

Aquaculture Health Programme
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NACA's Regional Aquatic Animal Health Programme-Model for regional cooperation in Africa

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Aquaculture Trends

- Increasing intensification
 - **more** disease outbreaks and disease emergencies
- Continued diversification of species
 - **Increased risk** of introduction and spread of pathogens (Trans-boundary pathogens)
- Continued diversification of farming systems
 - **Potential for spread** of pathogens to wider geographical areas
- Economic and social cost of disease is enormous (e.g. One billion \$ annual loss in China)

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Serious diseases in Asia

- Fish
 - Epizootic ulcerative syndrome
 - koi herpes virus disease
 - Viral nervous necrosis
 - Grouper iridoviral disease
- Shrimp
 - White spot disease
 - **Taura syndrome**
 - IMNV
- Prawn
 - White tail disease (MrNV)
- Lobster
 - Milky lobster disease
- Mollusc
 - Abalone viral mortality



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Some Emerging Diseases in Asia

- Crustaceans
 - Monodon Slow growth syndrome (MSGS)- 4 countries
 - tegumental gland associated virus (TGAV) ??
 - Loose Shell syndrome in *P.monodon*
 - bamboo shrimp syndrome in *P.vannamei*
- Finfish
 - *Edwardsiella tarda* in marine species
 - BB" or big belly (new *Vibrio* species??)
 - *Streptococcus dysgalactiae*
 - *Streptococcus iniae* in marine and also freshwater species
 - *Tenacibaculum maritimum* in marine species
 - *Francisella* sp in Tilapia in Indonesia
 - Streptococcal diseases in freshwater species
 - Red spot disease in grass carp (GCRV)
 - Red spot disease in Tilapia??
- Mollusk
 - Babylonia Mortality
 - Ganglioneuritis in abalone



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Challenges facing Asian Aquaculture

- Establishing practical national disease control programs
 - **Need for increased Government investment** in diagnosis, capacity building, surveillance and reporting, quarantine, import risk analysis, etc
- Responding to increasing influence of markets, trade and consumption
 - **Trade issues** on food safety grounds (e.g. antibiotics, malachite green)
 - Trade issues on account of presence of pathogens in live animals and their products (e.g. harvested shrimp)
 - Certification and traceability requirements
- Preparing for enhanced regulation and better governance
 - **Need for Better compliance** to International (OIE) standards and guidelines

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The underlying principles.....

- Aquaculture will diversify, expand and intensify and **disease risk will increase**
- Trade (movement of live animals and their products) will happen and **diseases will spread**
- Eliminating risk is impossible, so risk reduction should be the strategy
- Risk reduction = Health Management = Biosecurity
- Development and Implementation of strategies/tools/practices to manage risks is a **shared responsibility**

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What is NACA?

- Network of Aquaculture Centres in Asia-Pacific
- Intergovernmental organization
 - 18 member countries
- Promotes rural development through sustainable aquaculture
- NACA members produce more than 86% of world aquaculture production by volume
- Members are:
 - Australia, Bangladesh, Cambodia, China, Hong Kong SAR, India, Indonesia, IR Iran, DPR Korea, Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam

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About NACA

- Works on the principle of technical cooperation and collaboration
- Intention is sharing regional resources (e.g. technical expertise, information/knowledge, institution facilities) amongst network members
 - Governments
 - institutions
 - Individuals
- Works closely with regional (e.g. ASEAN, SEAFDEC) and international (e.g. OIE, FAO) organizations and donor agencies (e.g. AusAid, ACIAR, WB, ADB, DFID, EU)

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NACA Work Programs

- Aquatic Animal Health
- Genetics & Biodiversity
- Coastal Aquaculture
- Inland Aquaculture
- Food safety and Quality
- Emerging Global Issues
- Training
- Communications




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NACA's regional aquatic Animal Health Programme

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Purpose

Reduce risks of aquatic animal disease impacting on livelihoods of aquaculture farmers, national economies, trade and human health

