

## Technical Seminar on Aquaculture Biosecurity: Understanding Antimicrobial Resistance (AMR) in Aquaculture

# Thailand National Action Plan on Antimicrobial Use and Antimicrobial Resistance in Aquaculture



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- The National Strategic Plan on Antimicrobial Resistance (2017-2021) (NSP-AMR) is the first Thailand's strategy which addresses AMR specifically.
- It was developed by the AMR Coordination and Integration Committee (AMR-CIC), a multisectoral committee appointed by the Ministry of Public Health (MOPH) through a ministerial order in May 2015

### key stakeholders are involved



- **Public sector:** Ministry of Public Health (MOPH), Ministry of Agriculture and Cooperatives (MOAC), Hospital Accreditation Institute (HA), National Health Security Office (NHSO), National Health Commission Office (NHCO), Universities, etc.
- **Professional Associations:** Infectious Disease Association, Infection Control Nurse Association, Community Pharmacists Association, Society of Pharmacists in Infectious Disease (SOPITT); Medical Technology Association, Thai Swine Veterinary Association, Veterinary councils, etc.
- **Civil Society Organizations:** Thai Health Promotion Foundation, Drug System Monitoring and Development Program, etc.
- **Research institutes:** Health Systems Research Institute (HSRI), International Health Policy Program (IHPP), Universities, etc.
- **Private sector:** Thai Feed Mill Association, Swine Raisers Association of Thailand, Thai Pharmaceutical Manufacturer Association, Pharmaceutical Research and Manufacture Association, etc.
- **Development partners (based in TH):** WHO, FAO, USAID



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### Vision:

Reduction of mortality, morbidity and economic impacts from AMR

### Mission:

Establish policies and national multisectoral mechanisms which support effective and sustained AMR management system

### Goals:

- ❖ 50% reduction in AMR morbidity
- ❖ 20% reduction in antimicrobial use in human
- ❖ 30% reduction in antimicrobial use in animal
- ❖ 20% increase of public knowledge on AMR and awareness of appropriate use of antimicrobials
- ❖ Capacity of the national AMR management system is improved to level 42



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## NAP of the country; 6 Strategies

1. AMR Surveillance system using 'One Health' approach
2. Regulation of antimicrobial distribution
3. Infection prevention and antimicrobial stewardship in humans
4. AMR prevention and control and antimicrobial stewardship in agriculture and companion animals
5. Public knowledge on AMR and awareness of appropriate use of antimicrobials
6. Governance mechanisms to develop and sustain AMR-related actions



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# National Action Plan (NAP) on AMU AMR in Aquaculture; two strategies in aquaculture were implemented

1. Develop AMR Surveillance  
system under one health approach;

❖ Fish/ shrimp association  
❖ Government sector; MOPH, FDA, DLD

❖ Fish/ shrimp association  
❖ Feed mill association  
❖ Veterinary Drug association  
❖ Government sector; FDA, DLD, ACFS



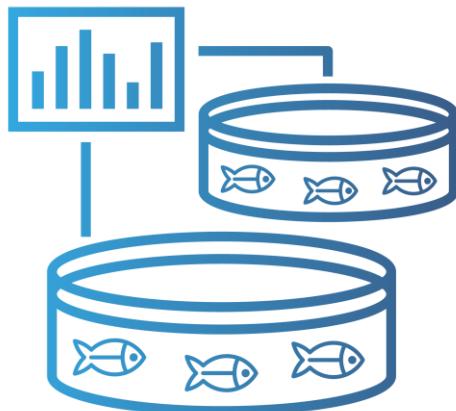
2. AMR prevention and control; and  
antimicrobial stewardship in  
agriculture and companion animal



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NAP on AMU AMR in Aquaculture; AMR Surveillance system under 'One Health' approach since 2017

- Develop AMR Surveillance system in aquaculture; enhance and strengthen the capacity of AMR laboratory



Laboratory work on AMR Analysis; method is based on CLSI (Clinical Laboratory Standard Institute)

- Samples (water, diseased fish/shrimp) were collected from shrimp and tilapia farm from intensive area of culture of Thailand.
- Bacteria were monitored
  - *E. coli*; *Salmonella*, *Vibrio cholerae*
  - other any infected bacteria eg. *Aeromonas*, *Streptococcus*, *V. parahaemolyticus*,
- MIC Analysis (Agar Broth Dilution)
- Data is record in WHOnet program

