify responsibilities
- The AG appreciated the proposed support from FAO to upgrade the AAPQIS and recommended that NACA work closely with FAO in implementing some of the above recommendations
- The AG recognized and supported the needs of FAO and NACA to perform data analysis which is currently not possible through the OIE databases and that would respond to FAO and NACA's needs
- The AG recommended that NACA in collaboration with FAO institute a short term project aimed at developing a framework for analyzing available data on aquatic animal diseases (e.g. QAAD, AAPQIS etc) and report back on the outcomes of the analysis to the next AGM
- Considering that QAAD data are already available in searchable databases hosted by the OIE Tokyo Office and CEFAS and that the WAHIS and WAHID of OIE would become very comprehensive in near future, the AG recommended FAO and NACA to negotiate an agreement with OIE to access the data from the OIE sources, so that re-entering the QAAD data into the AAPQIS database could be avoided

#### 4.3.4 Progress made with the DAFF/NACA initiative to improve disease reporting and emergency preparedness in the Asia-Pacific region

The AG was presented a brief progress report on the DAFF/NACA initiative “to enhance regional capability to quickly and effectively respond to aquatic animal disease emergency incidents, through the development of coherent emergency disease plans and by enhancing the emergency management framework within the region”. The proposed cooperation consists of different activities including modification of the *Aquatic Animal Diseases Significant to Australia: Identification Field Guide* to become a Asia-Pacific regional field guide. The meeting was informed that the purpose of the field guide is to provide information to support level I field diagnosis of all the diseases listed in the 2006 QAAD. In addition, distribution maps and contact details of national coordinators to be approached in the event of disease emergencies are provided. The field guide when finished will be distributed to all the governments, national aquatic animal health networks and made available at the NACA website for free download. Countries will also be encouraged to translate the field guide to local languages

The AG appreciated the progress made with respect to the modification of Australian disease identification field guide. The AG welcomed the ongoing cooperation of the Australian Government Department of Agriculture, Fisheries and Forestry as being very useful to improve aquatic animal health management in the region.

#### **Recommendation**

- The AG recommended that NACA continue working closely with DAFF to modify the Australian disease identification field guide to become an Asia-Pacific regional disease identification field guide.



- The AG also recommended that NACA initiate actions to progress the other elements identified in the cooperation including modification of AQUAVETPLAN to become a regional resource

***Session 5: Identification and designation of regional aquatic animal health resources, including regional resource experts (RRE), Regional Reference Laboratories (RRL) and Regional Resource Centres (RRC)***

***5.1 Regional Resource Base***

The AG was informed of the progress made in the operation of the three tier regional resource base on aquatic animal health. The AG noted with appreciation the contributions of RREs and RRCs in developing disease cards, contributing to training programs, providing special technical assistance to member countries on a case by case basis. The AG highlighted the potential utility of the regional resource base in terms of assisting member countries in dealing with disease diagnosis and responding to disease emergencies. The AG recognized the fact that the regional resource base, specifically, the regional reference laboratory, can be established only for regional diseases not listed by OIE and for the benefit of the region. The AG discussed several approaches to make the best use of three tier regional resource base.

The AG was also informed that AAHRI of Thailand, one of NACA regional resource centre, has been recently recognized as ASEAN Aquatic Animal Health Centre (AAAHC) to support capacity building and harmonization efforts within ASEAN.

***Recommendations***

- Recognizing the potential for IMNV to spread in the region, the AG decided the need to identify RRL for IMNV. It was suggested that NACA should call for expression of interest from laboratories and place the applications received before the next AGM for final decision. Nominations are to be sought using a wide range of mechanisms including consultation with RREs
- Considering the potential utility of the regional resource base, the AG recommended that the number of RREs and RRCs be expanded;
- Considering the expertise available, it was suggested to utilize RREs to gather additional information on the non-OIE listed diseases in the QAAD
- The expertise of RREs should be harnessed to assist the AG in developing criteria for listing of diseases in regional QAAD
- The expertise available with the RREs should be used also to evaluate the list of emerging diseases and suggest their inclusion or otherwise for the consideration of the AG
- Due consideration should be given to including RRE while nominating members of the AG
- Regularly update the contact details of RRE including their email addresses

***5.2 Certification of aquatic health providers in the Asia-Pacific region***

The AG was informed about the background to the agenda item. Briefly, a meeting attended by 14 aquatic animal health experts on the above subject was held at Amaya Lake, Dambulla, Sri Lanka on 1 November 2005 at 7.00 PM to discuss certification of aquatic animal health providers in Asia. The meeting arose out of previous discussions on this issue and presentations made at DAAVI (25-28 October 2005) in Colombo. Following discussions, it was considered important to seek NACA approval for the concept and also to explore the potential for the Fish Health Section of the Asian Fisheries Society in driving the initiative as a project. The meeting agreed that a 'Concept Document' would be developed and submitted to NACA GC, Advisory Group and the Fish Health Society executive committee for discussion and endorsement.

