



Gaps and challenges in capacity building for AMR surveillance in animal sector in South and Southeast Asia

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Food and Agriculture
Organization of the
United Nations



World Health
Organization



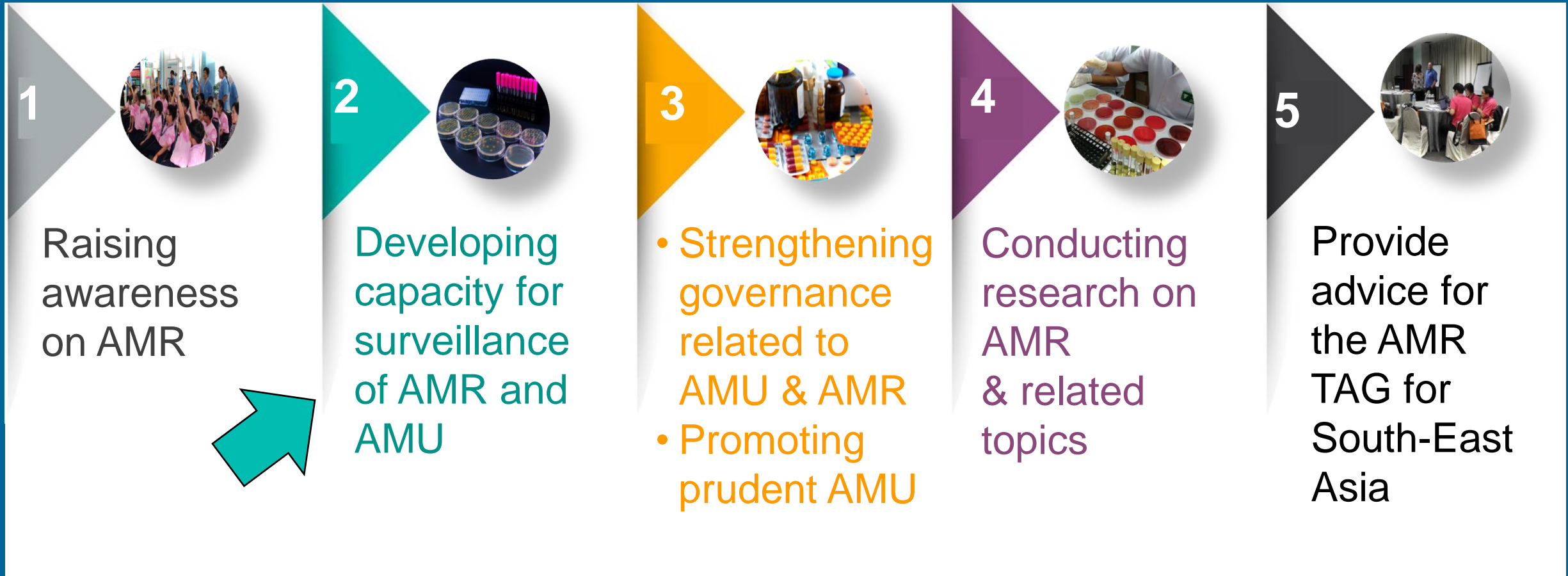
World Organisation
for Animal Health
Founded as OIE



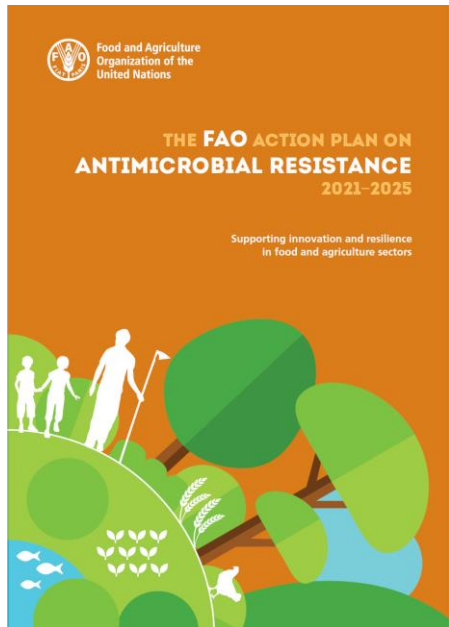
Funded by
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Key Activities as FAO Reference Center for AMR

To support to the FAO Action Plan on AMR activities



FAO ACTION PLAN



Outcome 2: Strengthened evidence through multisectoral surveillance and research on AMR, AMU and antimicrobial residues

- ➔ **Output 2.1**
Laboratory capacity for generating high-quality data and metadata on AMR and antimicrobial residues is improved
- ➔ **Output 2.2**
Surveillance, monitoring and research for AMR, AMU and antimicrobial residues is supported.
- Output 2.3**
Epidemiology resources and capacities are developed.

ATLASS-Surveillance module

For each country:

- Filled **once** for each country
- Answers from **several respondents**

Country



Description of national AMR Surveillance system, PIP stage

ATLASS - Laboratory module

LMT – AMR and LMT bacteriology

- Filled for **each assessed laboratory**
- Collection **qualitative information**
- **LMT scores**

Lab A

Lab B


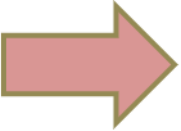
Etc...



