

# Response Actions to AAD Emergencies in Asian-Pacific

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Jie HUANG: Response Actions to AAD Emergencies in Asia-Pacific,  
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# Questions for discussion

- ❑ What is the role/mandate of your institution and relevant structure in place for dealing with aquatic mass mortality events (MME)
- ❑ Example of an MME that you have been involved. Describe the specific MME scenario (the central issue/problem investigated/examined)
- ❑ Describe the response actions taken and the outcomes / findings / conclusions / any follow-up work
- ❑ Describe the implications of (3) in terms of effectiveness, cost
- ❑ Describe lessons learned and improvements
- ❑ In your opinion, what are the 5 minimum emergency preparedness response requirements that need to be in place?

# Roles of NACA dealing with aquatic MME

- ❑ Maintain close relationship on AAH with
  - FAO and OIE
  - NACA Member governments
- ❑ Establish regional AAH forces
  - Advisory Group for AAH was established to include about 10 experts with public-private participation and FAO/OIE cooperation
  - Annual AGMs have been organized on a self-founding basis for 18 years
- ❑ Build regional AAH capacity
  - Australia/NACA regional proficiency testing programs
  - Regional training courses for AAH
  - Regional Reference Laboratories (RRL), Regional Resource Centres (RRC), and Regional Resource Experts (RRE) were designated
- ❑ Networking regional AAH resources
  - It's considered to develop regional sub-networks for specific subjects. Resources for response to AAD emergencies is a important subject
- ❑ Early warn for AAD Emergency
  - IMNV was early warned through NACA website and newsletter
- ❑ Maintain a regional AAD reporting system
  - A regional AAD list: annual updated
  - Establish and maintain QAAD Report
- ❑ Publish regional technological guidance
  - Disease Card for emerging AADs
  - Regional FAO/NACA diagnostic manual for AADs
- ❑ Share information for emerging AADs
  - NACA website sharing of diagnostic and preventing information: AHPND, EHP, etc.
- ❑ Coordinate cooperation projects for Aquatic MME
  - FAO/NACA/Indonesia Project on emergency response for KHV (TCP/INS/2905) (2002)
  - ASEAN/SEAFDEC/DOF/NACA/ANAAHC/JAIF: Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreaks in Southeast Asia
- ❑ Organize regional consultation workshops
  - Austrilia/NACA regional consultation workshop for AHPND (2013)
  - NACA/China regional consultation workshop and training courses for TiLV



# Examples of response action to MMEs involved: WSD in China

## □ First outbreak of WSD in Shandong in 1993

- The central issue investigated
  - ✓ Unknown MMEs were reported to local government
  - ✓ AHG of experts was convened to visit farms with MMEs
  - ✓ Farm practices, disease process, & gross signs were surveyed
  - ✓ Sample were token in DAFA and TEM fixative and frost
- Response actions, outcomes, and follow-up
  - ✓ Gross signs defined: white spots, no hemolymph clotting
  - ✓ Histo- and cyto- pathology, bioassay were done in laboratory
  - ✓ Infection with a new virus (HHNBV, ie WSSV) were identified
  - ✓ Diagnostic methods were developed: histopathology, on-site observation of wet-mount with T-E staining, ELISA with MAb
  - ✓ A national emerging consultation workshop were organized and Finding of the new virus were announced in the workshop
- Implications in terms of effectiveness
  - ✓ Competent scientist was identified among many voices
  - ✓ Identification of emerging pathogen
  - ✓ Establishment of basic diagnostic methods

## □ Outbreak of WSD in Zhejiang in 1994

- The central issue investigated
  - ✓ Unknown MME was reported to central government
  - ✓ The National Advisory Group for Shrimp Farming was convened
  - ✓ Competent scientist was invited in the group
  - ✓ Routine surveys were launched
  - ✓ Farmed shrimp in diseased ponds and row feed of net-captured wild crustaceans were collected as samples
- Response actions, outcomes, and follow-up
  - ✓ Samples were analyzed on site with T-E staining and MAb-ELISA
  - ✓ Gross signs, clinical pathology with T-E staining, and MAb-ELISA were identical with that of the infection with new virus
  - ✓ The pathogen were detected in the row feed by MAb-ELISA
  - ✓ MOA issued an official announcement based the on-site results to ban using of wild crustaceans as row feed
  - ✓ A national emergency project for control measures were funded
- Implications in terms of effectiveness
  - ✓ An important transmission route was found
  - ✓ One of important control measures were recommended with scientific basis
  - ✓ Total loss caused by WSD began reducing since the next year

