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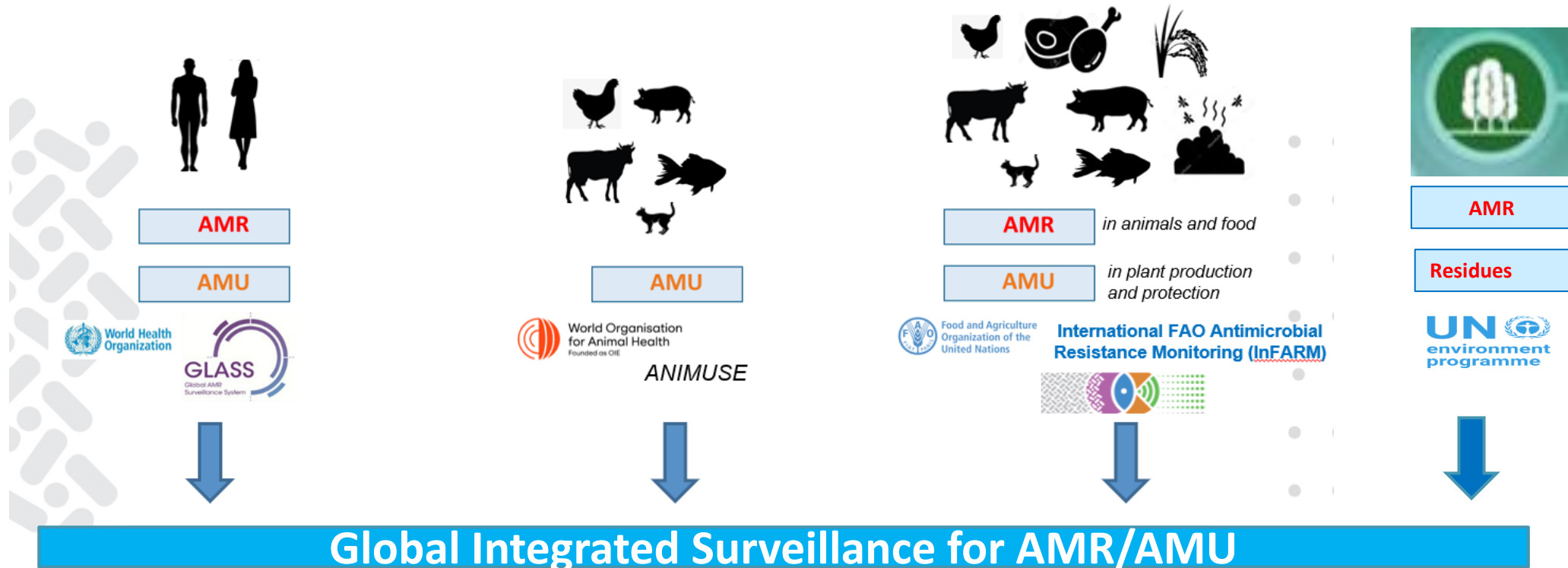
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Integrated Surveillance of AMR and AMU: Core requirements



Integrated Surveillance of AMR/AMU

Quadripartite Global Surveillance Architecture



Health System

Agricultural System

Environmental Health System



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Political Declaration of the High-level Meeting on Antimicrobial Resistance

Surveillance and Monitoring

Commitment 97

Strengthen national capacities for sustainable, sector-specific, **integrated and interoperable surveillance systems** for antimicrobial resistance and antimicrobial use...