Qualitative information and LMT scores compiled for all labs and for national AMR lab network, PIP stage

FAO ATCLASS Progressive Improvement Pathway

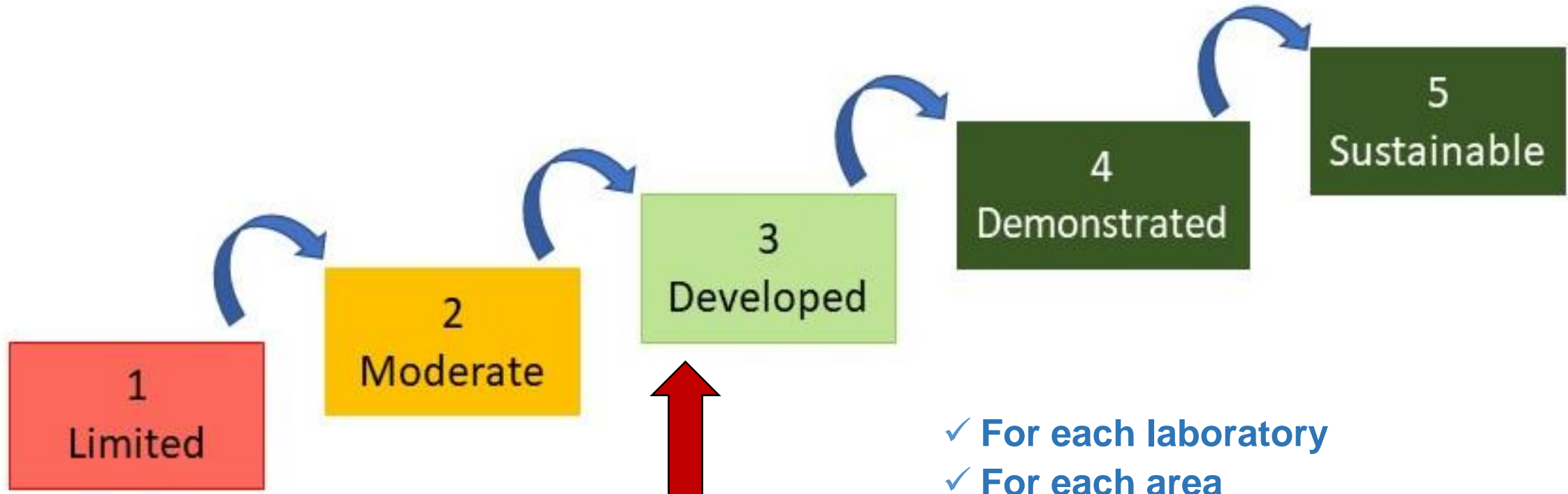
Four area

	Curent stage	Improvements for next stage	Next stage
Governance	3		≥3
Data collection and analysis (epidemiology unit)	2		≥3
Data production network (laboratories)	2		≥3
Communication	1		≥3
Sustainability	2		≥3
PIP stage National AMR surveillance system for food and agriculture	2		3



The recommendations allow countries to identify steps for improvement, prioritize actions and monitor progress over time.

FAO ATLAS Progressive Improvement Pathway – PIP



***PIP stage 3 as
threshold for AMR
data reliability***

✓ **For each laboratory**

✓ **For each area**

- Governance
- Data collection and analysis (Epidemiology Unit)
- Data production network (Laboratories)
- Communication
- Sustainability

✓ **For the national AMR surveillance system**

Flow for Capacity building for AMR labs & surveillance in animal sector in Asia Pacific



Assess capacities for national AMR surveillance and AMR laboratories

- FAO ATLASS



Support countries for capacity building

- Training
- Relevant guidelines & protocols
- AMR data management
- Evaluate AST proficiency
- etc