The AG was informed that the NACA GC endorsed the concept of developing a Professional Standards Mechanism in order to certify aquatic animal health providers in the region. The Council suggested that the specifics of such a program, when developed should be presented to the GC for final approval.

The AG felt that it was a good initiative. In addition to health service providers, it could also benefit Vets practising aquatic animal medicine in the region. It was suggested that Criteria developed by AquaTT could be used as a model.

#### **Recommendation**

- Considering the importance of provision of quality aquatic animal health service to the farmers, the AG endorsed the concept and suggested NACA take appropriate steps in consultation with FHS of the AFS.

#### 5.3 Need for identifying RRL for IMNV

The need for identifying NACA RRL for IMNV was discussed in view of it being listed by OIE as under study. The meeting was informed that if the listing of IMN is adopted by the OIE International Committee in May 2007, reporting will become effective only in 2008. However, it is also possible that the listing of IMN will not be adopted in 2007, therefore the AG recommends the identification of a RRL for IMNV.

#### **Recommendation**

- Considering the above information, it was recommended that NACA proceed with the formal process of identifying NACA RRL for IMNV.

#### 5.4 Evaluation of applications received for RRL for white tail disease in *Macrobrachium rosenbergii* (MrNV and XSV)

The AG welcomed the application of Disease Laboratory of C.Abdul Hakeem College, Aquaculture Division, Department of Zoology, Tamil Nadu, INDIA submitted by Dr A.Sait Sahul Hameed for RRL for white tail disease in *Macrobrachium rosenbergii* (MrNV and XSV). The AG members reviewed the application and agreed that the laboratory has the required expertise and facilities to undertake the TOR of RRL. The AG observed that the application was incomplete and was not as per the format suggested in the TOR. To comply with formal processes the AG suggested that the laboratory be asked to submit full application, for circulation to the members, so that out of session decision could be taken regarding endorsement and approval.

It was also suggested that the Fish Disease Laboratory, Chinese Academy of Fishery Sciences, Zhejiang Institute of Freshwater, Zhejiang, China (Dr Dong Qian) may be invited to submit an application, should the application submitted by Dr Hameed fail to satisfy the requirements for RRL eligibility.

#### 5.5 Evaluation of applications received for RRC by the AG

The AG welcomed the application received from Dr I.S. Bright Singh, National Centre for Aquatic Animal Health, Cochin University of Science and Technology, Lake Side Campus, Fine Arts Avenue, Cochin-16, Kerala, India for RRCs and, following a review of the application, found that it met the requirements set for NACA RRC.

#### **Recommendation**

- The AG recommended that the application for RRCs be accepted by NACA and presented to the NACA Governing Council for endorsement and approval

#### 5.6 Progress on identification of OIE Reference Laboratory for KHVD and its relation with NACA RRL for KHV

The AG was informed on the progress made with identification of an OIE Reference Laboratory for KHVD. OIE has received one application, and the AAHSC was satisfied with the information provided on the laboratory and the designated expert. The Commission welcomed the application and encouraged Member Countries to submit further applications for review at its next meeting in March 2007.

#### ***Recommendation***

- To ensure continuation of diagnostic support in the transition period, the AG decided that the NACA RRL for KHV will continue to function until an OIE Reference Laboratory is formally accepted (anticipated in May 2007).
- Although it was decided at AGM1 that RRL would be identified only for non-OIE listed diseases, the AG decided that RRL for OIE listed diseases should continue to function unless at least one OIE Reference Laboratory is identified, after which the NACA RRL will cease to be considered a RRL.

#### 5.7 Capacity building activities of SEAFDEC

The AG was informed of the various capacity building activities of SEAFDEC and the new approaches presently being undertaken to ensure that the capacity building activities are more effective and useful to member countries. Capacity building and training activities carried out in the area of disease diagnosis and surveillance were recognized by the AG as very useful and relevant to the region. The AG appreciated the online aquatic animal health course being coordinated by the SEAFDEC since the last 5 years.