Commitment 98

Encourage all countries to **report quality surveillance data on antimicrobial resistance and antimicrobial use** by 2030, through existing global surveillance systems through GLASS, ANIMUSE and InFARm for future use in Quadripartite GISSA (in dev)



UN General Assembly High-Level Meeting on antimicrobial resistance 2024



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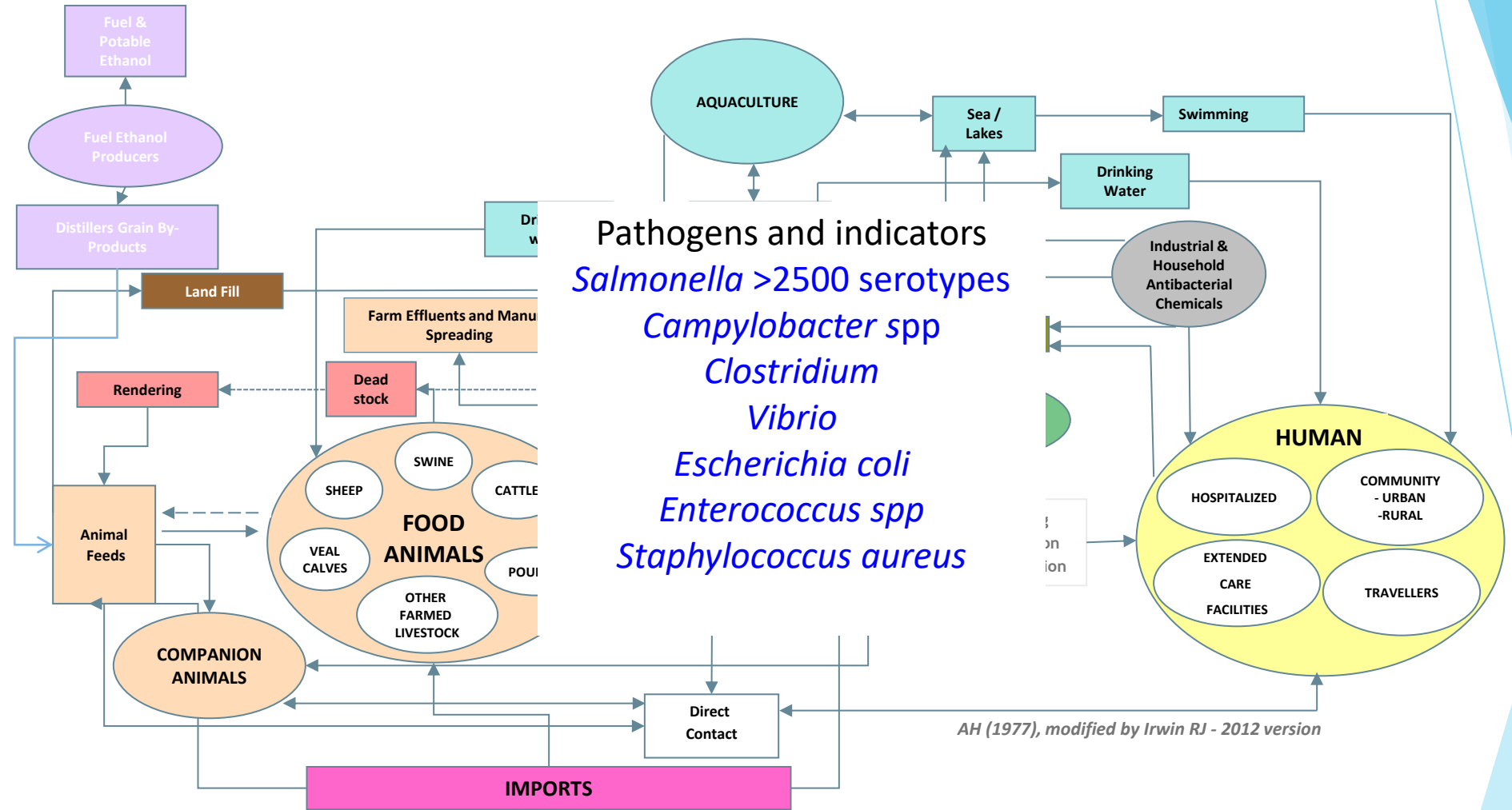
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COMPLEXITY OF ANTIMICROBIAL RESISTANCE

- Antimicrobial use in different sectors
- Bacteria species circulating in different sectors
- Transmission of AMR