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Expected outputs

1. Regional and international cooperation in aquatic animal health improved
2. Practical national strategies developed, adopted and implemented in member countries
3. Surveillance, reporting and response to disease emergencies in the region improved
4. Harmonized diagnostic procedures and approaches to risk assessment developed in the region
5. Widespread adoption of better aquatic animal health management practices in the region

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Output 1: Regional and international cooperation in aquatic animal health improved

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1a. Regional Agreements and Guidelines

- Asia Regional Technical Guidelines (TG) on Responsible Movement of live aquatic animals
 - FAO TCP “Assistance for the Responsible Movement of Live Aquatic animals (1997-2001)
 - Initiated in response to request from 15 NACA member countries
 - In cooperation with OIE Tokyo, OIE AAHSC, DAFF, AusAID, APEC, ASEAN
 - 21 governments participated



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1b. Asia Regional Technical Guidelines (TG) on Responsible movement of live aquatic animals

Three book covers are displayed: "Asia regional technical guidelines on health management for the responsible movement of live aquatic animals and the Beijing consensus and implementation strategy" (402), "Manual of procedures for the implementation of the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals" (402/1), and "Asia Diagnostic Guide to Aquatic Animal Diseases".

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1c. TG-Global Context

- Consistent with FAO code of conduct for responsible fisheries
- OIE Aquatic Code and Aquatic Manual
- ICES protocols
- Adopted by 21 countries in Asia-Pacific
- Adopted by ASWGF of the ASEAN
- Promoting implementation of TG is the main focus of NACA's health program

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1d. Asia Regional Advisory Group (AG) on Aquatic animal health

- 10 member expert group - (aquatic health experts, OIE Aquatic Animal Health Standards Commission, FAO, OIE Regional Representation for Asia-Pacific and NACA).
- AG meets annually, addresses several issues, including disease status in the region, implementation of health management strategies
- Revises the list of diseases for regional (QAAD) reporting system
- Advises Asian governments and NACA
- NACA facilitating annual Advisory Group meetings since 2002 (AGM8-in Bangkok in December 2009)
- Reports widely disseminated (www.enaca.org)

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1e. Sub-regional Agreements

- SOPs for health certification and quarantine Measures for the Responsible Movement of Live Food Finfish within ASEAN (2007)
 - AADCP-RPS project (NACA, ASEC, AusVet, ASEAN governments)
 - Participated by all 10 ASEAN countries
 - 2 policy workshops and 1 working group meeting
 - Final draft of SOPs completed in Feb 2007
 - Submitted to ASWGFi for follow-up
 - Will become an ASEAN policy document

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1f. Regional Field Guide

- Regional Field Guide as a collaborative activity between NACA and DAFF, Australia
 - All QAAD listed diseases included
 - Distribution maps provided
 - Level I diagnosis
 - CD format
 - Available for free download

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1g. Three tier Regional Resource Base

- Regional Resource Experts (40)
- Regional Resource Centres (7)
- Regional Reference Laboratory (1)
 - For KHV
 - For WTD
- Providing national agencies with assistance
 - diagnosis of key regional diseases
 - provide more generalized support
 - assist in emergency response to new disease outbreaks
 - act as contact centers for advice and capacity building

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Output 2: Practical national strategies developed, adopted and implemented in member countries

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2a. Status of TG Implementation in the Asia-Pacific region (21 Countries)

| Elements in TG | Progress made (Number of Countries) | | |
|--|-------------------------------------|----------|-----|
| | good | moderate | low |
| Disease diagnosis | 8 | 8 | 5 |
| Health certification and quarantine measures | 10 | 5 | 6 |
| Disease zoning | 3 | 3 | 15 |
| Disease surveillance and reporting | 6 | 9 | 6 |
| Contingency planning | 2 | 7 | 12 |
| Import risk analysis | 2 | 5 | 14 |
| National strategies and policy frameworks | 11 | 4 | 6 |

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2b. Regional Implementation (ASEAN)