#### ***Recommendation***

- The AG recognized the benefits of the online, hands-on and on-site training programmes and recommended the identification of a mechanism to expand this activity through the involvement of RRE as mentors.
- The importance of on-site training programs was recognized as a mechanism to maximize the number of people benefiting from the training exercise and recommended that such on-site training be given more importance in future programme development
- The AG suggested that SEAFDEC and UPM develop a concept note for the development of an on-line MSc on aquatic animal health. This will be circulated to RRE for expressions of interest in taking part in this online programme.
- The AG appreciated the financial support provided by government of Vietnam through NAFIQAVID to Vietnam nationals to participate in the SEAFDEC training programmes. The AG urged other countries in the region to take similar approaches to build capacity in the field of aquatic animal health

### **Session 6: Regional and International Cooperation**

The AG was briefed of the various ongoing regional and international cooperation in regional aquatic animal health. The AG was pleased to note the excellent regional and international cooperation that had contributed to the development and implementation of the regional aquatic

animal health program in Asia. It was generally agreed that such cooperation should be further pursued, and the AG took note of various opportunities to further strengthen cooperation with regional and international bodies to support Asia in effective implementation of the regional aquatic animal health program.

#### *6.1 World Organisation for Animal Health (OIE)*

AG thanked the Director General of OIE for contributing to the regional aquatic animal health activities by supporting the participation of the President of OIE-AAHSC at the annual Advisory Group meetings. The AG thanked the President of OIE-AAHSC for the excellent contributions made to the meeting.

#### *6.2 OIE Regional Representation in Tokyo*

The AG was informed of the ongoing and future planned activities of OIE regional representation in Tokyo. The AG thanked the OIE Regional Representation in Tokyo for its continuing collaboration and cooperation in implementing the regional QAAD reporting system. The AG also appreciated the support and contributions of the OIE Asia-Pacific Regional Representation, in the form of supporting workshops, seminars and networking. OIE Regional office expressed its support to the countries in the Asia-Pacific region, the AG and NACA to strengthen the aquatic animal health program

#### *6.3 Food and Agriculture Organization (FAO)*

The meeting was informed that the FAO Expert consultation (Dambulla, Sri Lanka, November 2005) on “Technical Guidelines on Health Management for Responsible Movement of Live Aquatic Organisms” was successful with several positive outcomes. FAO proposes to improve the function of information system of aquatic animal diseases and would rely on AG on aquatic animal health matter as a unique mechanism to get feed back. FAO expressed the need to ensure funding support to regional resource centres to sustain their activities. FAO expressed its support to the AG and the NACA regional aquatic animal health program and emphasized its importance in coordinating aquatic animal health activities in the region. FAO welcomed the AG report of progress in implementation of the TG. The AG thanked FAO for its continuing support to NACA.

#### *6.4 Australian Centre for International Agricultural Research (ACIAR)*

The AG was informed of the continuing funding support provided by ACIAR for regional aquatic animal health projects in the region. The AG thanked the ACIAR for its continuing support

#### *6.5 AusAid*

The AG was informed of the 2 AADCP-RPS projects funded by AusAid. The AG thanked AusAid for its financial assistance to regional projects

#### *6.6 ISVEE/ISAAE*

Being informed of the aim and activities of the International Society of Aquatic Animal Epidemiology ([www.isaaepi.org](http://www.isaaepi.org)), the AG recommended that collaboration with ISAAE should be fostered to increase synergy in aquatic animal health management. It was decided that NACA should initiate this process by communicating with the ISAAE Steering Committee.

#### *6.7 Department of Agriculture, Fisheries and Forestry, (DAFF) Australia*

The AG recognized the continued contribution of DAFF to the regional aquatic animal health activities and appreciated the progress made in the recent DAFF/NACA initiative on emergency preparedness and response to aquatic animal diseases.

#### *6.8 Southeast Asian Fisheries Development Center (SEAFDEC)*

The meeting was informed of the various activities carried out by SEAFDEC in the area of aquatic animal health management capacity building in the ASEAN countries. The AG recognized the importance and value of collaboration and partnership with SEAFDEC in regional aquatic animal health management activities and thanked SEAFDEC for its support to regional health activities.