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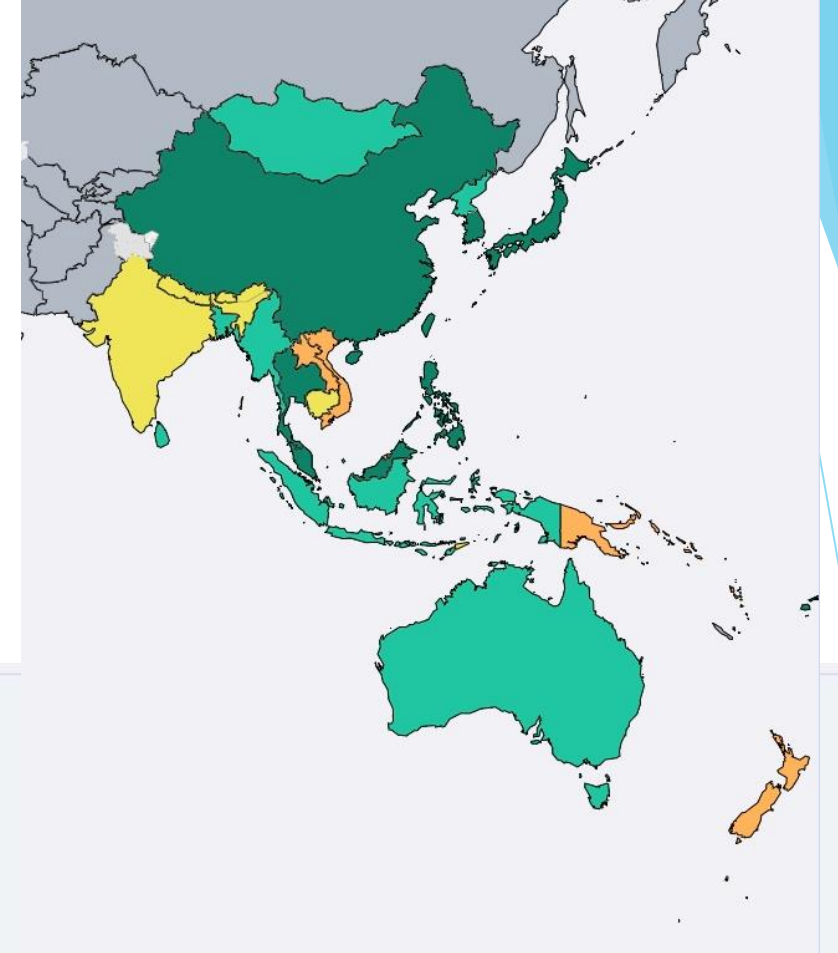
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NAP's situation: Multisectoral activities