Establish national AMR surveillance

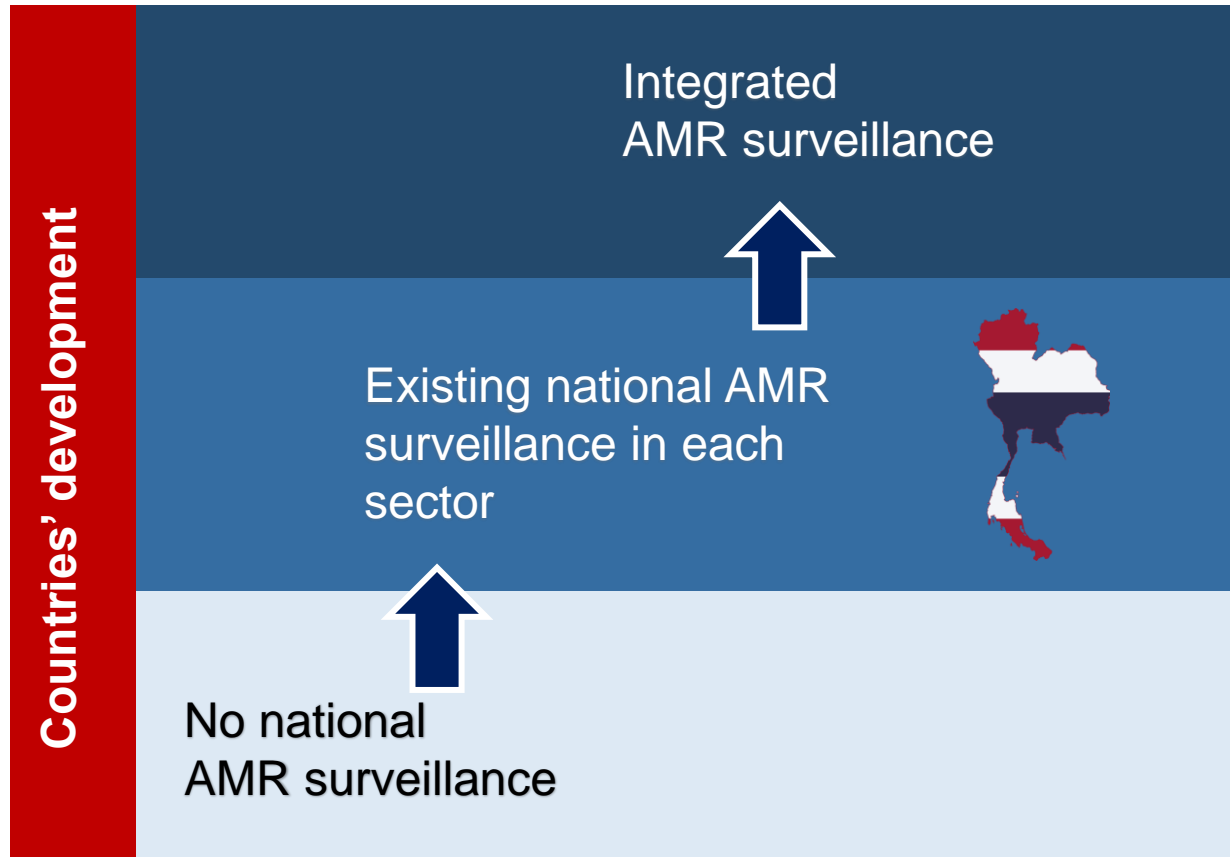
- Sampling for AMR surveillance
- Sample collection and transport
- Laboratory Methods
- Data collecting & report
- **Data analysis**