#### *6.9 Fish Health Section of the Asian Fisheries Society (FHS/AFS)*

The AG was informed of the ongoing collaboration of NACA with FHS. The AG appreciated the role played by NACA in regional aquatic animal health activities.

#### *6.10 Association of South East Asian Nations (ASEAN)*

The AG was informed of the progress made under the 2 AADCP-RPS projects that are being implemented in the ASEAN in cooperation with the ASEAN Secretariat. The AG recognized the value of strong partnership with ASEAN and advised NACA to further strengthen the cooperation.

#### *6.11 Private Sector*

Intervet representative and AG member offered to assist NACA in its aquatic animal health regional activities as a part of its commitment under the regional resource centre. The AG thanked Intervet for support and collaboration.

### **Session 7: Any other business**

#### 7.1 Any other business

The AG thanked NACA for the organisation of the 5<sup>th</sup> AGM.

#### 7.2 Review of the AG Terms of Reference

The meeting reviewed the Advisory Group Terms of Reference, and suggested one minor revision.

The first sentence in the TOR was revised to read “The terms of reference (TOR) of the Advisory Group are to provide advice to NACA on aquatic animal health issues, including [through] the following activities”. The revised TOR is provided as Annex G

The AG was informed that two new members will be appointed to the Advisory Group in 2007. The AG agreed to the suggestion that considerations may be given to Regional Resource Experts, while making nominations to AG membership.


#### 7.3 Date of next meeting

The meeting date for AGM-6 was fixed for November 2007. The NACA Secretariat will advise the final date in good time.

### **Session 8: Closing Session**

The draft report was adopted and the meeting closed.

## **Annex A:**

	<b>Asia Regional Advisory Group (AG) on Aquatic Animal Health</b> AGM-5, Bangkok, 22-24 November 2006
AGM5-D1	<b>Advisory Group Meeting Agenda</b>

***Wednesday, 22<sup>nd</sup> November: Morning session 0900-1200h***

### **Opening session**

- Welcome remarks (Dr Sena De Silva, Director General, NACA)
- Adoption of AGM-5 agenda
- Chair: Dr Supranee Chinabut
- Vice-Chair: Dr Eva-Maria Bernoth
- Election of Rapporteurs

### **Session 1: Progress since AGM-4 and expected outputs from AGM-5**

1.1 Progress report from NACA on progress since AGM-4 and expected outputs from AGM-5 – presentation by Dr CV Mohan, followed by short discussion session as required.

1.2 Outcomes from the OIE General Session (May 2006) and the Aquatic Animal Health Standards Commission meeting (October 2006) - presentation by Dr Eva-Maria Bernoth followed by discussion

1.3 Global issues of relevance to aquatic animal health management in the region-short presentation by FAO - Dr Rohana Subasinghe

### **Session 2: Review of Regional disease status**

2.1 Emerging Crustacean diseases (e.g. IMN, WTD, MSGS) in the region-presentation by Prof Tim Flegel followed by discussion

2.2 Status of emerging finfish diseases in the region (e.g. KHV, SVC, GCRV, Tilapia diseases, catfish viral diseases) – Short presentations by Intervet followed by discussions

2.3 Emerging mollusk diseases in the region – short presentation by Supranee followed by discussions

2.4 Lessons being learned from the introduction of *Penaeus vannamei* to the region – presentation by Dr Mohammed Shariff followed by discussion

***Wednesday, 22<sup>nd</sup> November: Afternoon Session 1330-1730***

### **Session 3: Review of QAAD Regional Reporting System**

3.1 Regional disease status and progress in regional reporting – presentation by CV Mohan

3.2 Way forward with regional reporting

- Views of the OIE Regional Representation for Asia-Pacific-short presentation by Dr Oketani
- Views of FAO-short presentation by Dr Rohana Subasinghe

3.3 Review of diseases listed in QAAD, revision of reporting form and instructions (group to consider changes made to the OIE list and diseases of regional concern) - *discussion session*

**Thursday, 23<sup>rd</sup> November: Morning session 0900-1200h**

#### **Session 4: Review and evaluate implementation of the Technical Guidelines**

Outcomes of the FAO Expert consultation (Dambulla, Sri Lanka, November 2005) on "Technical Guidelines on Health Management for Responsible Movement of Live Aquatic Organisms": - *short presentation by Dr Rohana Subasinghe*