Multisectoral and One Health collaboration/ coordination

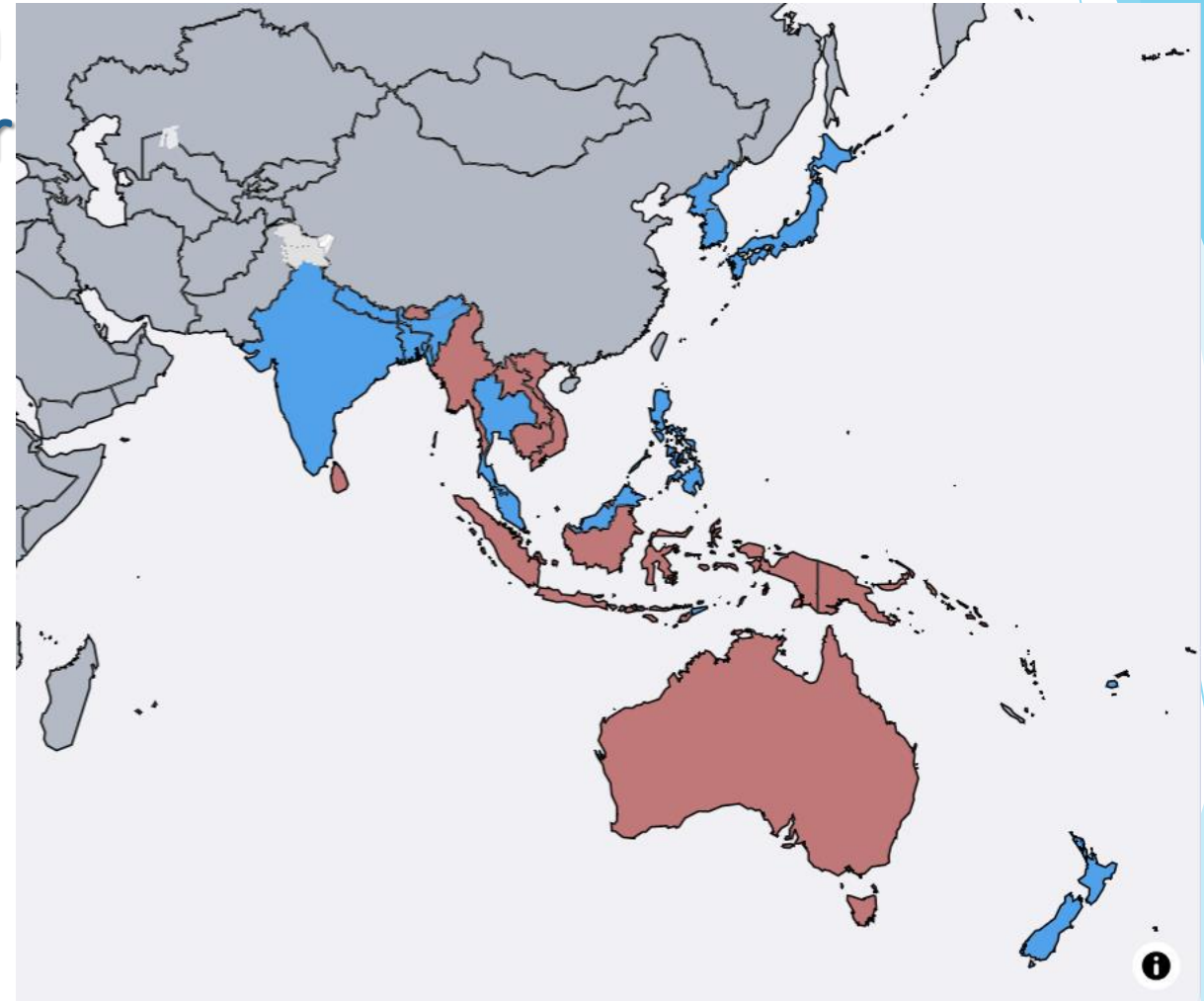


2.1 Multi-sector and One Health collaboration/coordination

- A** A - No formal multi-sectoral governance or coordination mechanism on AMR exists.
- B** B - Multi-sectoral coordination mechanism on AMR established with government leadership.
- C** C - Formalized multi-sector coordination mechanism with technical working groups developed with clear terms of reference, regular meetings, and funding for working group(s) with activities and reporting/accountability arrangements defined.
- D** D - Joint working on issues including agreement on common objectives.
- E** E - Integrated approaches used to implement with some activities of the national AMR action plan with relevant data, and lessons learned from all sectors used to adapt implementation of the action plan.
- Did not respond**

Has the country established or starting the implementation of an Integrated Surveillance System for AMR?