Establish integrated AMR surveillance

- Assistance & support required

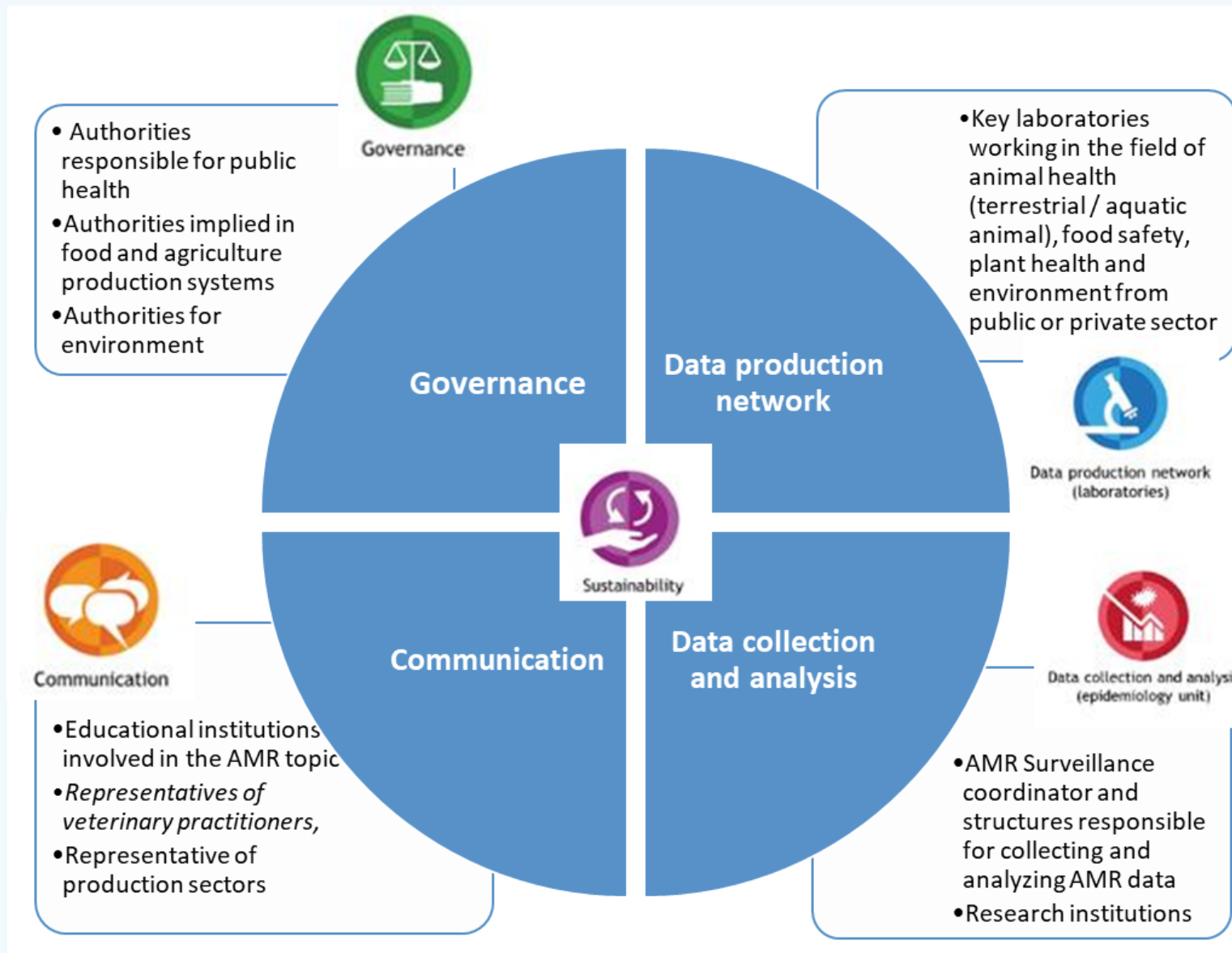
POST-ATLASS MISSION



- Providing scientific knowledge & technical support
- Development of national AMR network
- Relevant guideline for data analysis, integration and management
- AMR surveillance data translation into meaningful action & policy.

etc.

