

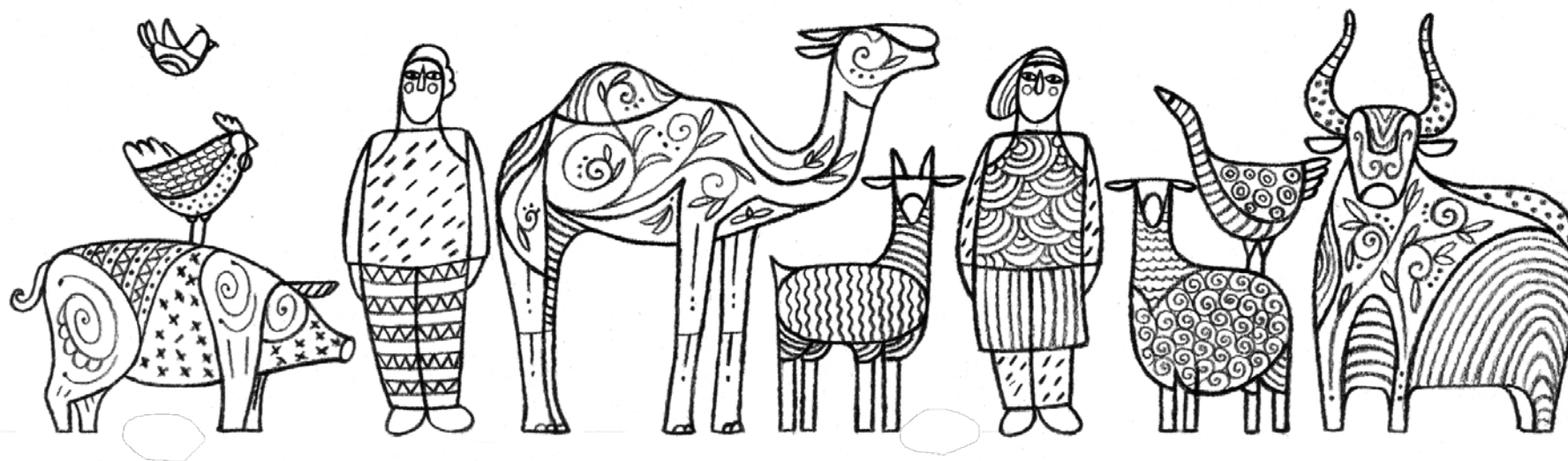


Food and Agriculture Organization
of the United Nations



USAID

Protecting people and animals from disease threats



FAO Activities on AMR Surveillance



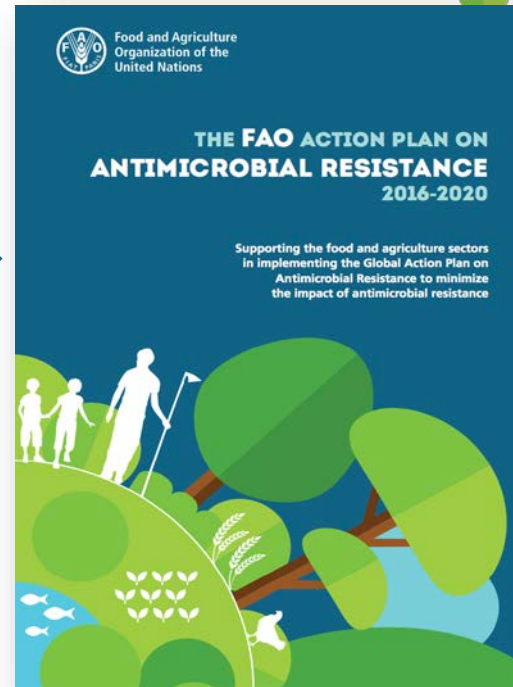
Mary Joy Gordoncillo
NVAL-OIE Joint Seminar on Antimicrobial Resistance * Tokyo, Japan