Y	Yes
N	No
	Did not respond

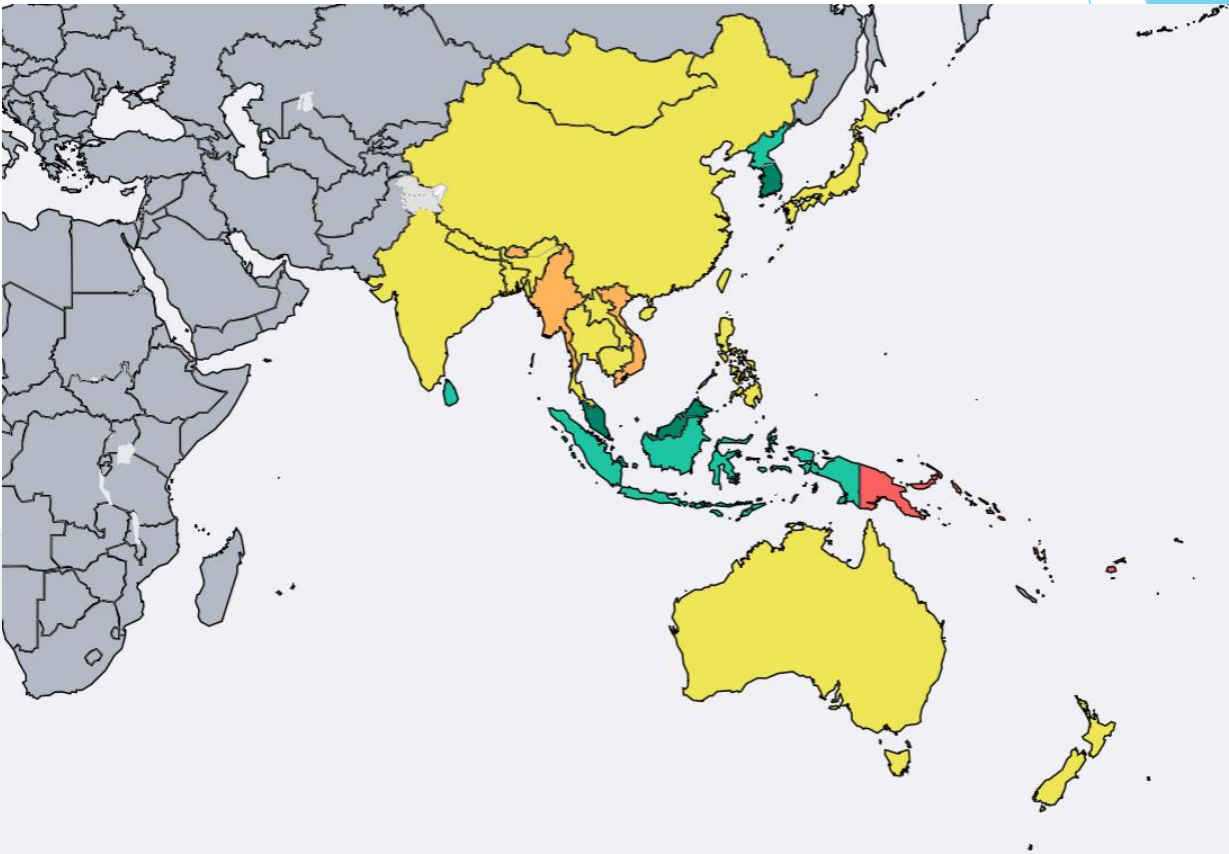


National AMR Lab network in animal health and food safety sectors

Effective Integration of laboratories in the AMR surveillance

5.4a National AMR Laboratory network in animal health and food safety sectors - Effective integration of laboratories in the AMR surveillance

- A** Information not available.
- B** Laboratories perform antimicrobial susceptibility testing (AST) for own purposes and are not included in the national AMR surveillance system.
- C** Some laboratories performing AST are integrated in the national AMR surveillance system.
- D** All laboratories performing AST are integrated in the AMR surveillance system but the role should be better formalized and the network better and developed.
- E** All laboratories performing AST are integrated in the national AMR surveillance system, have a clear position, and are linked to a national network coordinated by a National Reference Laboratory.
- Did not respond**

