



Food and Agriculture
Organization of the
United Nations

FMM/RAS/298: Strengthening capacities, policies and national action plans on
prudent and responsible use of antimicrobials in fisheries Final Workshop
in cooperation with AVA Singapore and INFOFISH

12-14 December, Concorde Hotel, Singapore

Conclusions and the Way Forward

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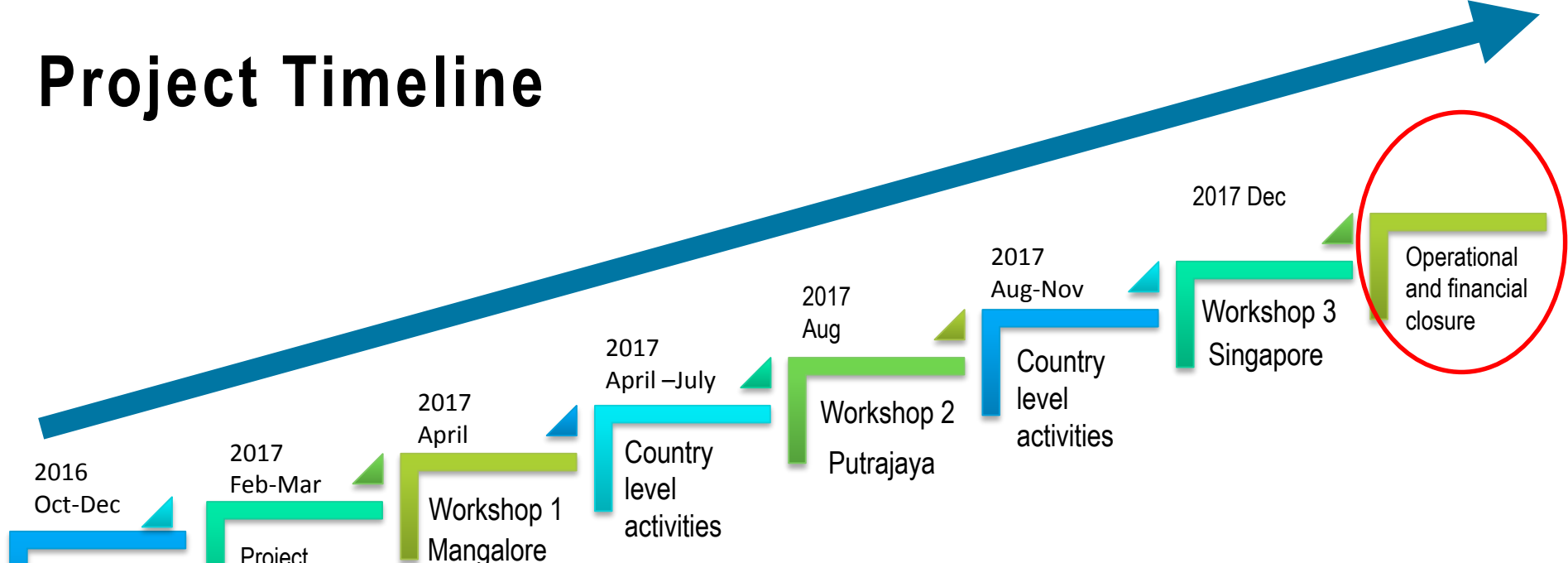


Project Achievements

- **Outcome:** Knowledge, skills and capacity as well as implementation of policies and national action plans on prudent and responsible use of antimicrobials of Competent Authorities on Fisheries and Aquaculture enhanced by the end of project implementation.
 - **Output 1:** Policies, regulatory frameworks and public goods enhance inclusiveness and efficiency of food, agriculture and forestry systems
 - **Output 2:** Capacities (knowledge and skills) of Competent Authorities and other stakeholders on prudent and responsible use of antimicrobials in aquaculture developed and/or enhanced.