Cascading the FAO Action Plan on AMR in the Asia-Pacific Region

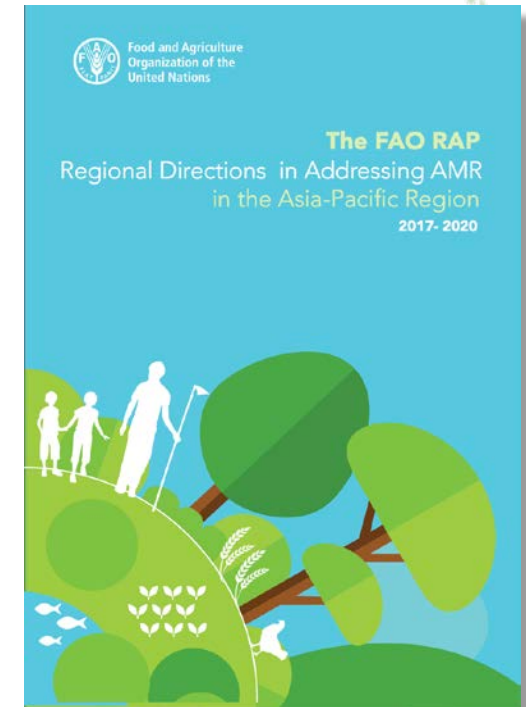
GLOBAL ACTION PLAN



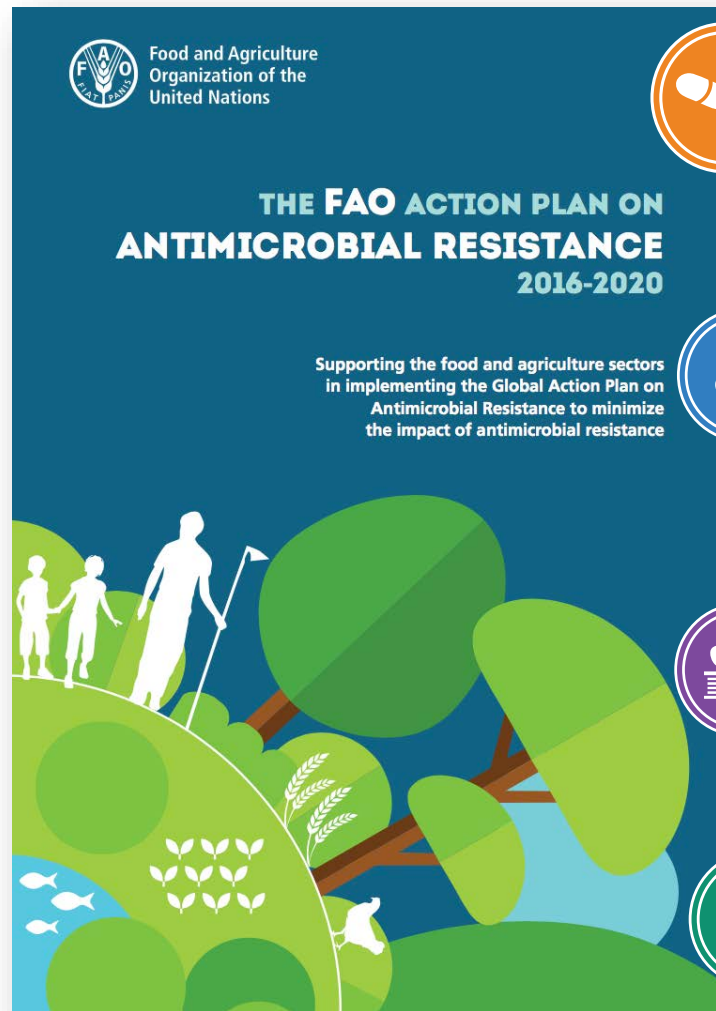
F A O ACTION PLAN



FAO RAP REGIONAL DIRECTIONS



FAO AMR Initiatives in Asia and the focus areas of the FAO Action Plan



FOCUS AREA 1

IMPROVE AWARENESS ON ANTIMICROBIAL RESISTANCE AND RELATED THREATS



FOCUS AREA 2

DEVELOP CAPACITY FOR SURVEILLANCE AND MONITORING OF ANTIMICROBIAL RESISTANCE AND ANTIMICROBIAL USE IN FOOD AND AGRICULTURE



FOCUS AREA 3

STRENGTHEN GOVERNANCE RELATED TO ANTIMICROBIAL USE AND ANTIMICROBIAL RESISTANCE IN FOOD AND AGRICULTURE



FOCUS AREA 4

PROMOTE GOOD PRACTICES IN FOOD AND AGRICULTURE SYSTEMS AND THE PRUDENT USE OF ANTIMICROBIALS

FAO AMR Initiatives in Asia



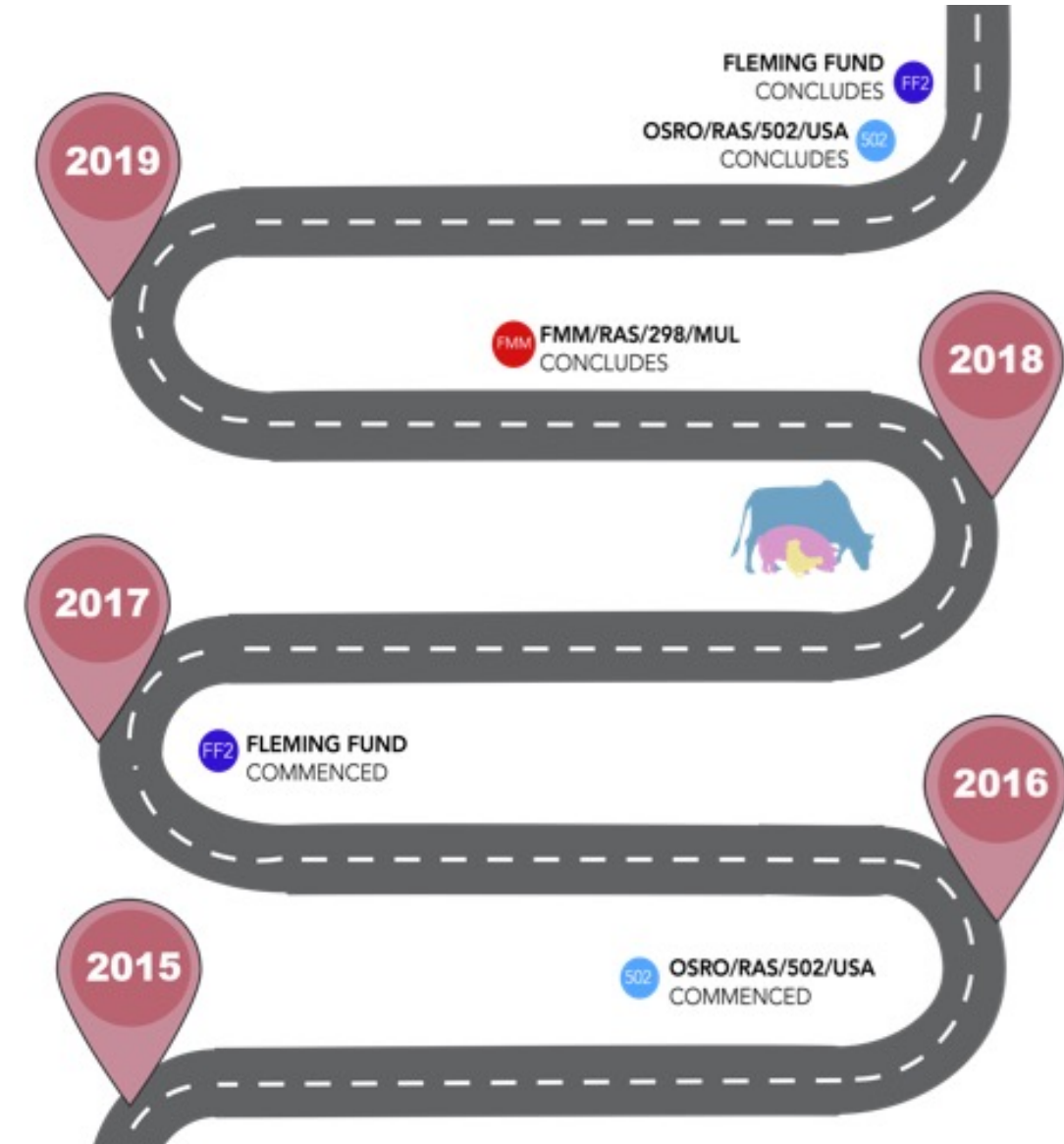
OSRO/RAS/502/USA: Addressing Antimicrobial Usage in Asia's Livestock, Aquaculture and Crop Production Systems



FMM/RAS/298/MUL Strengthening capacities, policies and national action plans on prudent and responsible use of antimicrobials in fisheries (aquatic animal health and aquaculture component)



GCP/GLO/710/UK Engaging the food and agriculture sectors in sub-Saharan Africa and South and South-east Asia in the global efforts to combat antimicrobial resistance using a One Health approach



OSRO/RAS/502/USA: Addressing Antimicrobial Usage in Asia's Livestock, Aquaculture and Crop Production Systems

OUTPUT 2: ENHANCED AWARENESS OF AMR, AMU, BEST PRACTICES

- **Development of KAP+ guideline:**
Takes on the strength of the KAP survey but adds intervention tools to ensure follow up action is integrated. Will be linked to good practices.
- **ASEAN Communication Strategy on AMR**
Strategy developed was assisted by FAO and now endorsed by ASEAN member states
- **AAW celebrations**
Regional launch with coverage from countries in the region through social media



OUTPUT 3: ESTABLISHED REGIONAL PLATFORMS

- **Policy Review Framework**
Addresses the challenges mentioned by offering practical guidance to government authorities, policy-makers and other stakeholders to systematically identify, assess and strengthen AMR and antimicrobial use (AMU) policies. The Framework is designed to help countries review their own national policies, and provides examples from countries that facilitate effective national response to AMR.
- **FAO-OIE initiatives mapping on AMR in Asia**
To bring complementarity and synergy to the individual work plans of FAO and OIE in the agriculture sector, the three regional offices in Asia decided to come together to: (1) provide updates and exchange information on current AMR initiatives in the region; (2) identify gaps, overlaps, and potential points of synergy for each area of work; and (3) identify flagship FAO-OIE activities in the region.