#### **4.1 National Aquatic Animal Health Strategies**

4.1.1 Briefing on progress in implementation of the 'Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals' - Outcomes of Technical Missions to CLM - *short presentation by Dr CV Mohan followed by discussion*

4.1.2 Experiences from Vietnam and Iran in progressing the implementation of TG- *short presentation by Dr Flavio Corsin*

4.1.3 Evaluation of implementation of TG in each country by AG - *Discussion session.*

- Identifying criteria for assessing implementation
- Developing country specific recommendations

4.1.4 Implementation of two AADCP-RPS projects in ASEAN to support TG implementation-*short presentation by Dr CV Mohan followed by discussions*

4.1.5 Discussions on NACA's position - expressing opinion to governments and or institutions concerning bilateral or multilateral health related regulations with trading implications (e.g. SVC requirements in USA)

#### **4.2 Strengthening National Coordination and Communication**

4.2.1 Meeting of National Coordinators (sub regional meeting of ASEAN national coordinators under the AADCP-RPS projects)- *discussions by the AG*

4.2.2 Promoting cooperation between veterinary and Fisheries authorities

- Updates from Sri Lanka - *presentation by Dr Amarasekara*
- Outcomes of the OIE Global Conference on Aquatic Animal Health, 9-12 October 2006, Norway conference - *presentation by Dr Eva-Maria Bernoth*
- Progress on nomination of aquatic national focal points-*brief comments by Drs Eva-Maria Bernoth and CV Mohan*

#### **4.3 Revision of the Technical Guidelines<sup>7</sup>, Manual of Procedures<sup>8</sup> and Asia Diagnostic Guide for Aquatic Animal Diseases<sup>9</sup> as required;**

4.3.1 What does the OIE Aquatic Animal Health Standards Commission expect from OIE Member Countries? - *presentation by Dr Eva-Maria Bernoth*

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<sup>7</sup> Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing consensus and Implementation strategy, 2000. FAO/NACA. Fisheries Technical Paper No 402

<sup>8</sup> FAO/NACA. 2001. Manual of Procedures for the Implementation of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals. *FAO Fisheries Technical Paper*, No. 402, Suppl. 1. FAO, Rome. 2001. 106 p.

<sup>9</sup> Bondad-Reantaso, MG, McGladdery SE, East, I and Subasinghe, RP. (Eds.). Asia Diagnostic Guide to Aquatic Animal Diseases. *FAO Fisheries Technical Paper*, No. 402, Suppl. 2. FAO, Rome. 2001. 236 p.

#### 4.3.2 Development of detailed plan of action for ADG revision - Discussion to consider:

- Which diseases to include/delete in view of the recent OIE and QAAD list revisions
- template to be followed
- New chapters to be considered
- inclusion of disease cards
- Chapters to be contributed by group of authors
- Resources
- Process, protocol and timeline

#### 4.3.3 Discussions on plan of action for updating AAPQIS database and agree on new formats and approach.

- Proposed to update, possibly with “core” features (data sheets) surrounded by more open “community” approach
- use of RSS feeds for automatic update, better links to yahoo and other maps, tagging of quarterly reporting data to allow easier/automatic updating
- Funds for updating.

#### 4.3.4 Progress made with the DAFF/NACA initiative to improve disease reporting and emergency preparedness in the Asia-Pacific region – *presentation followed by discussion*

*Thursday, 23<sup>rd</sup> November: Afternoon session 1330-1730h*

#### **Session 5: Identification and designation of regional aquatic animal health resources, including regional resource experts (RRE), Regional Reference Laboratories (RRL) and Regional Resource Centres (RRC)**

##### 5.1 Short briefing on the progress in the operation and utility of three tier regional resource base – *brief presentation by CV Mohan followed by discussion*

##### 5.2 Discussions to identify practical approaches to make the three tier regional resource base more useful to the region- *discussion by the AG*

##### 5.3 Certification of aquatic health providers in the Asia-Pacific region-*presentation followed by discussions*

##### 5.3 Need for identifying RRL for IMNV

##### 5.4 Evaluation of applications received for RRL for white tail disease in *Macrobrachium rosenbergii* (MrNV and XSV) -*by the AG*

##### 5.5 Evaluation of applications received for RRC by the AG

##### 5.6 Progress on OIE reference laboratory for KHV and its relation with NACA RRL for KHV-*discussion*

##### 5.7 Capacity building activities of SEAFDEC and ways to implement an organized capacity building approach in the region- *brief presentation by SEAFDEC*