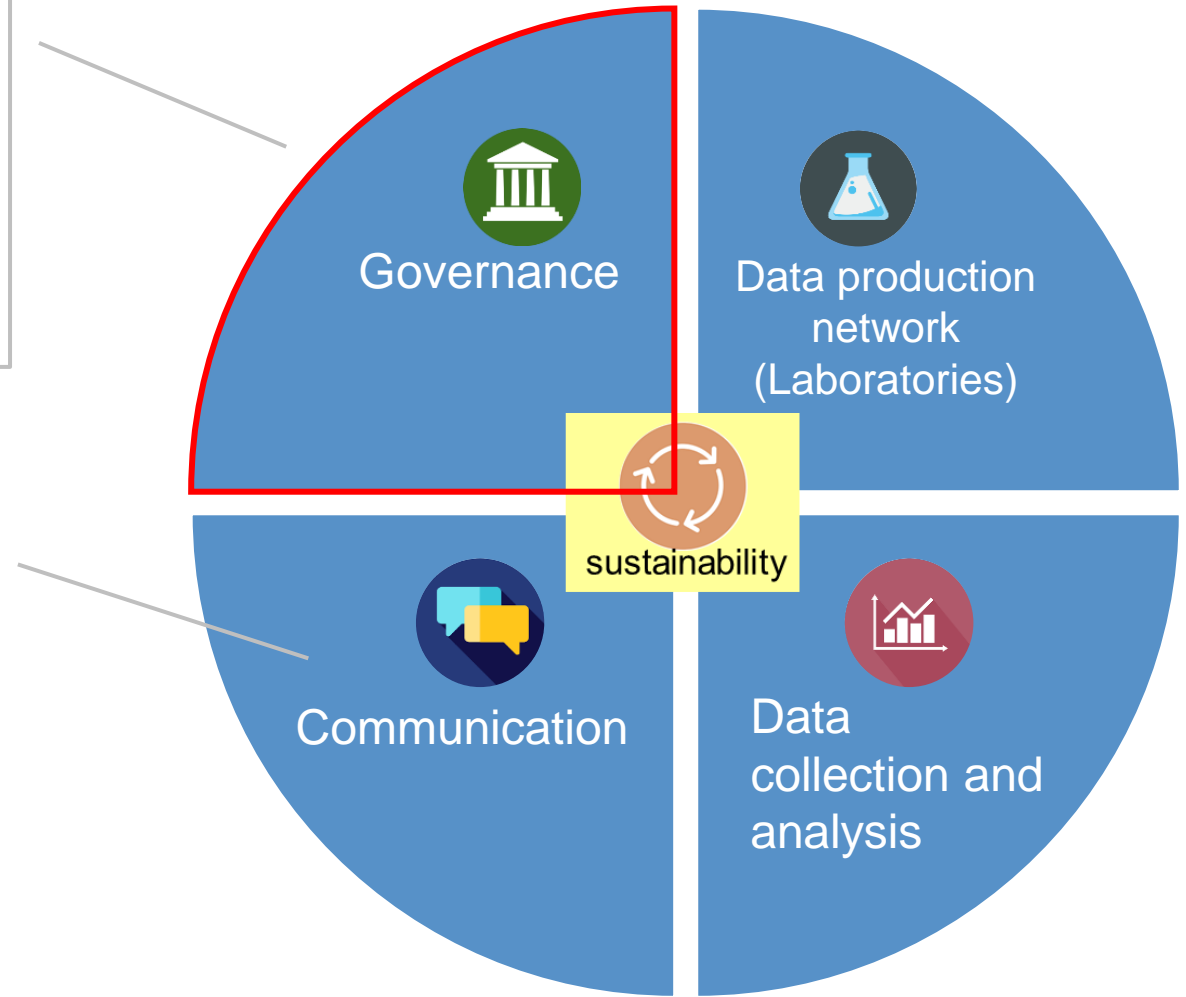
ATLASS – surveillance pillars



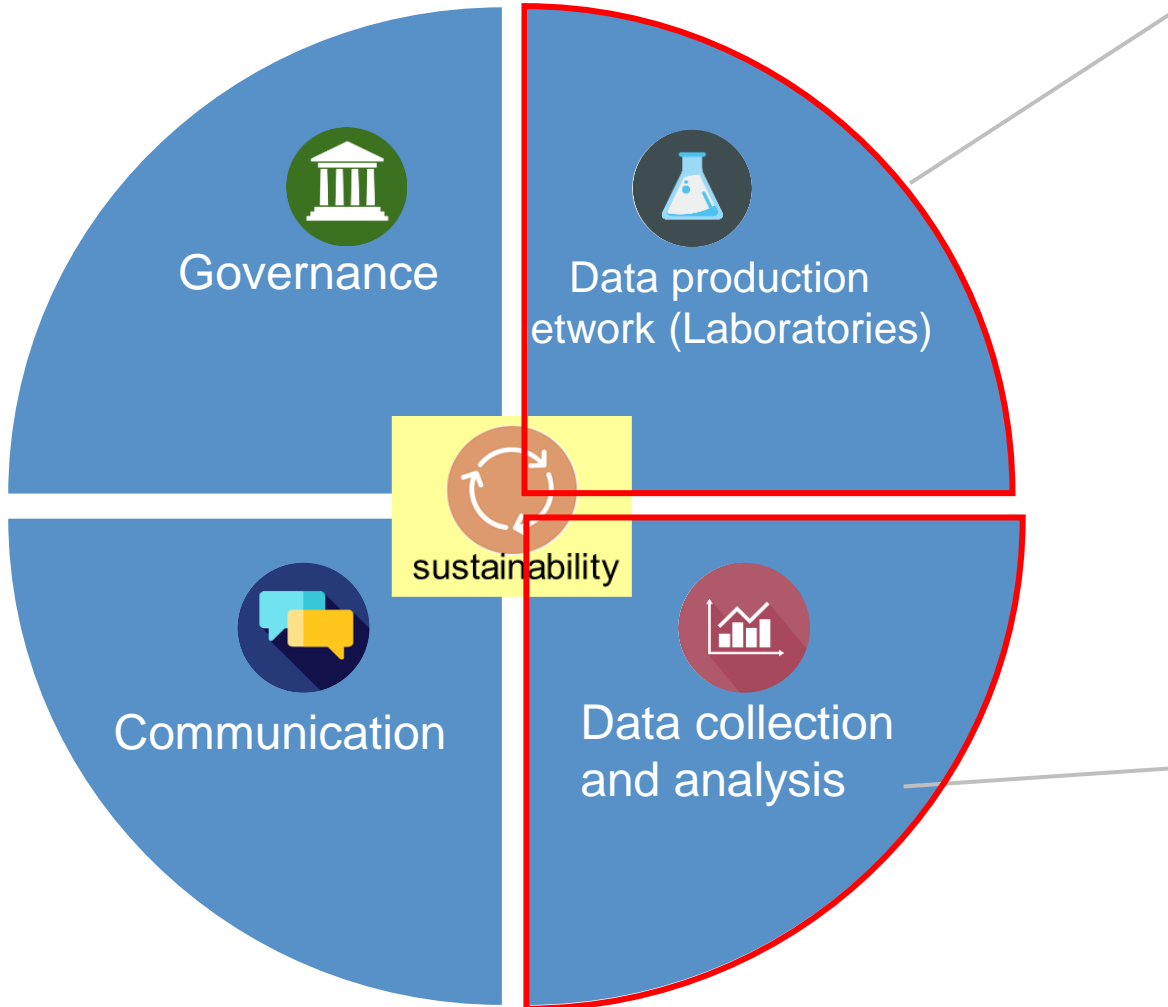
Common gaps and challenges

- No National Action Plan on AMR
- No multi-sectoral working group(s) or coordination committee on AMR
- Only a few or no regulations have been developed but not implemented.