OUTPUT 1: IMPROVED UNDERSTANDING AND DOCUMENTATION OF AMU

- **Liverpool University:**
Engage with the public and private sectors and research projects in **Thailand and Vietnam (and later Indonesia)** to assist in identifying and measuring AMU and the potential impacts of AMR in the intensive livestock and aquaculture sectors
- **IHPP Thailand**
Antibiotic consumption in citrus trees and its potential environmental impacts



OUTPUT 4: STRENGTHENED SURVEILLANCE CAPACITIES

- **Assessment of AMR laboratories (ATLASS Missions) conducted**
Using the FAO ATLASS tool, the AMR surveillance systems and laboratories of 8 of the 10 ASEAN Member States have been conducted.

Regional ATLASS Assessors Training have also been organized, and the ATLASS assessors community is now established.
- **AMR surveillance piloted**
AMR surveillance in healthy broiler poultry was piloted in Subane, Indonesia. A second pilot work on AMR surveillance clinically diseased layer poultry will commence in late 2018.



AWARENESS

GOVERNANCE

SURVEILLANCE

PRACTICES

AWARENESS

EVIDENCE

GOVERNANCE

GOOD PRACTICES

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GOVERNANCE

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SURVEILLANCE

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PRACTICES

AWARENESS

EVIDENCE

GOVERNANCE

GOOD PRACTICES

Output 4: Strengthening Surveillance

OUTPUT 4.1: Development of Regional AMR/AMU Surveillance Guidelines

Development of AMR/AMU surveillance guidelines

FAO RAP has embarked in facilitating the development of a series of regionally harmonized guidelines relevant to this sector:



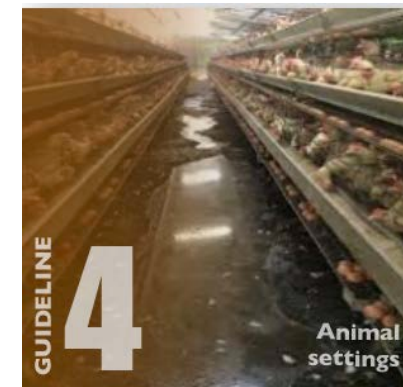
Guideline #1: AMR surveillance in food-borne bacteria from healthy animals intended for food consumption



Guideline #2: AMR surveillance in animal pathogens recovered from clinically or sub-clinically diseased livestock and poultry



Guideline #3: AMR surveillance in aquaculture

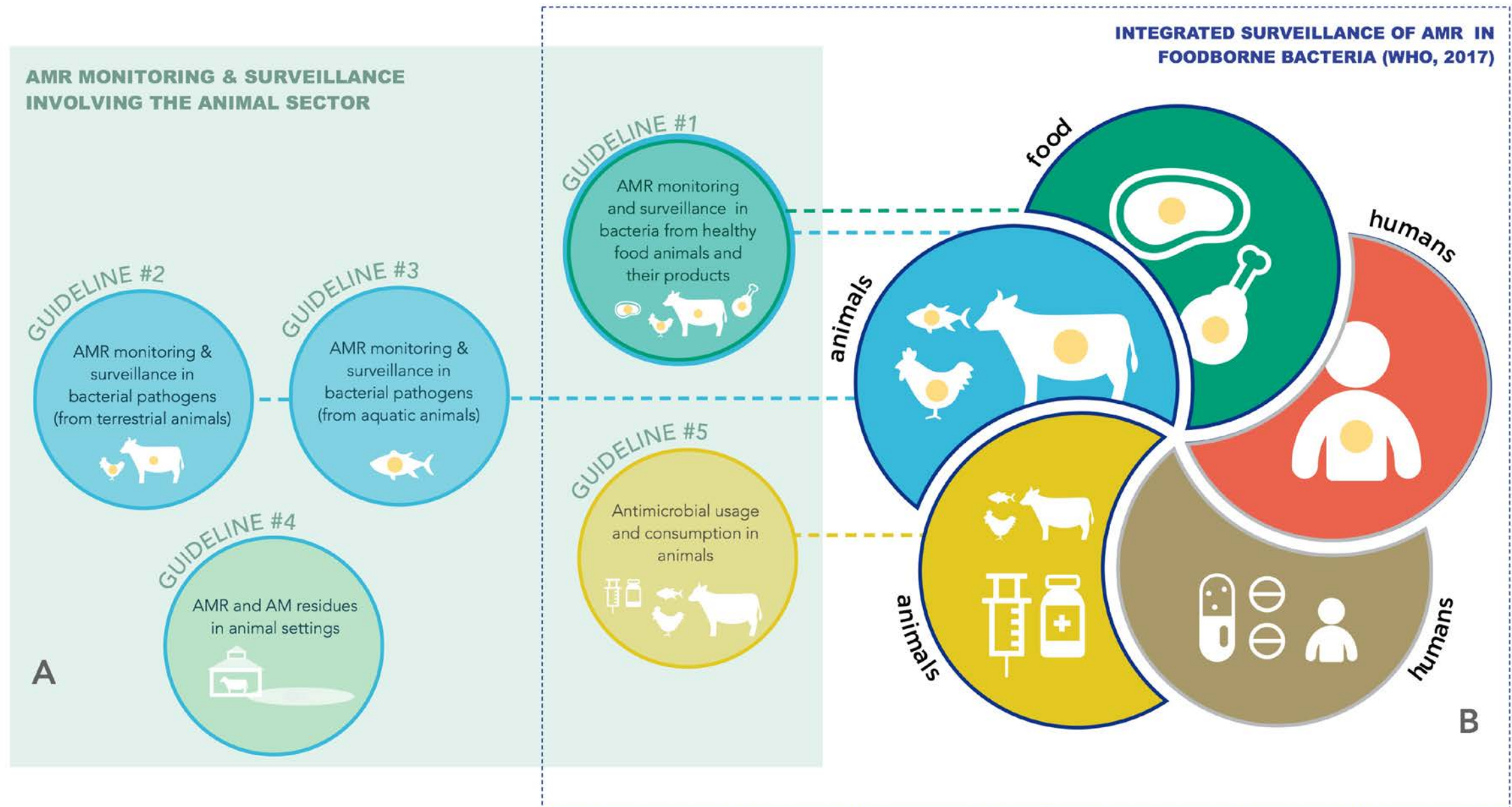


Guideline #4: AMR monitoring in animal settings/environment
In addition



Guideline #5: Guideline on AMU data collection

OUTPUT 4.1: Development of Regional AMR/AMU Surveillance Guidelines



OUTPUT 4.1: Development of Regional AMR/AMU Surveillance Guidelines

These guidelines will

- be anchored on **international standards**
- take into context the **varying levels of advancements** within the region
- take into account the overall **context in the region**
- help Countries in preparing to carry out their respective initiatives
- help facilitate generating a cohesive body of regional information
- reinforcing **One Health approach to AMR Surveillance** in the Asia-Pacific Region → **TRANSFORMING AMR SURV WORK FROM SILOS TO PILLARS**

OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)

→ Assessment of AMR laboratories (ATLASS Missions) conducted

Using the FAO ATLASS tool, the AMR surveillance systems and laboratories of 8 of the 10 ASEAN Member States have been conducted.



FAO- Assessment Tool for Laboratories and AMR Surveillance Systems (FAO-ATLASS)

BACKGROUND

Antimicrobial resistance (AMR) poses a fundamental threat to human and animal health, development, and security. Common and life-threatening infections are increasingly becoming untreatable because of AMR.

Following the adoption of the FAO Resolution in June 2015, FAO Action plan on AMR was developed to promote and strengthen the development and the implementation of national action plans against AMR through a "One Health" approach. One of the four focus areas of the FAO Action plan is to strengthen the evidence base through a developed capacity for surveillance of AMR in food and agriculture (Focus Area 2). AMR surveillance is the cornerstone for assessing the level of AMR and for providing information for action in support of local, national and global strategies.

As part of the efforts to strengthen the evidence base focus area, FAO has developed the "Assessment Tool for Laboratories and AMR Surveillance Systems" (FAO-ATLASS) to support food and agriculture sectors of countries in assessing their surveillance system related to AMR.

The first step proposed with the use of ATLASS is to map the existing national AMR surveillance system in the food and agriculture sectors, including laboratory analytical capacities and networks, to determine gaps in the system and define targets for capacity building. Recommendations from the assessment will be drawn to the country on: (1) How to strengthen the national AMR surveillance system; (2) How to improve coordination among all actors of the AMR surveillance systems at national level, including better linkages between public health and veterinary public health.

This will also allow better harmonization and improved coordination across AMR surveillance systems to ensure a regional/global surveillance of AMR.

GENERAL SCOPE

Map national AMR surveillance system in the food and agriculture sectors, including laboratory networks and analytical capacities.

Provide evidence base for action and advocacy to strengthen AMR surveillance systems, including coordination between actors and capacity building efforts for the laboratory network.

Monitor AMR surveillance capacities under the food and agriculture sectors at national/regional and global levels.

Describe the linkage with AMR surveillance in public health and the environment.

SPECIFIC OBJECTIVES

Assess the five major pillars in the AMR surveillance: (1) laboratories, (2) epidemiological unit, (3) governance, (4) communication, and (5) sustainability.

Assess the AMR surveillance institutional framework in the Veterinary Public Health domain and linkages with Public Health surveillance.

Measure the level of activities of AMR surveillance, laboratory testing, networking, data collection and collation, analysis and information dissemination; Assess AMR testing and epidemiological capacities.

Measure the progress via ATLASS Progressive Improvement Pathway (PIP) indicators relative to each pillar of the national AMR surveillance system, to be linked with the National/FAO global AMR Action Plan and other initiatives.

CONTEXT OF ATLASS USE

ATLASS can be used in the context of projects to generate a baseline, monitor progress and support countries in building their AMR surveillance network, and can also be used by any country on a voluntary basis. ATLASS helps countries to prioritize actions in building reliable national AMR surveillance system

ATLASS can be applied as a standardized support for an external assessment of the AMR surveillance system or as a self-assessment tool when it is applied by national experts trained in the use of the tool.



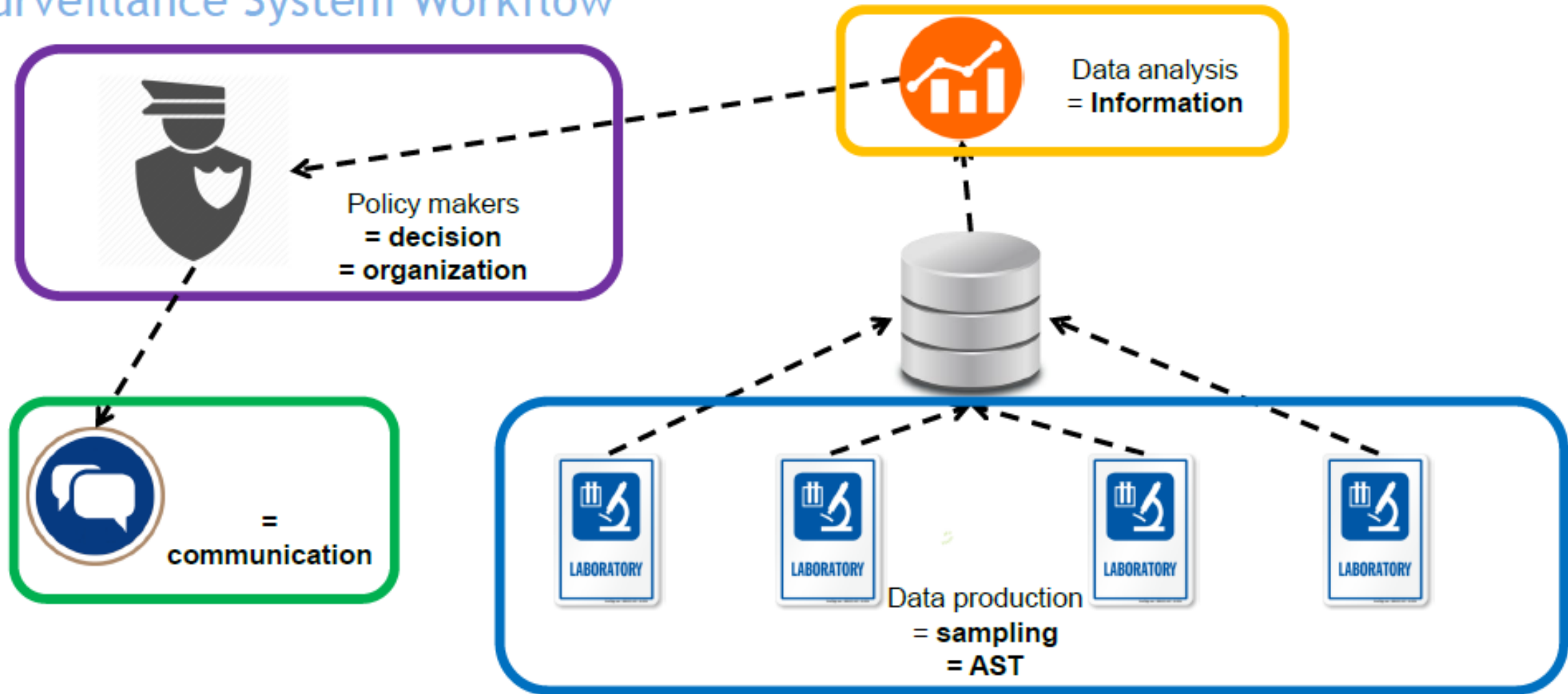
1 Global Action Plan on Antimicrobial resistance <http://www.who.int/antimicrobial-resistance/global-action-plan/en/>
2 FAO Action Plan on AMR 2016-2020 <http://www.fao.org/qa/2015a.pdf>

OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)



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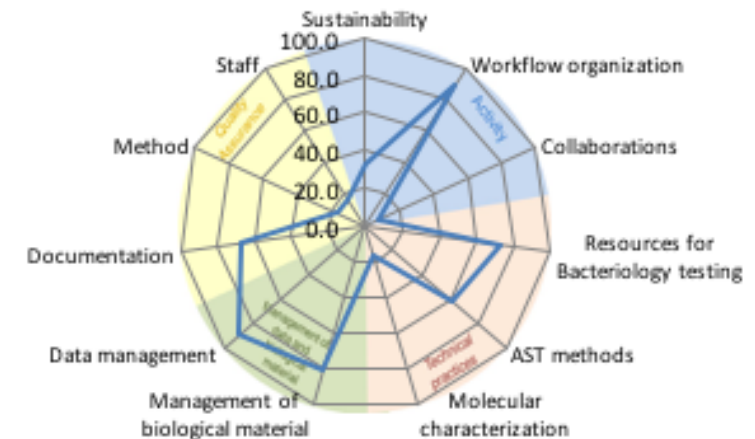
Surveillance System Workflow



OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)

Current Assessment*		
Category	dd/mm/yyyy - LMT-AMR Results for Lab X	Confidence* *
Sustainability	33.3	100
Workflow organization	88.9	100
Collaborations	8.3	100
Resources for Bacteriology testing	73.3	71
AST methods	61.1	75
Molecular characterization	16.7	100
Management of biological material	80.0	100
Data management	88.9	100
Documentation	66.7	100
Method	16.7	100
Staff	16.7	100
Grand Total assessment C	55.6	90
Activity	40.7	100
Technical practices	59.0	76
Management of data and biological material	83.3	100
AQ	33.3	100

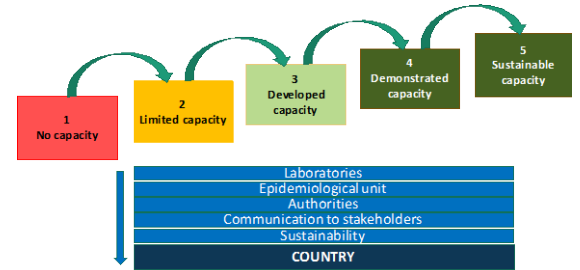
Current Assessment*		
Area	dd/mm/yyyy - LMT-AMR Results for Lab X	Confidence* *
Activity	40.7	100
Technical practices	59.0	76
Management of data and biological material	83.3	100
AQ	33.3	100



OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)

Area	Category	Sub category	Current lab LMT score	Improvements for next level	Next level
Activity	Sustainability	Financial autonomy (allocation of funds)- L1	2		≥1
		Management- L2	2		≥1
	Workflow organization	Time for samples submission - L3	4		≥3
		Collaborations	Training about antimicrobial resistance- L6	1	
	Scientific publications- L7		1		≥1
	Collaboration with other labs- L8		2		≥1
Collaboration with international reference labs- L9	1			≥1	
Technical practices	Resources for Bacteriology testing	Biosafe Bacteriology lab- L10	3		≥2
		Equipment for bacteriology and AST - L11	3		≥3
		Media and consumable- animal disease- L12	3		≥3
		Media and consumable- food safety- L13	4		≥3
		Media and consumable- environment - L14	4		≥3
		Reagents- L15	3		≥3
		Bacterial identification- L16	4		≥2
	Antimicrobial susceptibility testing (AST) methods	Standard for AST- L17	4		≥2
		Bacterial inoculum calibration- L18	4		≥3
		Panels definition- L19	2		≥4
		Revision of panels of antibiotics- L20	2		≥3
		Interpretation of AST results- L21	2		≥2
		Interpretation of MIC results -L22	N/A		≥2
		Standard for AST interpretation- L23	3		≥3
		Standard for MIC interpretation- L24	N/A		≥3
	Molecular characterization	Molecular characterization - L25	1		≥1
		Sequencing of resistant strains- L26	2		≥1
	Management of data and biological material	Management of biological material	Sample identification and follow-up- L27	3	
Isolates library- L28			2		≥1
SOPs for bacterial preservation- L29			4		≥1
Inventory of stored isolates- L30			4		≥1
Duration for bacterial isolates storage- L31			4		≥1
Data management		Individual reports on AMR data- L32	3		≥3
		Data archiving- L33	4		≥2
Quality Assurance	Documentation	AMR data transmission and analysis- L34	4		≥1
		SOPs implemented- L35	3		≥2
	Method	SOPs updating- L36	3		≥2
		Reference strains- L37	2		≥2
	Staff	Proficiency testing- L38	1		≥2
		Training in AMR testing- L39	1		≥1
		Staff validation and proficiency continuity- L40	2		≥1
Lab X PIP Stage			2		3