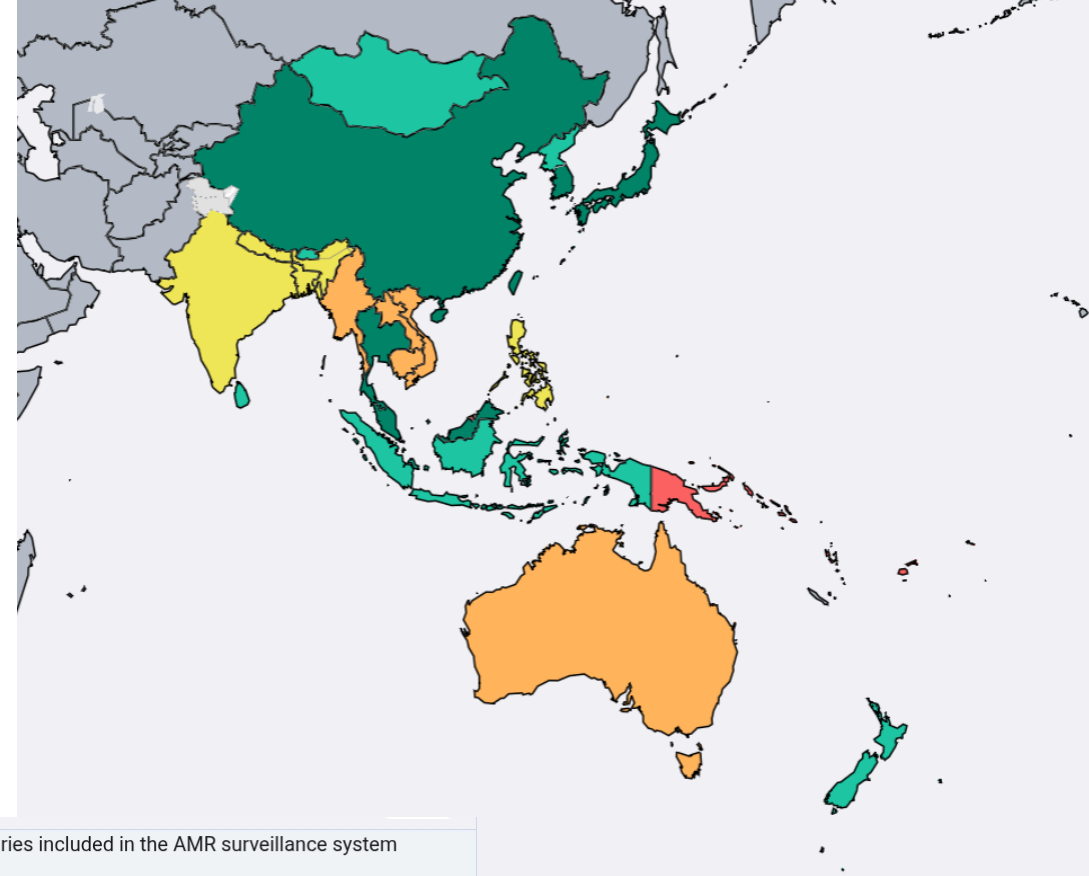


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Lab Network AMR Surveillance

Animal and food sector

Level of the standarization and harmonization of procedures among laboratories



5.4b National AMR Laboratory network in animal health and food safety sectors - Level of the standardization and harmonization of procedures among laboratories included in the AMR surveillance system

- A** Information not available.
- B** No standardized national AST guidelines are in place or less than 30% laboratories follow the same AST guidelines.
- C** Between 30% to 79% of laboratories follow the same AST guidelines.
- D** Between 80% and < 100% of laboratories use the same AST guidelines.
- E** 100% of laboratories use the same AST guidelines.
- Did not respond