#### **Session 6: Regional and International Cooperation**

- Office International des Epizooties (OIE) (World Animal Health Organization)
- Food and Agricultural Organization of the United Nations (FAO)



- Department of Agriculture, Fisheries and Forestry (DAFF), Australia
- Southeast Asian Fisheries Development Center (SEAFDEC)
- Permanent Advisory Network for Diseases in Aquaculture (PANDA)
- ACIAR
- AusAid
- ASEC
- ASEM platform
- Collaboration with FHS
- ISVEE
- Association of South East Asian Nations (ASEAN)
- Secretariat for the Pacific Community (SPC)
- Private sector

**Session 7: Any other business**

7.1 Any other business

7.2 Review of the AG Terms of Reference

7.3 Date of next meeting

***Friday, 24<sup>th</sup> November: Morning session 0900-1200h***


- Free/Draft report preparation

*Friday, 24<sup>th</sup> November: Afternoon session 1400-1700h*

**Session 8: Closing Session**

- Adoption of the report and recommendations

## **Annex B**

	<i>Asia Regional Advisory Group (AG) on Aquatic Animal Health</i>  AGM-5, Bangkok, 22-24 November 2006	
AGM5-D3	<b>List of Participants</b>	
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## Annex C: Bacterial diseases of major economical importance in the Asia pacific region

Bacterial pathogen	Fish species	Country of isolation*
<i>Streptococcus iniae</i> ( <i>Streptococcosis</i> )	Asian sea bass ( <i>Lates calcarifer</i> ) Threadfin ( <i>Eutheronema tetradactylus</i> ) Pompano ( <i>Trachinotus blochii</i> ) Sea bream ( <i>Sparus</i> sp.) /yellow croaker ( <i>Pseudosciaena crocea</i> ) Snappers ( <i>Lutjanus</i> sp.) Groupers ( <i>Epinephelus</i> sp.) Yellowtail/Amberjack ( <i>Seriola</i> sp) Japanese Flounder ( <i>Paralichthys olivaceous</i> ) Tilapia ( <i>Oreochromis</i> sp.) Catfish ( <i>Ictalurus punctatus</i> ), blue fish (??)	MY, SG, ID, TH, AU, CN MY, SG MY, CN CN MY, CN CN, MY JP/CN JP, KO PH, ID, CN, VN, EQ, CN
<i>S. agalactiae</i>	Tilapia ( <i>Oreochromis</i> sp) Catfish ( <i>Ictalurus punctatus</i> )	ID, MY, SG, TH, PH, CN, others <sup>1</sup> CN
<i>S. parauberis</i>	Japanese flounder ( <i>Paralichthys olivaceous</i> )	KO
<i>Tenacibaculum maritimum</i> ( <i>Marine Flexibacteriosis</i> )	Asian sea bass ( <i>Lates calcarifer</i> ) Pompano ( <i>Pampus argenteus</i> ) Sea bream ( <i>Sparus</i> sp.) /yellow croaker ( <i>Pseudosciaena crocea</i> ) Snappers ( <i>Lutjanus</i> sp.) Groupers ( <i>Epinephelus</i> sp.) Yellowtail/Amberjack ( <i>Seriola</i> sp) Japanese Flounder ( <i>Paralichthys olivaceous</i> ) Red Drum ( <i>Sciaenops ocellatus</i> ), turbot ( <i>Scophthalmus maximus</i> )	MY, SG, ID, CN MY, CN CN CN, MY CN, SG, ID, MY SG (JP) KO CN
<i>Nocardia seriolae</i> ( <i>Nocardiosis</i> )	Pompano ( <i>Trachinotus blochii</i> ) Threadfin ( <i>Eutheronema tetradactylus</i> ) Trevally ( <i>Caranx sexfasciatus</i> ) Snapper ( <i>Lutjanus</i> sp.) Tilapia ( <i>Oreochromis</i> sp) Yellowtail/Amberjack ( <i>Seriola</i> sp) /J. Flounder ( <i>Paralichthys olivaceous</i> ) Wild fish Grouper ( <i>Epinephelus</i> sp.)	MY, CN, SG MY, CN, SG MY MY, CN, SG ID JP MY CN
<i>Flavobacterium columnare</i> ( <i>Flexibacteriosis</i> )	Common carp ( <i>Cyprinus carpio</i> ) Japanese/ European eel ( <i>Anguilla</i> sp.) Tilapia ( <i>Oreochromis</i> sp) Koi Carp ( <i>Cyprinus carpio</i> )	ID CN ID, VN, CN, MY ID, SG
<i>Lactococcus garvieae</i>	Yellowtail/Amberjack ( <i>Seriola</i> sp)	JP
<i>Vibrio anguillarum</i> O1	Yellowtail/Amberjack ( <i>Seriola</i> sp) Turbot ( <i>Scophthalmus maximus</i> )	JP CN
<i>Aeromonas. salmonicida</i> subsp <i>salmonicida</i>	Turbot ( <i>Scophthalmus maximus</i> )	CN
<i>Edwardsiella. tarda</i>	Red Sea bream ( <i>Pagrus major</i> ) Japanese/European Eel ( <i>Anguilla</i> sp.) Japanese Flounder/turbot ( <i>Paralichthys olivaceous, Scophthalmus maximus</i> ) Catfish	JP JP, CN CN ID
<i>Edwardsiella. ictaluri</i>	Channel catfish ( <i>Ictalurus punctatus</i> ) Tra /Basa catfish ( <i>Pangasius</i> sp)	CN VN
<b>Emerging bacterial diseases of potential economical importance in the Asia pacific region</b>		
<i>Photobacterium damsela</i> subsp. <i>piscicida</i>	Pompano ( <i>Trachinotus blochii</i> ) , Black sea bass Black sea bream ( <i>Acanthopagrus schlegeli</i> )	CN
Big Belly ( <i>Vibrio</i> sp.)	Sea bass ( <i>Lates calcarifer</i> )	ID, SG, MY
<i>Francisella</i> sp.	Tilapia ( <i>Oreochromis</i> sp)	ID