# Examples of response action to MMEs involved: AHPND in Asia

## □ First occurrence in China in 2010

- The central issue investigated
  - ✓ MMEs were reported in China in June 2010.
  - ✓ Samples were collected from diseased farms (Zhang et al., 2012)
  - ✓ More investigations were conducted by Chinese scientists
- Response actions, outcomes, and follow-up
  - ✓ A high virulent *V. parahaemolyticus* was identified and reported (Zhang et al., 2012). There were other groups informally declared *V. p.* as the pathogen
  - ✓ Some scientists argue that the disease was caused by multiple opportunistic bacteria
- Implications in terms of effectiveness
  - ✓ AHPND was not officially recognized in China due to argument among scientists
  - ✓ AHPND has not been involved in national target surveillance program for AAD
  - ✓ AHPND is managed indiscriminately with other opportunistic diseases in China

## □ First occurrence in Vietnam in 2010

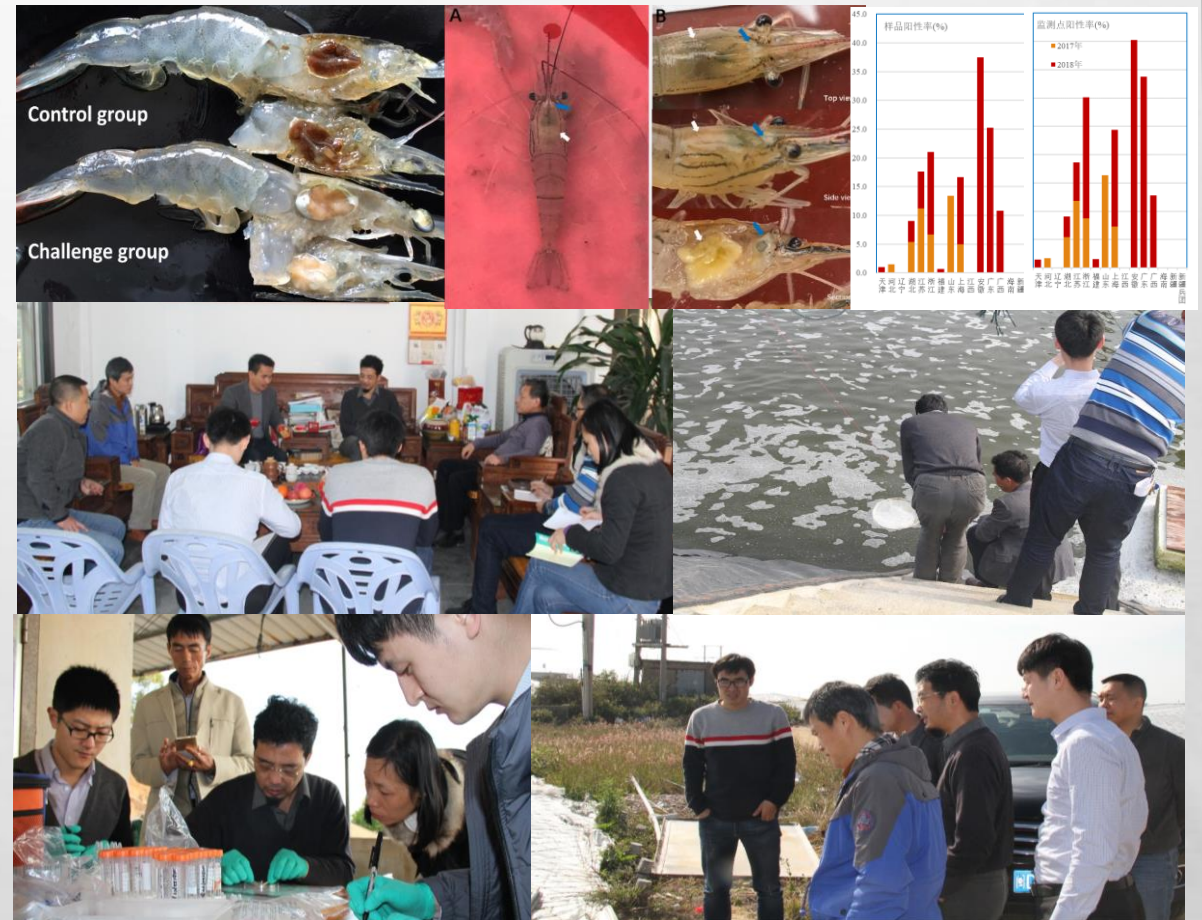
- The central issue investigated
  - ✓ MMEs was found in 2010 and posted in June 2011
  - ✓ Disease spread to Malaysia (2011), Thailand (2012) and the Philippines (2014)
  - ✓ Samples were collected in Vietnam in Dec 2012, Bacterial isolates were analyzed in USA (Tran et al., 2013)
- Response actions, outcomes, and follow-up
  - ✓ Emergency Regional Consultation was held in Bangkok organized by Australia/NACA in Aug 2012. Definition and gross signs were identified
  - ✓ *V. p.* was identified as the causative agent (Tran et al., 2013)
  - ✓ FAO/MARD Consultations (TCP/VIE/3304) was held in Hanoi in June 2013. The causative agent was confirmed, control measures were recommended
- Implications in terms of effectiveness
  - ✓ AHPND definition and causative agent were confirmed. AHPND was reported by countries
  - ✓ Vietnam has briefly recovered from AHPND and exportation of farmed shrimp increased