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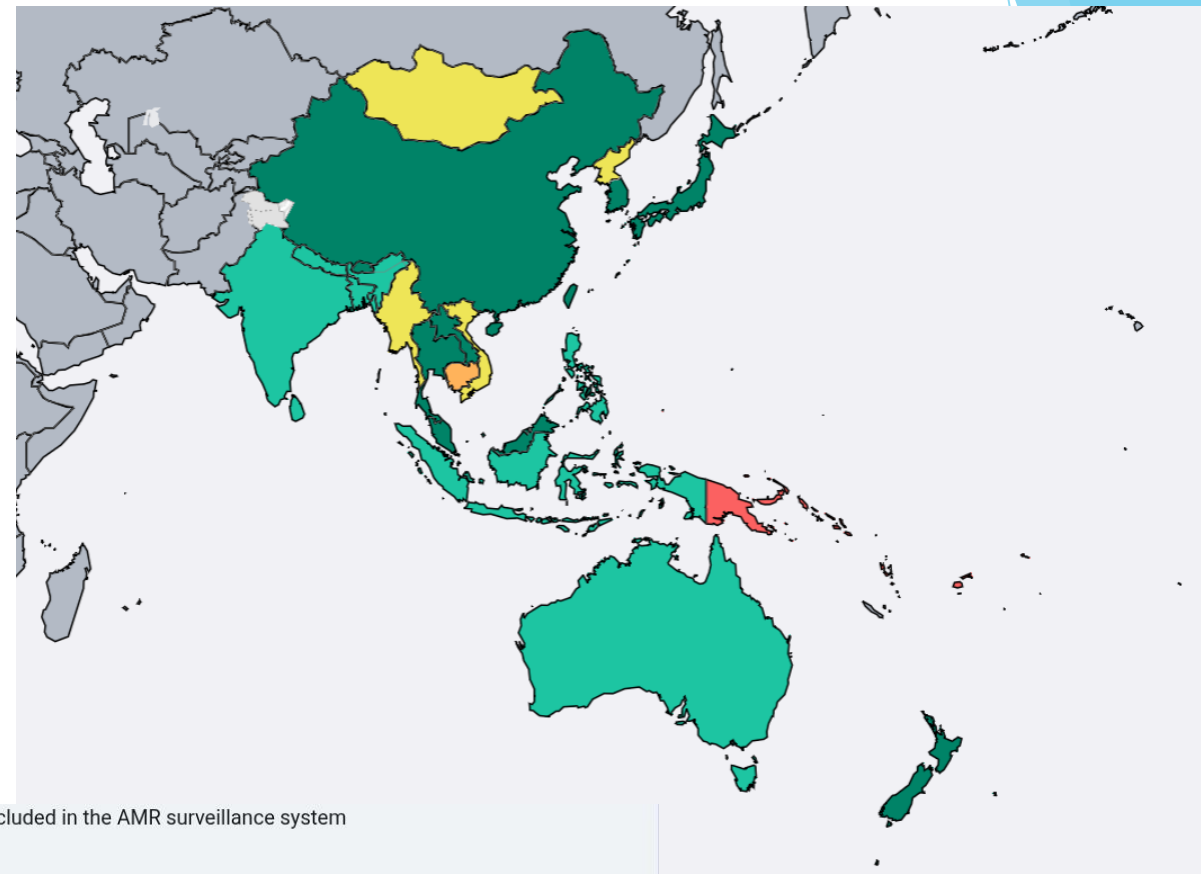
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Lab Network AMR Surveillance Animal and Food sectors

Relevance of Dx techniques used by Lab



5.4c National AMR Laboratory network in animal health and food safety sectors - Relevance of diagnostic techniques used by laboratories included in the AMR surveillance system

- A** Information not available.
- B** AST, bacterial isolation and identification protocols are not relevant considering the national AMR surveillance objectives.
- C** Major modifications in the AST, bacterial isolation and identification protocols used are required to improve their adaptation to national AMR surveillance objectives.
- D** Minor modifications in the AST, bacterial isolation and identification protocols used would improve their adaptation to the national AMR surveillance objectives.
- E** AST, bacterial isolation and identification protocols are perfectly suited to the national AMR surveillance objectives.
- Did not respond