- No AMR surveillance communication system
- Limited external communication activities with decision makers and other partners
- No specific awareness building activity for actors (e.g. laboratories providing AMR data, veterinarians, farmers).
- Risk assessment outcomes are never communicated (AND/OR never performed).
- AMR surveillance results are never circulated



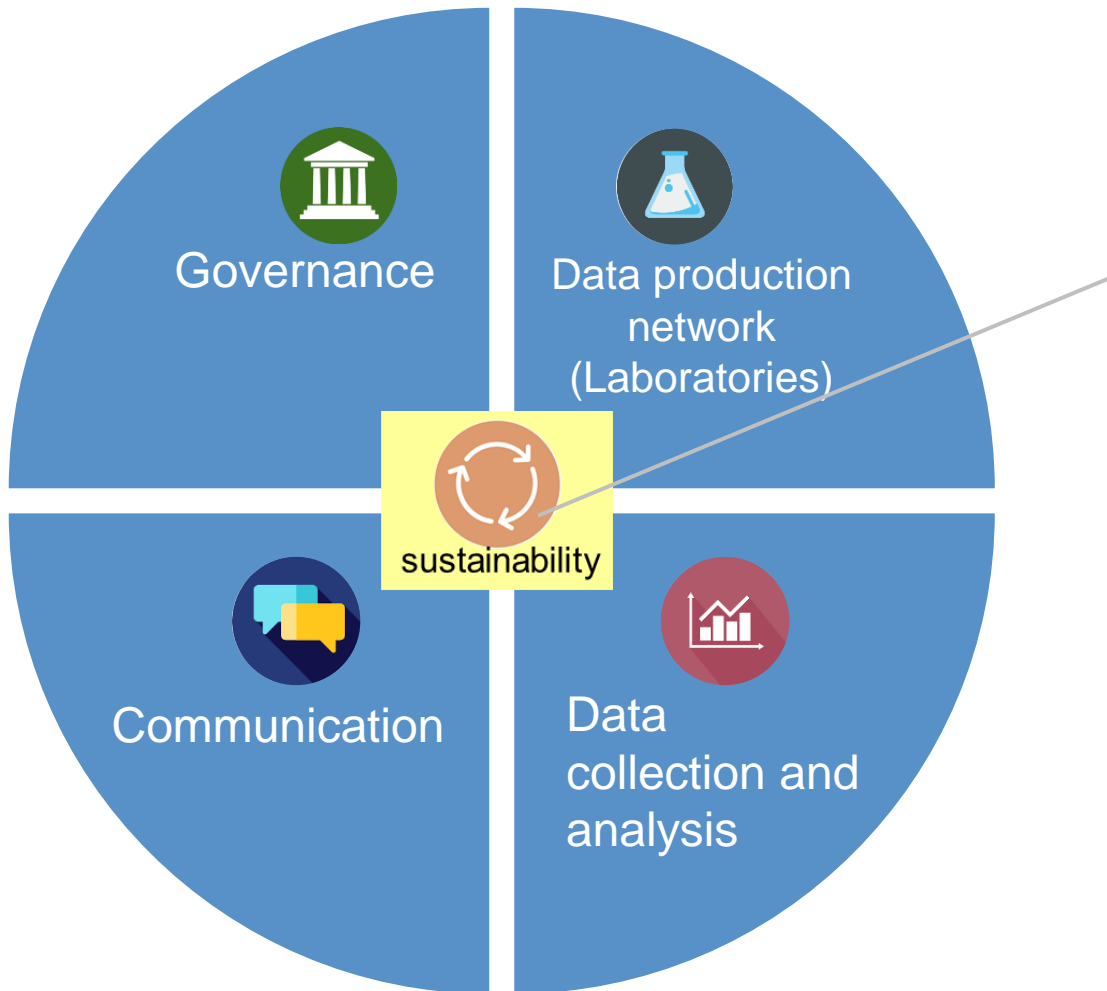
Common gaps and challenges



- Not all the lab use the same protocol
- Only some laboratories are integrated into the operations and the organization of the surveillance
- No all laboratories of the network use computers to manage part of their AMR
- Limited or no data transmission to epi unit

- No dedicated structure OR no structure officially designated for AMR surveillance purpose
- Limited coordination meetings
- Lack AMR epidemiology skills among members of the central unit.

Common gaps and challenges



- NAP has no funding sources.
- Limited human, material, and financial to carry out the AMR activities.
- Insufficient AND/OR no trained epidemiologist.
- Some actors in the system have participated in specific and complete training.
- Limited or no external assessment of the AMR surveillance system.