- Strengthening aquatic animal health capacity and biosecurity in ASEAN – (October 2005-June 2007, AADCP-RPS Australia)
 - Development of harmonized approaches to aquatic animal health management and biosecurity in ASEAN
 - Improving capacity to implement ASEAN harmonized national aquatic animal health and biosecurity strategies
- Activities
 - 2 regional policy workshops (April 2006, May 2007)
 - 2 regional training programs (May 2006, Feb 2007)
 - 4 technical missions (Lao PDR, Cambodia, Myanmar and Vietnam)

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2c. Facilitating Technical Missions

- Technical Missions under ASEAN project to CLMV
- Framework for national strategy developed
- National priorities concerning aquatic animal health identified
- Tentative national aquatic animal health committee formed
- Draft National list of diseases developed
- Capacity (Laboratory and personnel) for national list of diseases evaluated
- Framework for passive surveillance developed
- Framework for contingency planning developed
- Project proposal for piloting surveillance developed
- Activities identified are such that they can be accomplished with existing resources and are sustainable

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Output 3: Harmonized diagnostic procedures and approaches to risk assessment developed in the region

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3a. Facilitating Research towards improved diagnostics

- Application of PCR for improved shrimp health management (Jan 2005- Dec 2007, ACIAR funded)
- A regional project (India, Thailand, Indonesia and Australia)
- CSIRO (Australia), Mahidol (Thailand), MPEDA, CIBA, COF (India) and NACA
- The project objectives:
 - To better understand the sources and transmission routes of WSSV infection in farmed shrimp (molecular epidemiology)
 - To better understand the contributions of viruses other than WSSV to stock losses and poor productivity during grow-out in shrimp ponds

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3b. Towards Harmonization (PCR inter-calibration)

- Inter-calibration exercise under the ACIAR regional project for service providing laboratories
- Partners (CSIRO-Australia, CIBA and MPEDA-India, NACA)
- 5 DNA+5 Tissue samples per lab
- India
 - I Voluntary WSSV PCR calibration exercise completed in June 2006 (37/49 labs returned results)
 - II PCR calibration in Feb 2007 (32/51 labs returned results)
 - PCR laboratory accreditation programme for India being developed
- Indonesia
 - I PCR calibration completed in Indonesia (33/34 labs returned the results)
 - II PCR inter calibration planned in August 2007
- Possibility of expanding the scope of the exercise-regionalization!!!

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3c. Capacity Building in Risk Analysis

- APEC funded project “Capacity and Awareness Building on Import Risk Analysis (IRA) for Aquatic Animals” was implemented by NACA during 2002-2004 in partnership with several regional and international organizations.
- Two training programs implemented
- Two publications brought out in 2004
 - Manual on risk analysis
 - Technical proceedings



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3d. Capacity Building towards better diagnostics

- Capacity Building of PCR service providing labs under the ACIAR funded regional project
- India
 - 2 PCR training workshops completed (Oct 2005, Oct 2006)
 - 26 persons trained (23 from India and 3 from the region)
- Indonesia
 - I PCR training workshop completed in August 2005 (personnel from 24 service providing labs trained)
 - II PCR training workshop planned in March 2007
- Master Class in aquatic pathology completed in Nov 2007

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3e. Capacity and awareness building of national authorities

- Two training programs for 20 ASEAN delegates (May 2006 and Feb 2007)
 - Epidemiology, sampling and surveys
 - Surveillance
 - Risk analysis
 - Contingency planning
- Two AAPQIS training programs
 - First training (13 April 2006, Bangkok)
 - Second Training (14 February 2007, Philippines)

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3f. Facilitating industry oriented training

- Regional Shrimp health management training (annual activity)
 - Collaboration with Private company
 - 5 days programme (August 2006)
 - 40 participants mainly from the industry
- Grouper hatchery training programme (annual activity)
 - 10 day programme (November 2006)
 - Health management component included
 - 30 participants mainly from the industry

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3g. Capacity Building in Epidemiology

- DFID/MRC/NACA funded Regional Aquatic Epidemiology Training (August 2005-April 2006)
 - Vietnam (10), Thailand (2) Cambodia (1) Laos PDR (1)
- National (Iran) aquatic epidemiology training (IFRO)
 - 14 participants
 - 4 day programme (September 2006)
- National aquatic epidemiology training planned in India in September 2007