LMT #	Scoring system:					
	No capacities	Limited capacity	Developed capacity	Demonstrated capacity	Sustainable capacity	
					For routine lab	For Ref lab
L1	≥1	≥1	≥1	≥2	≥3	≥4
L2	≥1	≥1	≥1	≥2	≥3	≥3
L3	≥1	≥2	≥3	≥3	≥3	≥3
L6	≥1	≥1	≥1	≥1	≥1	≥3
L7	≥1	≥1	≥1	≥1	≥1	≥3
L8	≥1	≥1	≥1	≥1	≥2	≥3
L9	≥1	≥1	≥1	≥1	≥2	≥3
L10	≥1	≥2	≥2	≥3	≥3	≥3
L11	≥1	≥2	≥3	≥3	≥3	≥3
L12	≥1	≥2	≥3	≥3	≥3	≥3
L13	≥1	≥2	≥3	≥3	≥3	≥3
L14	≥1	≥2	≥3	≥3	≥3	≥3
L15	≥1	≥2	≥3	≥3	≥3	≥3
L16	≥1	≥1	≥2	≥2	≥2	≥4
L17	≥1	≥1	≥2	≥3	≥4	≥4
L18	≥1	≥1	≥3	≥3	≥3	≥3
L19	≥1	≥2	≥4	≥4	≥4	≥4
L20	≥1	≥2	≥3	≥4	≥4	≥4
L21	≥1	≥1	≥2	≥2	≥2	≥2
L22	≥1	≥1	≥2	≥2	≥2	≥2
L23	≥1	≥2	≥3	≥4	≥4	≥4
L24	≥1	≥2	≥3	≥4	≥4	≥4
L25	≥1	≥1	≥1	≥1	≥1	≥2
L26	≥1	≥1	≥1	≥1	≥1	≥3
L27	≥1	≥2	≥2	≥3	≥3	≥3
L28	≥1	≥1	≥1	≥2	≥2	≥2
L29	≥1	≥1	≥1	≥3	≥3	≥3
L30	≥1	≥1	≥1	≥3	≥3	≥3
L31	≥1	≥1	≥1	≥2	≥3	≥4
L32	≥1	≥2	≥3	≥4	≥4	≥4
L33	≥1	≥2	≥2	≥3	≥3	≥3
L34	≥1	≥1	≥1	≥2	≥3	≥3
L35	≥1	≥1	≥2	≥3	≥3	≥3
L36	≥1	≥1	≥2	≥3	≥3	≥3
L37	≥1	≥1	≥2	≥3	≥3	≥3
L38	≥1	≥1	≥2	≥3	≥3	≥3
L39	≥1	≥1	≥1	≥2	≥3	≥3
L40	≥1	≥1	≥1	≥2	≥3	≥3
PIP Stage scoring:	1	2	3	4	5	5



Country PIP : 1	Scores	Improvements for next level	Next country score 2
Laboratories	1		≥2
Epi	1		≥2
Authorities	1		≥1
Communication	2		≥1
Sustainability	2		≥1
Country stage (2017)	1		2

No capacities	Limited capacity	Developed capacity	Demonstrated capacity	Sustainable capacity
≥1	≥2	≥3	≥4	5
≥1	≥2	≥3	≥4	5
≥1	≥1	≥2	≥3	≥4
≥1	≥1	≥1	≥3	≥4
≥1	≥1	≥1	≥4	5
1	2	3	4	5

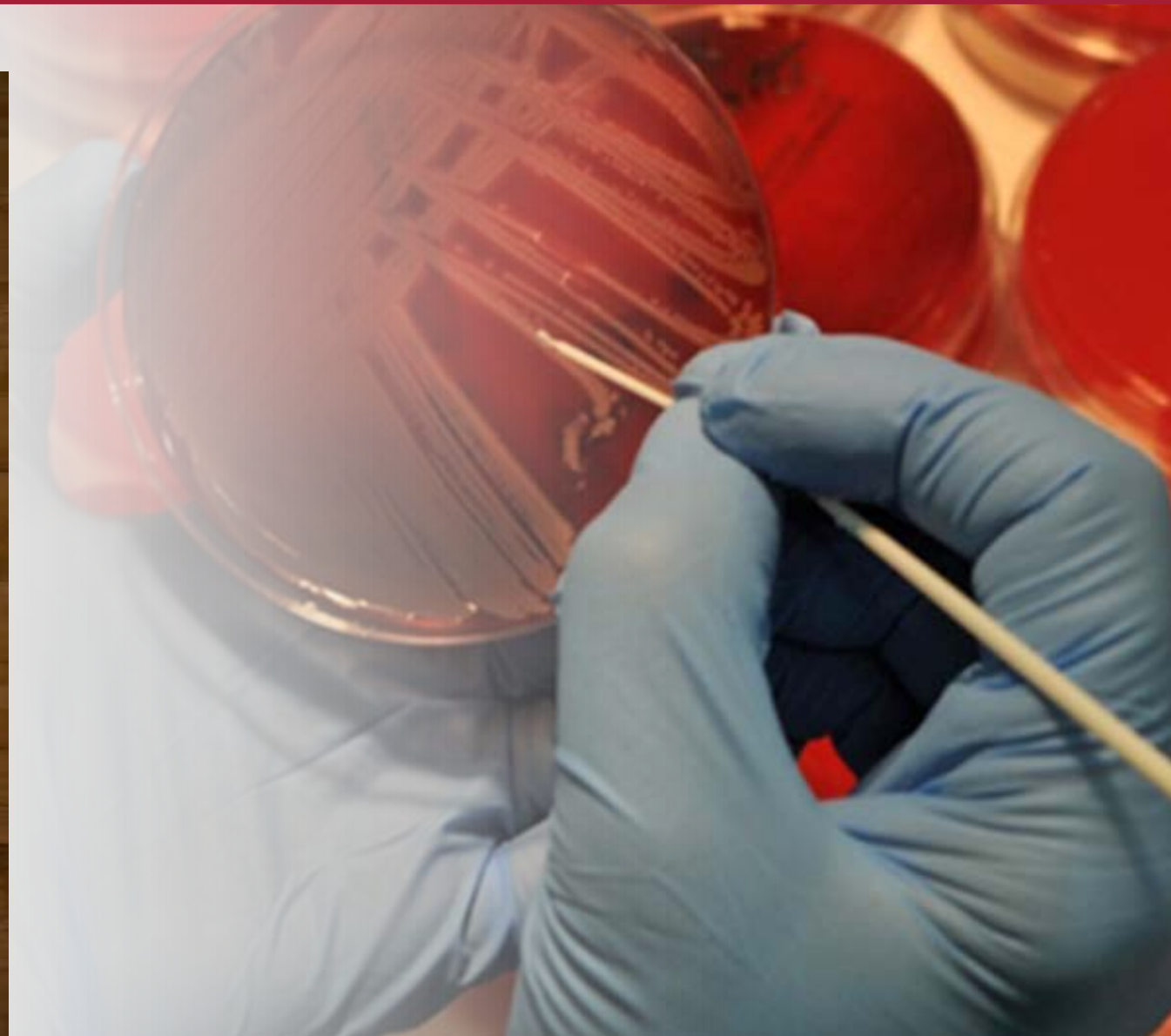
OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)

→ ATLASS assessors community is currently being established

- ATLASS assessors training (May 2018)
- Mentoring missions
- Certified ATLASS assessors



OUTPUT 4.2: Assessment Tool for Laboratory and AMR Surveillance System (ATLASS)



OUTPUT 4.3: National AMR Laboratories are progressively strengthened

→ Post-ATLASS Workshop

Using the findings from the FAO ATLASS mission, strategies to move up to the current stage (at least PIP stage 3) are planned and mapped out.



Following the ATLASS mission, the mission team prepares a comprehensive report of the assessment which includes a set of recommendations on the current state of the country's AMR surveillance systems and laboratory capacity in carrying out AST.