\*MY: Malaysia, SG: Singapore, ID: Indonesia, TH: Thailand, AU: Australia, CN: China, JP: Japan, KO: Korea, PH: Philippines, VN: Vietnam, HO: Honduras, EQ: Ecuador, NL: Netherlands

<sup>1</sup> Also found in EQ, HO, NL

**Annex D: List of diseases in the 9th Edition of the 2006 Aquatic Code**

The following diseases of fish are listed by the OIE: Article 1.2.3.1

1. Epizootic haematopoietic necrosis
2. Infectious haematopoietic necrosis
3. Spring viraemia of carp
4. Viral haemorrhagic septicaemia
5. Infectious salmon anaemia
6. Epizootic ulcerative syndrome
7. Gyrodactylosis (*Gyrodactylus salaris*)
8. Red sea bream iridoviral disease
9. Koi herpesvirus disease

The following diseases of molluscs are listed by the OIE: Article 1.2.3.2.

1. Infection with *Bonamia ostreae*
2. Infection with *Bonamia exitiosa*
3. Infection with *Marteilia refringens*
4. Infection with *Perkinsus marinus*
5. Infection with *Perkinsus olseni*
6. Infection with *Xenohaliotis californiensis*
7. Abalone viral mortality

The following diseases of crustaceans are listed by the OIE: Article 1.2.3.3.

1. Taura syndrome
2. White spot disease
3. Yellowhead disease
4. Tetrahedral baculovirosis (*Baculovirus penaei*)
5. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)
6. Infectious hypodermal and haematopoietic necrosis
7. Crayfish plague (*Aphanomyces astaci*)
8. Necrotising hepatopancreatitis<sup>1</sup>
9. Infectious myonecrosis<sup>1</sup>

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<sup>1</sup> Listing of this disease is under study.