Project Timeline



	Governance	Awareness	Evidence	BP
China	+	++		
Malaysia	+++	+++	+++	+
Philippines	++	+++	+	+
Vietnam	+++	+++	+++	+





Aquaculture; food safety; CODEX; One Health; EU Action Plan on AMR; NAPs (Croatia, Netherlands, Singapore, USA, Viet Nam, Malaysia, Philippines, China, WHO website); data on antibiotic use in Aq; China AMR in Aq; Ornamental fish and AMR; AMR pathways; fishery product rejections; antibiotic treatment in salmon; diagnostics and AM administration; bacterial disease mgt; best practice (carp/tilapia/shrimp); future of vaccination; fish waste and AMR; progress reports; aquaculture production and trade



NAPs on AMR



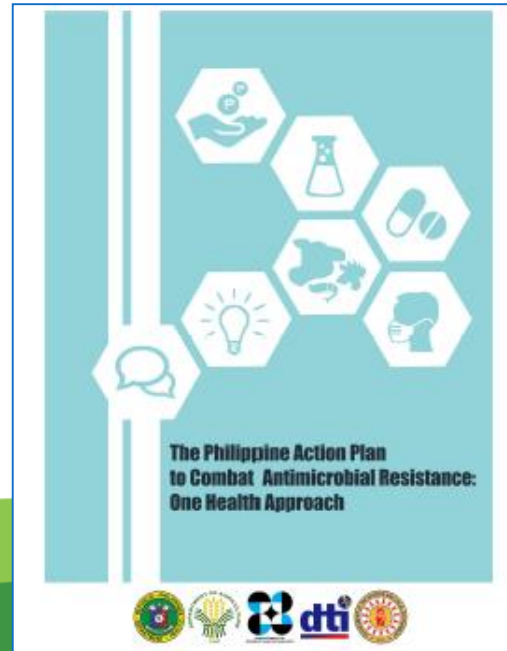
http://en.nhfpc.gov.cn/2016-08/26/c_70276.htm

National Action Plan to Contain Antimicrobial Resistance (2016-2020)

(en.nhfpc.gov.cn)

Updated: 2016-08-26

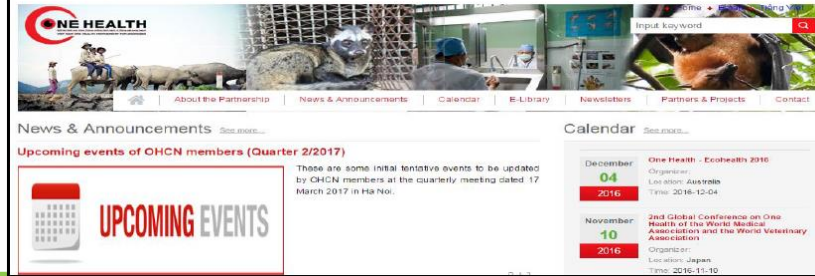
To promote the management of antibacterial agents and containment of bacterial resistance, and to protect the public health and guarantee harmonious economic and social development, the National Action Plan to Contain Antimicrobial Resistance was prepared.



I. NAP under One Health approach (have done)

Established National Committee for AMU & AMR

- Leading by Deputy Prime Minister
- 32 members from relevant ministries



NAPs on AMR	China	Malaysia	Philippines	Vietnam
One Health Platform		yes	yes	yes
Legislation	REGULATIONS ON ADMINISTRATION OF VETERINARY DRUGS effective from 2014 "Agricultural product quality and safety law", "food safety law" 2001, Including aquatic products	7 pieces of legislation and 4 programmes that cover the use of veterinary medicines in aquaculture	Administrative Order No. 42 (Office of the President) Several related programmes	Four related legal instruments
AMU/AMR survey	FAO survey 2000 NFTEC ongoing	SEAFDEC 1996 Aquaculture Residue Monitoring Program Current project	Ongping (current project)	FAO survey 2000 Ongoing (this project) NACA (Pangasius)
Best practices		MyGAP National Strategy on AAH	GAHP	
Awareness	yes	yes	yes	yes