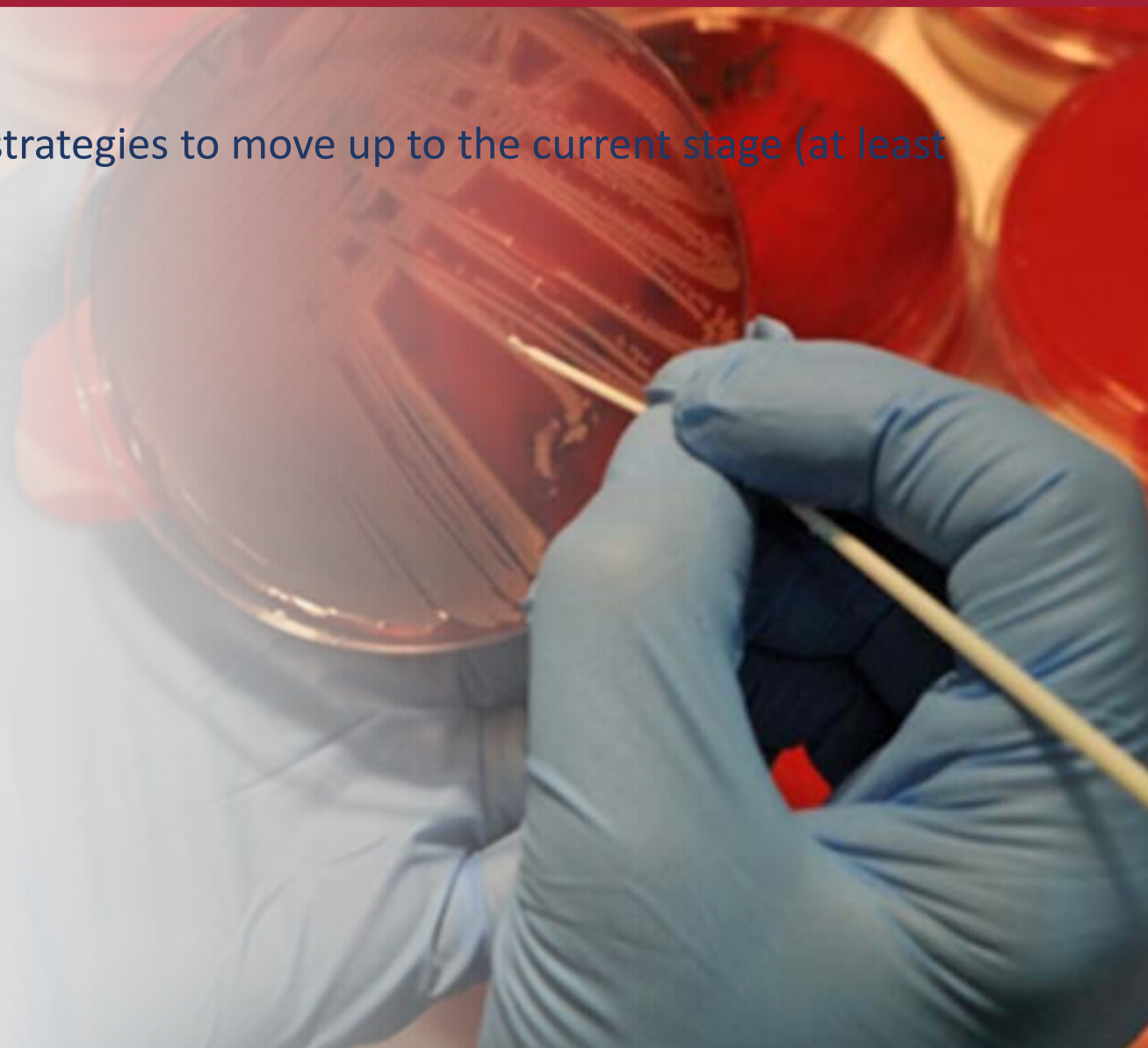
Relevant personnel involved in AMR surveillance (technical and governance) will identify **STRATEGIC ACTIONS** to address the recommendations to strengthen country capacities in sustainably carrying out AMR surveillance in the animal sector. Prioritization, timelines, budgets (if feasible) of the listed actions will also be done.



Resources for each listed activity will be identified. This will include internal and external resources which may acknowledge activities as complementary and/or of relevance to the nature of the support being provided.



A package of suitable advocacy materials (powerpoint, print, etc.) will be prepared. These materials will comprehensively outline the details of the actions planned to strategically improve AMR surveillance in the animal sector. These materials will be developed for the purpose of conveying the current plans to address gaps in AMR surveillance, and of advocating further investments towards sustainable, routine AMR surveillance in the country.



OUTPUT 4.3: National AMR Laboratories are progressively strengthened

→ Establishment of FAO Regional Reference Center for AMR in livestock (Chulalongkorn University)

CU is now in the final stages of becoming the FAO Regional Reference Center.

→ Regional Training on Harmonized and Standardized AST

In collaboration with CU, this training was conducted in June 2017 for South-East Asia, and the same will be conducted for South Asia in May 2019.

→ Conduct of proficiency testing on AST

To be done in collaboration with CU VET AMR (2018-2019)