# Examples of response action to MMEs involved: infection with Decapod iridescent virus 1 (DIV1)

## □ iDIV1 in Asia

- The central issue investigated
  - ✓ CQIV was found in market crayfish in 2014 (Xu et al., 2016)
  - ✓ SHIV was found in *P. v.* with unknown mortality in 2014 (Qiu et al., 2017)
  - ✓ MME in the end of 2016 were reported
  - ✓ AHG visited diseased farms for sampling and investigation
- Response actions, outcomes, and follow-up
  - ✓ DIV1 was detected in diseased samples
  - ✓ Genome sequences of CQIV and SHIV showed >99% identical
  - ✓ National Target Surveillance Program has covered the disease since 2017
  - ✓ DIV1 were detected in farmed and wild shrimp in other countries but not reported officially
- Implications in terms of effectiveness
  - ✓ NACA has listed CQIV as a regional disease for QAAD
  - ✓ China transparently launched national response action to iDIV1
  - ✓ ICTV has accepted the new virus and new genus, named as DIV1
  - ✓ OIE and NACA prepared Disease Card, OIE is assessing for listing
  - ✓ Farms in other countries with iDIV1 may be under unknown risks due to lack of transparency



# Lessons learned and improvements

- ❑ A rapid response approach to MMEs in AAHS should be established
  - An AAHS coordinator (Disease Control Centre for Aquatic Animals) can enhance the linkage among competent authority – experts – Licensed Veterinarian – farmers in response to MMEs
- ❑ Encouragements and supports should be given to key contributors, who can
  - Immediately report MME
  - Rapidly response to the report of MME
  - Early identify the causative agent for the MME
  - Effectively recommend response measures to the MME
- ❑ The decision maker should respect the expertise which can identify the causative agent on sufficient scientific basis and provide support for practical actions
  - A hidden truth is often revealed by the discerning few
  - Identification of causative agent cannot base on votes but only scientific evidences
- ❑ Decisions for response actions can be improved
  - Actions should be considered to reduce or eliminate risks of disease spread
  - Scenarios of preparedness for response actions can be presumed under different biosecurity levels
  - Farmer's right and benefit need to be taken into account in the action
  - Recyclable and eco-friendly treatment of diseased aquatic animals can be improved



# Five minimum emergency preparedness response requirements

- ❑ A responsible and ascendable decision-maker
- ❑ A rapid response approach in AAHS with a central coordinator (Disease Control Centre for Aquatic Animals)
- ❑ A competent expertise resource or a network which can provide the resource
- ❑ An encouraging policy for the key contributor responding to MME
- ❑ A set of preparedness of emergency response for scenarios under different biosecurity risks



# Thanks for attention!

NACA welcomes your cooperation

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