4 Working Groups: Day 2: 16:15-17:15; Day 3: 08:15-09:20

Group 1	Group 2	Group 3	Group 4
<p>Chair, Rapporteur, Presenter</p> <p>Four pillars (governance, awareness, evidence, best practice): capacity building and other requirements; implementation matrix</p> <ul style="list-style-type: none">• <u>responsibility</u>: government, producer, academe, others;• <u>time-frame</u>: short- (1-2 yrs), medium-(2-5 yrs), long-term (5+ yrs);• <u>priority</u>: low, medium, high); <u>level</u>: national, regional <p>Resource mobilization opportunities (internal, regional, international, donor)</p> <p>Country specific recommendations</p>			
Aihua. Simeona, Chairmaine, Lee, Agnes, Dang, Bui, Rolando, Esther, Larry, Rohana	Misol, Sophie, Christine, Poj, Lynn, Seow, Nguyen, Thithiporn, Juliwan, Celia, Peter	Noordin, Diana, Tan, Lin, Shawn, Agustatik, Moe, Kay, Iddya, Olga, Elena	Sonia, Edmund, Kelvin, Chng, Han, Wong, Chuong, Tanjung, Sjnezana, Omar, Miao



Aihua. Simeona,
Chairmaine, Lee,
Agnes, Dang, Bui,
Rolando,
Esther, Larry, Rohana

Group 1



Group 2



Misol, Sophie,
Christine, Poj, Lynn,
Seow, Nguyen,
Thithiporn, Juliwan,
Celia, Peter



Group 3

Noordin, Diana,
Tan, Lin, Shawn,
Agustatik, Moe,
Kay, Iddya, Olga,
Elena





Group 4

Sonia, Edmund,
Kelvin, Chng, Han,
Wong, Chuong,
Tanjung, Sjnezana,
Omar, Miao



Governance	Group 1	Group 2	Group 3	Group 4
NAP				
Legislation	Policies, AMR strategy, AMR regulation, AM product quality regulation, institutions, implementation and enforcement	Legislation review of introduction: Licencing Pharmaceutical registration and regulation Enforcement Feed manufacturing regulation	Clear regulation and capacity building	Review and development of regulations
Integration within One Health			+	
Extension services		+ transition		
Engaging more licensed professionals for prescription		+		
AMR guidelines	+			
Reference labs for AMR and residues				

Awareness	Group 1	Group 2	Group 3	Group 4
Education	Tertiary education curriculum	Producers, professionals public (consumers), suppliers	Continuos professional education For young children, technical secondary schools, universities	Economic case, incentives, alternatives Public media, School curricula
Database				Worldwide database
Communication campaign	IEC, media		+ Promote responsible use and consequences	
Train the trainers				
Farms, feeds an drug producers	+			
Reference lab training	+			
Ornamental sector and AMR				



Evidence	Group 1	Group 2	Group 3	Group 4
Awareness survey AMU assessment	+			+
Surveillance, monitoring, reporting and record keeping		+	Disease surveillance and AMR; AMU, publishing data	+
Technical capacity (methods and laboratory capacity)		Standardized methods		+
Risk analysis	+ AMR to human health			+
Real time data analysis and utilization		+		
Research (knowledge gaps)		+		

- Recommendations from technical presentations:
- Better guidelines on antibiotic labels
 - **Generate meaningful data using standardised international testing protocols that have adequate internal quality controls**
 - **An international agency to host a database of susceptibility data and epidemiological cut-off values for bacterial species relevant to aquaculture**
 - **Integrated surveillance**

BEST PRACTICE	Group 1	Group 2	Group 3	Group 4
Technical guidelines on AMU		+		+
Education (farmers and drug sellers)				+
Improve biosecurity (capacity and communication of benefits)			+	
Prudent use of antimicrobials			+	
Disease management support (communication, laboratory system and legislation) ring test/proficiency testing			+	
GAP		Training on biosecurity		
Alternative to antibiotics	+ (autigenous vaccines, herbal remedies, immunostimulants, probiotics)	+		
IEC		+		

Best practice	Group 1	Group 2	Group 3	Group 4
Cluster-based management	+			
Enforce food safety systems in farm	+			
Early warning systems	+			
IEC	+			