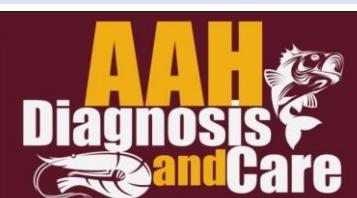


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NAP on AMU AMR in Aquaculture; AMR prevention and control and antimicrobial stewardship in agriculture and companion animals



DOF has policies and program under food safety project for controlling of quality fish and shrimp production to reduce or avoid the use of drugs and chemicals to meet national standard and regulation of domestic and imported countries



- Farm standard; Good Aquaculture Practice (GAP) is promoted and certified
- Health Management Practice is concerned and promoted
- Bio-security farm is implemented
- White list project (Diseased free from hatchery) is promoted and certified
- Implement the national surveillance and monitoring program of drug residues



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### NAP on AMU AMR in Aquaculture; AMR prevention and control and antimicrobial stewardship in agriculture and companion animals

- ❖ The Food and Drug Administration(FDA), Ministry of Public Health, is assigned the responsibility to regulate the use of antimicrobial drugs in Thailand under the Drug Act, B.E. 2510(1967) and amendment B.E. 2518(1978)
- ❖ All veterinary drugs are required to be registered and authorized before manufacturing, importation or sale in the market with the use of proper label and storage, as specified



approved and registered antibiotic use in aquaculture



banned antibiotic use in aquaculture



- ❖ Oxytetracycline
- ❖ Tetracycline
- ❖ Sulfadimethoxine
- ❖ Trimethoprim
- ❖ Sulfadimethoxine and Ormetoprim
- ❖ Amoxycillin

- ❖ Chloramphenicol and its salts,
- ❖ Nitrofurazone and its salts,
- ❖ Nitrofurantoin and its salts,
- ❖ Furazolidone and its salts,
- ❖ Furaladone and its salts
- ❖ Malachite Green and its salts



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## NAP on AMU AMR in Aquaculture; AMR prevention and control and antimicrobial stewardship in agriculture and companion animals

- ❖ Education and raising awareness on AMU AMR; conduct training course continually for fisheries officers and fish/shrimp farms
- ❖ Enforcement the law; Drug Act B.E. 2510(A.D.1967) by education the fisheries officers for controlling drug shop and fish farmer



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- ❖ As the failure of antimicrobial use in aquaculture, alternative choices are considered and used for disease prevention such as
  - ❖ application of probiotic
  - ❖ supplement of useful vitamins and mineral
  - ❖ herb
  - ❖ effective microorganism (EM)



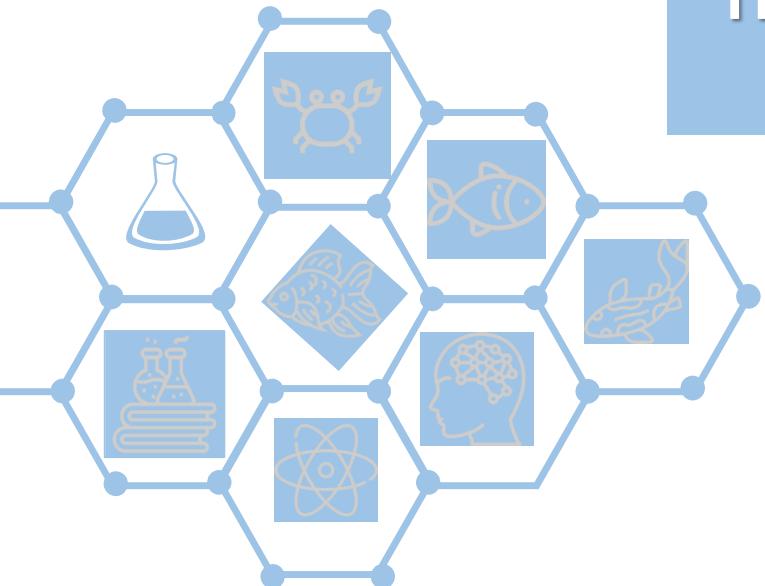
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## Challenge and constraint

- ❖ Thailand is large area of aquaculture, need to educate wider and continually for AMU AMR
- ❖ AMR is new topic, poor understanding for fish/shrimp farms
- ❖ Laboratory need to develop, as same as laboratory staffs



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# Thailand NAP AMU AMR in Aquaculture



THANK YOU