**Annex E**

**List of Diseases in the Asia-Pacific**  
**Quarterly Aquatic Animal Disease Report (Beginning 2007)**

1. DISEASES PREVALENT IN THE REGION	
<b>1.1 FINFISH DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Epizootic haematopoietic necrosis	1. Epitheliocystis
2. Infectious haematopoietic necrosis	2. Grouper iridoviral disease
3. Spring viraemia of carp	3. Viral encephalopathy and retinopathy
4. Viral haemorrhagic septicaemia	4. Enteric septicaemia of catfish
5. Epizootic ulcerative syndrome	5. Bacterial kidney disease
6. Red seabream iridoviral disease	6. Infectious pancreatic necrosis
7. Infection with koi herpesvirus	
<b>1.2 MOLLUSC DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Infection with <i>Bonamia exitiosa</i>	1. Infection with <i>Marteilia sydneyi</i>
2. Infection with <i>Perkinsus olseni</i>	2. Infection with <i>Marteilioides chungmuensis</i>
3. Abalone viral mortality	
<b>1.3 CRUSTACEAN DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Taura syndrome	1. Infectious myonecrosis
2. White spot disease	2. Baculoviral midgut gland necrosis
3. Yellowhead disease (YH virus, gill-associated virus)	3. White tail disease (MrNV and XSV)
4. Spherical baculovirus ( <i>Penaeus monodon</i> -type baculovirus)	
5. Infectious hypodermal and haematopoietic necrosis	
6. Tetrahedral baculovirus ( <i>Baculovirus penaei</i> )	
<b>1.4 UNKNOWN DISEASES OF A SERIOUS NATURE</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
	1. Akoya oyster disease
<b>2. DISEASES PRESUMED EXOTIC TO THE REGION</b>	
<b>2.1 Finfish</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Infectious salmon anaemia	1. Channel catfish virus disease
2. Gyrodactylosis ( <i>Gyrodactylus salaris</i> )	2. Piscirickettsiosis
<b>2.2 Molluscs</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Infection with <i>Bonamia ostreae</i>	1. Infection with <i>Mikrocytos mackini</i>
2. Infection with <i>Marteilia refringens</i>	
3. Infection with <i>Perkinsus marinus</i>	
4. Infection with <i>Xenohaliotis californiensis</i>	
<b>2.3 Crustaceans</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Crayfish plague ( <i>Aphanomyces astaci</i> )	1. Necrotising hepatopancreatitis

**Annex F: List of emerging pathogens/diseases in the region**

A. Crustacean pathogens/diseases/syndromes

1. Tegumental Gland Associated Virus (TGAV)
2. Laem Singh Virus (LSNV)
3. Monodon Slow Growth Syndrome (MSGS)
4. Bamboo Shrimp Syndrome

B. Finfish pathogens/diseases/syndromes

1. *Streptococcus iniae*
2. *Streptococcus agalactiae*
3. *Edwardsiella tarda*
4. *Nocardia seriolae*
5. *Tenacibaculum maritimum*
6. *Flavobacterium columnare*
7. *Francisella* sp
8. Big belly syndrome
9. Loss of mucus and septicemia syndrome



## **Annex G: Terms of Reference for the AG**

The terms of reference (TOR) of the Advisory Group are to provide advice to NACA on aquatic animal health issues, including the following activities:

- Review and evaluate quarterly regional aquatic animal disease reporting;
- Evaluate progress made on implementation of the *Technical Guidelines*;
- Revise *Technical Guidelines*<sup>10</sup>, *Manual of Procedures*<sup>11</sup> and *Asia Diagnostic Guide for Aquatic Animal Diseases*<sup>12</sup> as required;
- Develop procedures for advising on Technical Guidelines implementation;
- Advise in identification and designation of regional aquatic animal health resources, as Regional Resource Experts, Regional Resource Centres and Regional Reference Laboratories
- 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, harmonisation and standardisation of diagnostics and health management procedures
2	Quarantine and health certification
3	Regional Centres, research needs, training and capacity building, etc.
4	Trade related issues of aquatic animal health, international treaties, agreements, etc.
5	Information systems, surveillance and reporting
6	Private sector involvement including knowledge on contingency planning and early warning, etc.
7	Representing the OIE Regional Representation for the Asia-Pacific
8	Representing the OIE Aquatic Animal Health Standards Commission
9	Representing FAO Fisheries Department
10	NACA Regional Aquatic Animal Health Specialist - as Technical Secretary

<sup>10</sup> Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing consensus and Implementation strategy, 2000. FAO/NACA, Fisheries Technical Paper No 402

<sup>11</sup> FAO/NACA. 2001. Manual of Procedures for the Implementation of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals. *FAO Fisheries Technical Paper*, No. 402, Suppl. 1. FAO, Rome. 2001. 106 p.

<sup>12</sup> Bondad-Reantaso, MG, McGladdery SE, East, I and Subasinghe, RP. (Eds.). *Asia Diagnostic Guide to Aquatic Animal Diseases*. *FAO Fisheries Technical Paper*, No. 402, Suppl. 2. FAO, Rome. 2001. 236 p.

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 a 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 the 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.