Comments:
 Bring the producers on board as a priority
 Share the responsibility



Resource Mobilisation Opportunities

ASEAN-China	EU: shaping the global agenda: Cooperation with developing countries - contribute to reduce AMR through infectious diseases programmes, assist in development of national strategy in food safety and animal health through organising training workshops Sjnezana/Olga/Melba
ASEAN-Japan	OECD: scientific meeting and publication of scientific papers Rohana/Melba
Asia-Pacific Economic Cooperation: risk analysis (Melba/Singapore)	SEAFDEC-AQD (Japan): Celia
DETRA Defense Threat Reduction Agency (US): surveillance (Larry and Melba)	ILSI International Life Science Institute: Karun
FAO TCP: national; regional; inter-regional: strategies/policies and capacity building	STDF: Standards and Trade Development Facility Melba
FAO/IAEA: laboratory capacity and networking Melba	World Bank: economic assessments; case studies Melba (F Berthe)
Flemming Fund	Feed (Cargill, Nutreco, AllTech)) and pharmaceutical (Skretting, MSD, Pharmaq)
OIE: PVS and legal review	

Achievement of Project Outcome/Outputs

Outputs/Activity	Achieved	Partially Achieved	Continuing
NAPs on AMR: Aquaculture component initiated	😊😊😊😊		😊
NAPs on AMR: Integration of aquaculture sector	😊😊😊		😊
Knowledge enhancement (application and dissemination)	😊😊😊😊		😊
National awareness raising	😊😊😊😊		😊
Regional, international awareness-raising	😊😊😊		😊
AMU//AMR surveillance	😊😊		😊
Laboratory capacity building	😊	😊😊😊	😊
Best practice guidance (IEC): FAO: carp, tilapia, carp		😊	😊
Documentation output: Book, CCRF Technical Guidelines, Combined workshop reports; Best practice document (carp, tilapia and shrimp)			2018



Country comments

- CHINA: state regulation and policy improvements
- HONGKONG SAR: education
- INDONESIA: review of regulation; use of local language
- MALAYSIA: awareness and communication to farmers; good biosecurity
- MYANMAR: no use due to extensive farming system
- PHILIPPINES: this project gave a lift; will continue;
- SINGAPORE: better harmonise livestock and aquaculture; strengthen legislation; cost more if they don't use antimicrobials; extension services, fish health specialists; quality of AM available in the market
- THAILAND: knowledge gained to be transferred to farmers; have NAP
- VIETNAM: convince the government; surveillance programme; better understanding



Putting farmers in the equation

Disease costs are too high for small-scale sector to survive

Getting them involved and utilise their indigenous knowledge

Making them aware of the risks and helping them manage the risks at farm level

Understanding their needs and expectations

How do you deal with thousands of small-scale aquaculture producers?

Provide feedback and updates

Important role of farmers

Effective technologies and strategies which are accessible and affordable to the resource-poor small-scale sector

Farmers administer antibiotic treatment (tetracycline) with poor success.

Not only in the acknowledgement!

FAO's Global Aquaculture Biosecurity Framework

Many examples from largest aquaculture-related disease epizootics

White spot syndrome virus (WSSV); Epizootic ulcerative syndrome (EUS);
Infectious salmon anemia virus (ISAV); Infectious myonecrosis virus (IMNV); Koi herpesvirus (KHV); Acute hepatopancreatic necrosis disease; Enterocytozoon hepatopenaei (EHP);
Tilapia lake virus (TILV)

Long.....time.....lapse.....



Paradigm shift; cannot be business as usual

Progressive Management Pathway (PMP): collaborative, risk based and progressive

Tripartite Consultation (government/donors, producers, academe/ input/service provider): **March/April 2018 Washington DC**

ISSUES highlighted

- **Policy improvement and enforcement**
- **Improving the understanding AMU and AMR in aquaculture**
- **Education and awareness and communication**
- **Focusing on farmers and extension officers**
- **Alternatives to antimicrobials**
- **Regional cooperation and PPP**
- **Incentives**
- **Consumer perspectives and influence**
- **PREVENTION**