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Output 4: Surveillance, reporting and response to disease emergencies in the region improved

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4a. Facilitating Disease Reporting

- International reporting to OIE
 - Emergency notification within 24 hours
 - Monthly status reported once in 6 months
 - Online reporting
- Asia-Pacific QAAD reporting
 - Monthly status reported once in 3 months

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4b. Asia-Pacific QAAD Reporting System

- Includes all OIE listed + diseases of regional concern (e.g. WTD, IMNV)
- KHVD and Abalone viral mortality now listed in OIE (9th edition of the Aquatic Code) were in the QAAD list since 2005
- First published in 3rd quarter of 1998
- 45 QAADs published till date
- The list of diseases revised annually by the Advisory Group
- Serves as an early warning system for emerging pathogens in the Asia-Pacific region
- 21 governments participate in QAAD reporting



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4c. Response to Disease Emergencies

- Utilizing the regional expertise to address disease emergencies
- Sharing of the knowledge and expertise through the NACA mechanism
 - Emergency technical mission to Indonesia in 2002, in the wake of KHV outbreaks
 - Emergency technical mission to Iran, in the wake of WSD outbreaks in Busher province in 2005
 - Emergency technical assistance to Indonesia in 2006, in the wake of IMNV outbreaks
 - Emergency technical assistance to Vietnam in 2007, in the wake of milky lobster disease

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4d. Capacity Building in disease reporting

- OIE-NACA workshop in March 2008 in Bangkok
- Aquatic focal points/national coordinators from 19 countries participated
- Training included OIE standards and obligations of member governments
- Hands on training in on-line reporting under the WAHIS system

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4e. Improving disease reporting from the region

- Setting up of OIE WAHIS-NACA regional core
- Allows members to provide on-line reports
- Includes all OIE listed plus diseases of regional concern
- List of diseases to be reported under WAHIS-NACA regional core to be decided by the NACA Asia Regional Advisory Group

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Output 5: Widespread adoption of better aquatic animal health management practices in the region

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5a. Key Elements

- Working with many governments and partners
- Working on key commodities (shrimp, catfish)
- Identifying risk factors and developing interventions (e.g. better management practices)
- Promoting the adoption of BMPs or GAP
 - Organization of primary producers into groups/associations/clubs/clusters
 - Developing simple and practical extension strategies
 - Awareness and capacity building at the level of primary producers
- Promoting a regional networking mechanism for sustaining the BMP programs in several countries (India, Indonesia, Thailand, Vietnam)

MPEDA/NACA BMP Dissemination

- Farmers meetings
- Regular pond visits
- Training extension workers
- Extension material
 - 10 Brochures (15 steps)
 - Booklets

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Some thoughts on how NACA could serve as a useful model to Africa

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Cooperation between Africa and Asia

- Many issues of Common interest/concern
 - Increasing interest in aquaculture of fish and shrimp in Africa
 - Large number of small scale farmers
 - Aquaculture major livelihood
 - Share common diseases (e.g.EUS)
- Trade in live aquatic animals and their products is one the rise
 - Food safety concerns
 - Pathogen introduction and spread
 - Introduction and spread of exotics
- Question of Confidence in trading partners
 - in the testing process and procedures
 - in surveillance systems and disease reporting
 - in risk management measures adopted

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Addressing issues

- Cooperation and collaboration between Asia and Africa can contribute to
 - Effective networking to support development of sustainable aquaculture
 - Support towards development of Regulations, policy Guidelines and Standards
 - Support Capacity building
 - Facilitate Information exchange
 - Share expertise, lessons learned and experiences

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Establishing regional aquatic animal health program in Southern Africa-Some thoughts

- Identification of regional issues and developing agreements to work together
- Development of regional strategies and guidelines (e.g. responsible movement of live aquatics in Africa, bio-security framework of southern Africa)
- Development and implementation of national aquatic animal health strategies
- Role of OIE, FAO and NACA (how they can share their experience and assist southern Africa)
- Role of AFNA, SARNISSA, CAPA

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NACA Looks forward to working in Southern Africa



Thank you

visit us at www.enaca.org for more details