ATLASS - lab areas



Common gaps and challenges in ACTIVITY

- **Sustainability:**

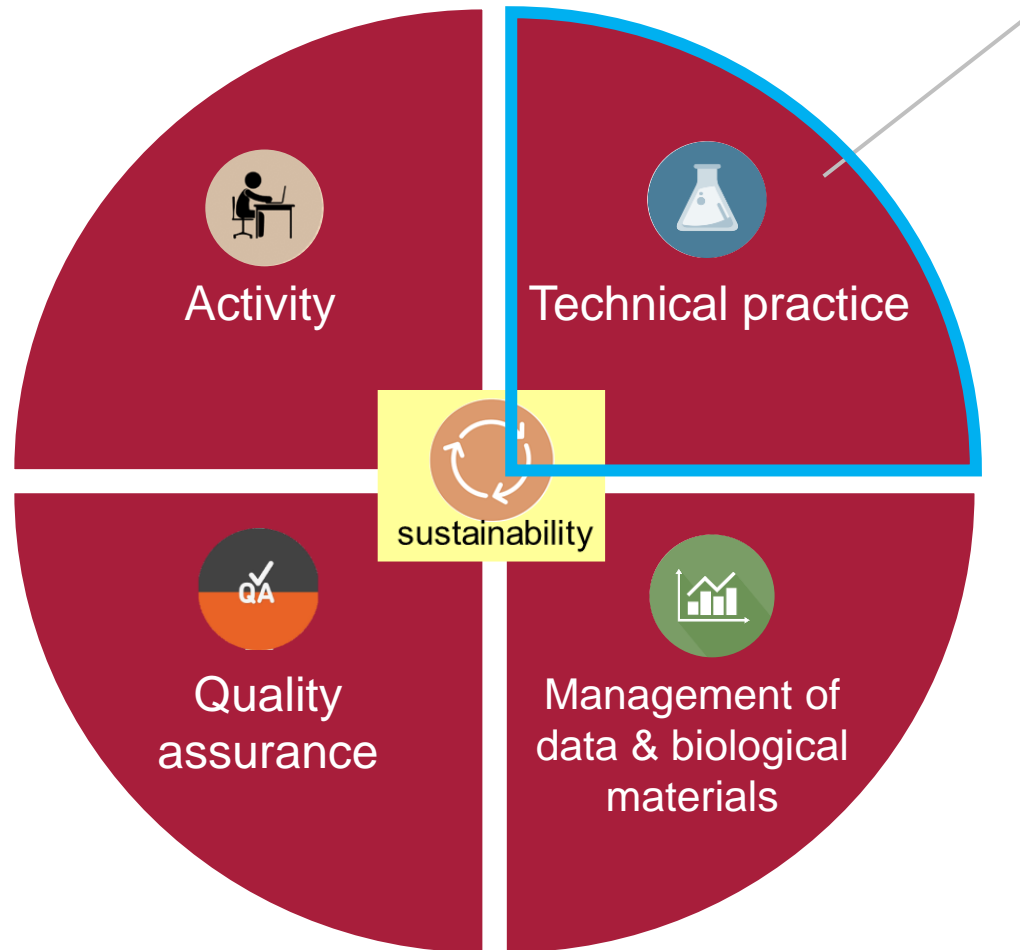
- Limited funding from the government
- Lack sample acceptance criteria

- **Communication:**

- Limited collaboration to other national laboratories on AMR
- Limited collaboration to international laboratories on AMR
- Limited number of scientific publication on AMR
- Have never conduct training on AMR



Common gaps and challenges in technical practice



Resources for bacteriology testing

- shortage of commercial supplies

Bacteriology – technical practices

- Limited capacity for bacterial isolation
- No SOP update

Antimicrobial susceptibility testing (AST) methods

- No standard MIC determination has been conducted.
- No harmonised panel of antimicrobials tested
- Limited device and equipment for AST
- Use one antimicrobial panel for all bacterial species
- No revision of antimicrobial panel
- No SOPs update

Molecular characterization

- No molecular tools, especially PCR, available
- Limited experience in characterization of resistance determinants/genes

Common gaps and challenges in Management of data & biological materials



Biological material management:

- No protocol for bacterial strains for AMR proposes
- Limited equipment for storage (-80°C freezer)
- No identification and tracking system for samples.
- No identification and tracking system for samples are paper based.

Data management:

- AST Data are not archived.
- No data sharing
- No epidemiological unit exists

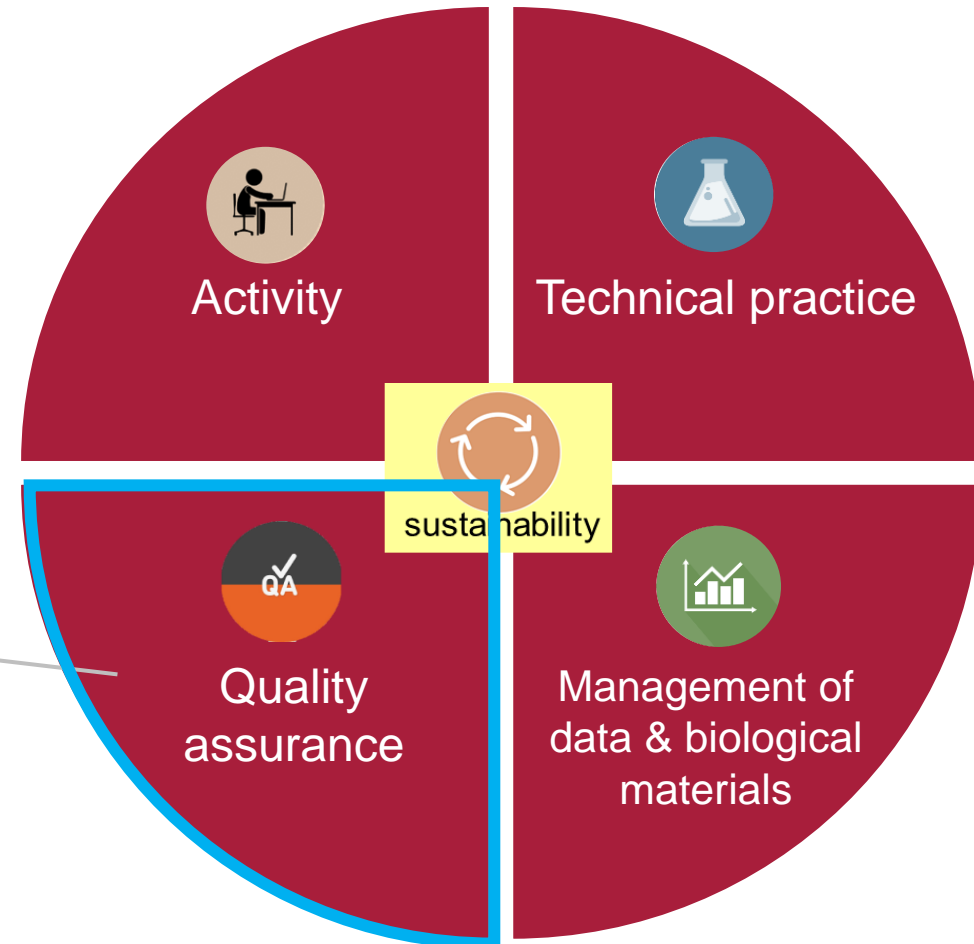
Common gaps and challenges in quality assurance