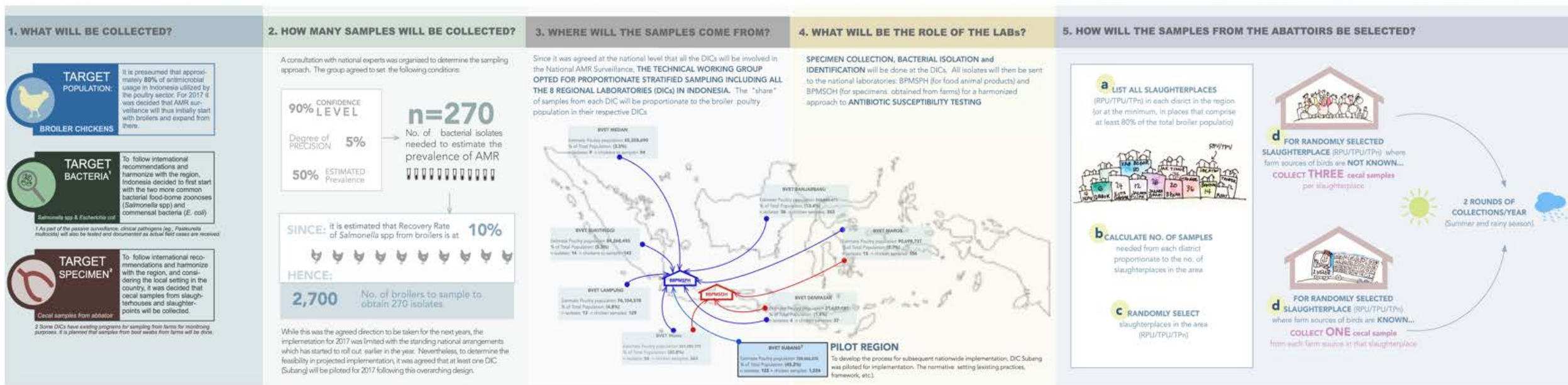
OUTPUT 4.4: In-country pilot projects

→ AMR surveillance piloted

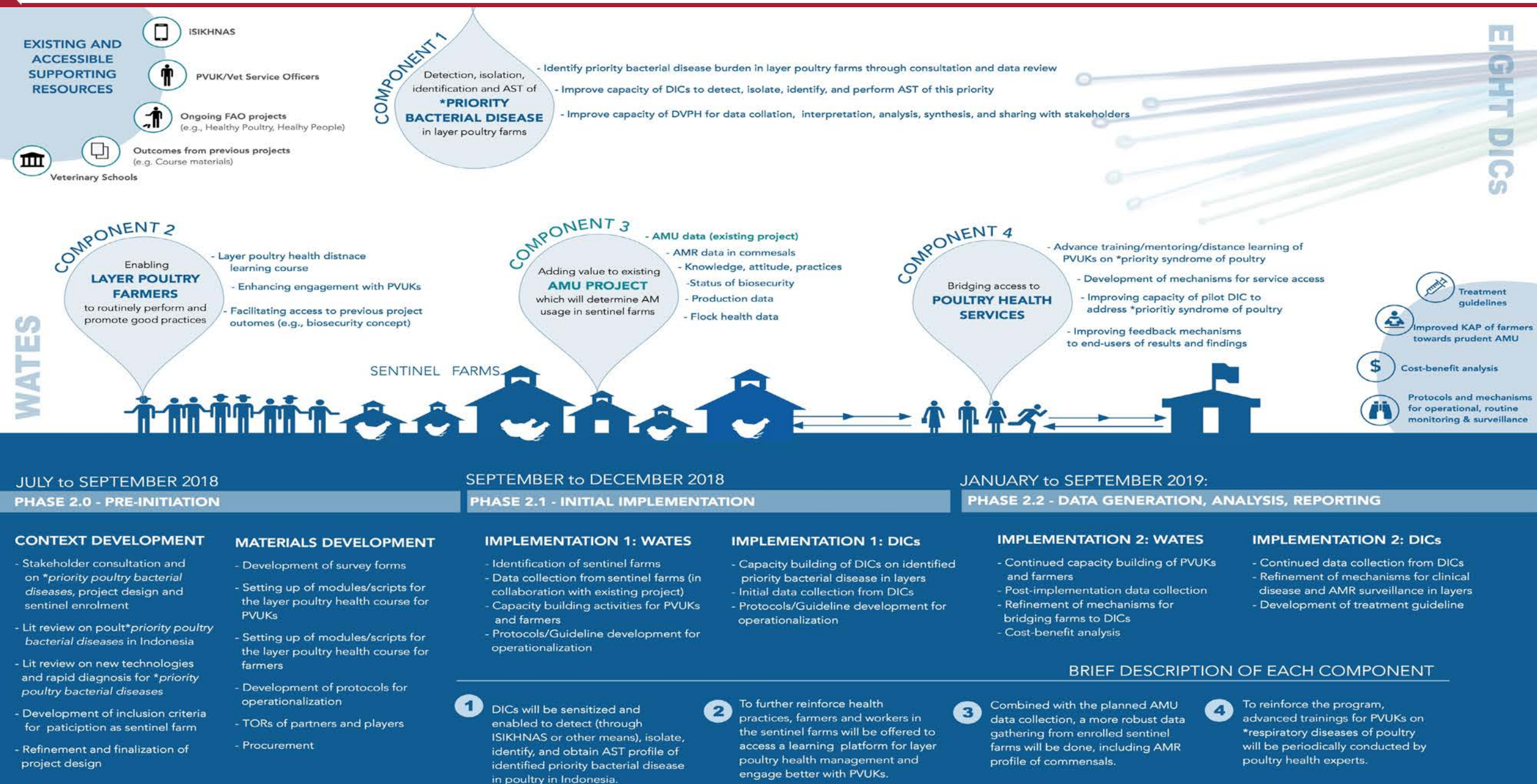
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OUTPUT 4.4: In-country pilot projects



OUTPUT 4.4: In-country pilot projects



OUTPUT 4.5: Mechanisms for broader regional coordination

→ **FAO-OIE initiatives mapping and coordination:** Identified flagship FAO-OIE activities on AMR in Asia:

1. Awareness – AAW Celebrations
2. **Surveillance – Network of Regional Collaborating and Reference Centers on AMR**
3. Good practices – AMU data collection: National/Global database (OIE) and field data collection (FAO)
4. Governance – Joint FAO-OIE Regional AMR Mitigation Strategy



OUTPUT 4.6: Networks of scientific expertise on AMR surveillance in the animal sector

→ Established and convened the AMU/AMR Technical Advisory Group for South-East Asia



→ **Future plan:** Network of laboratories for AMR surveillance of animal bacterial pathogens from clinical cases



GCP/GLO/710/UK: Engaging the food and agriculture sectors in sub-Saharan Africa and South and South-East Asia in the global efforts to combat AMR using a One Health approach



Output 1: Multi-sectoral National Action Plans (NAPs) aligned with global recommendations and standards in place in targeted countries

Output 2: Regulatory frameworks assessed and strengthened

Output 3. Laboratory capacities and related infrastructures of the food and agriculture sector are strengthened to collect and share data on AMR and antimicrobial residues and actively contribute to integrated surveillance on AMR.

Output 4: Good practices in the food and agriculture sector, based on internationally instruments, are available to and implemented in target countries

BANGLADESH

CAMBODIA

LAO PDR

PHILIPPINES

VIET NAM

Some key dates in the region

- **November 8-9, 2018, Bangkok, TH.** *“FAO-OIE Consultation Meeting for the Development of Guidelines on Antimicrobial Usage Surveillance”*
- **November 19-20, 2018, Bangkok, TH.** *“Regional Post-ATLASS Workshop and AMR Surveillance Planning”*
- **November 21-22, 2018, Bangkok, TH.** *“Second Meeting of the AMU/AMR Technical Advisory Group (TAG) for Southeast Asia ”*
- **November 23, 2018, Bangkok, TH.** *“1st FAO-OIE Joint Meeting of Regional Reference and Collaborating Centers on AMR in Asia”*
- **January to May 2019.** ATLASS Missions in South Asia
- **January 2019.** ATLASS Assessors Training: India
- **May 2019, Bangkok, TH.** *Training on Harmonization and Standardization of Laboratory Methods for Antimicrobial Susceptibility testing (South Asia)*



Global health
security
is a shared
responsibility



Food and Agriculture Organization
of the United Nations



USAID

Protecting people and animals from disease threats