Documentation

- No SOPs for AMR interpretation
- No SOPs to identify bacteria nor to carry out the AST
- Limited QC strains for AST
- No participation in proficiency test for AST

Staff

- Inadequate well-trained for AST
- No update, only basic knowledge
- No process for skills validation and continued proficiency for the staff.
- Inadequate human resources



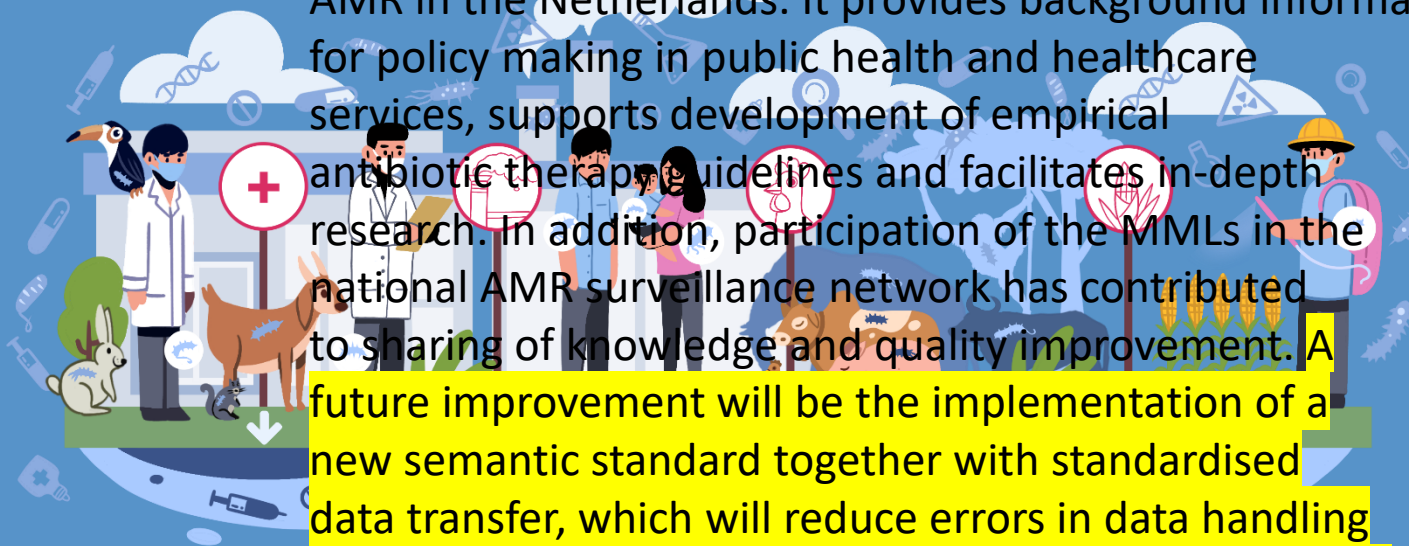


Working together to fight antimicrobial resistance

Current & next moves...



An important cornerstone in the control of antimicrobial resistance (AMR) is a well-designed quantitative system for the surveillance of spread and temporal trends in AMR. Since 2008, the Dutch national AMR surveillance system, based on routine data from medical microbiological laboratories (MMLs), has developed into a successful tool to support the control of AMR in the Netherlands. It provides background information for policy making in public health and healthcare services, supports development of empirical antibiotic therapy guidelines and facilitates in-depth research. In addition, participation of the MMLs in the national AMR surveillance network has contributed to sharing of knowledge and quality improvement. A future improvement will be the implementation of a new semantic standard together with standardised data transfer, which will reduce errors in data handling and enable a more real-time surveillance. Furthermore, the scientific impact and the possibility of detecting outbreaks may be amplified by merging the AMR surveillance database with databases from selected pathogen-based surveillance programmes containing patient data and genotypic typing data.



Working



Challenges in ASEAN countries