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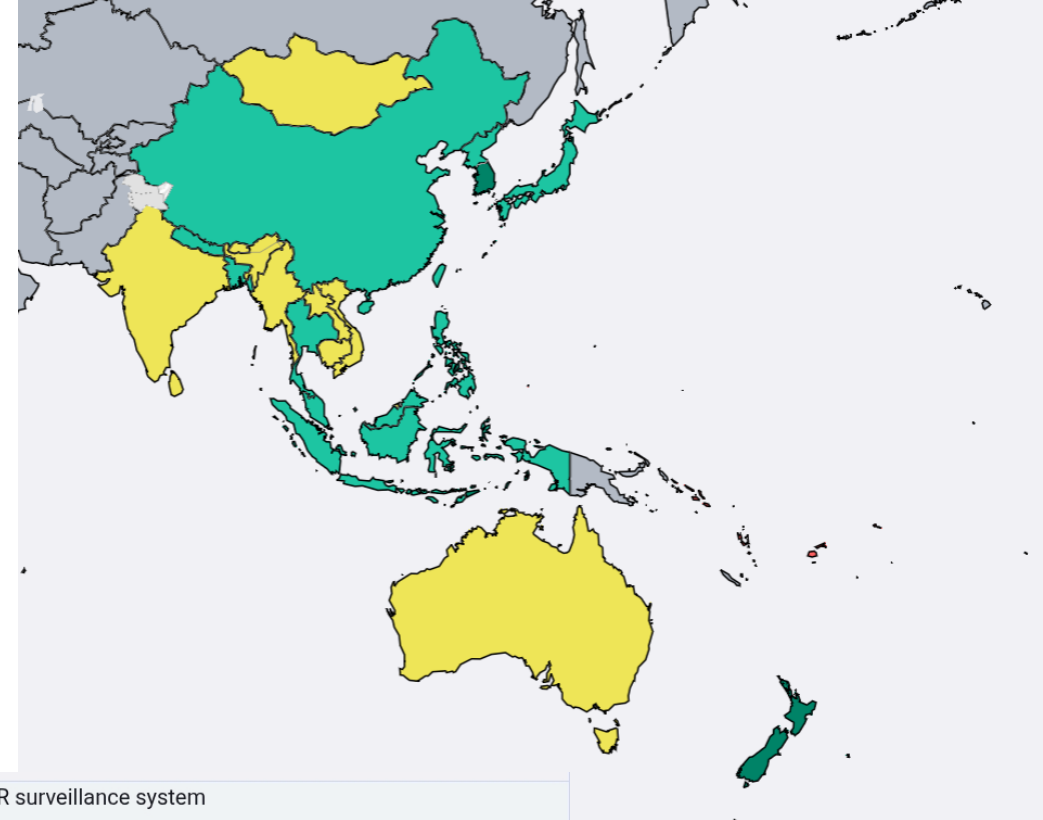
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Lab Network AMR Surveillance Animal and Food Sectors

Technical level of data management of the Lab Network



5.4d National AMR Laboratory network in animal health and food safety sectors - Technical level of data management of the laboratory network in the AMR surveillance system

A

Information not available.

B

AST data are handled manually, or AST data management is not computerized in all laboratories of the network and/or there are problems in the recording of the samples and their traceability along the analysis chain.

C

Most laboratories of the network use computers to manage part of their data but important improvements in the system are required.

D

Some minor improvements are required in some laboratories of the network to improve the computerized management of AMR laboratory data (sample input procedures, sample storage information, computerized transmission of data , etc....).

E

All laboratories use ongoing optimal data management (e.g. samples and test results are identified using a complete computerized management system covering each step in the analysis chain, including the storage of epidemiological information, data validation protocol and the computerized transmission of results, conforming perfectly to the requirements of the national AMR surveillance system).

Did not respond

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Human sector: Lab capacity AMR Surveillance

Capacity to perform AST for critically important bacteria



3.7b Capacity to perform AST for critically important bacteria

- A** No, the country does not have a national bacteriology/AMR reference laboratory performing AST for a...
- D** Yes, the country has one or more national bacteriology/AMR reference laboratory/s for AMR performing...
- E** Yes, the country has one or more national bacteriology/AMR reference laboratory/s for AMR performing...
- Did not respond

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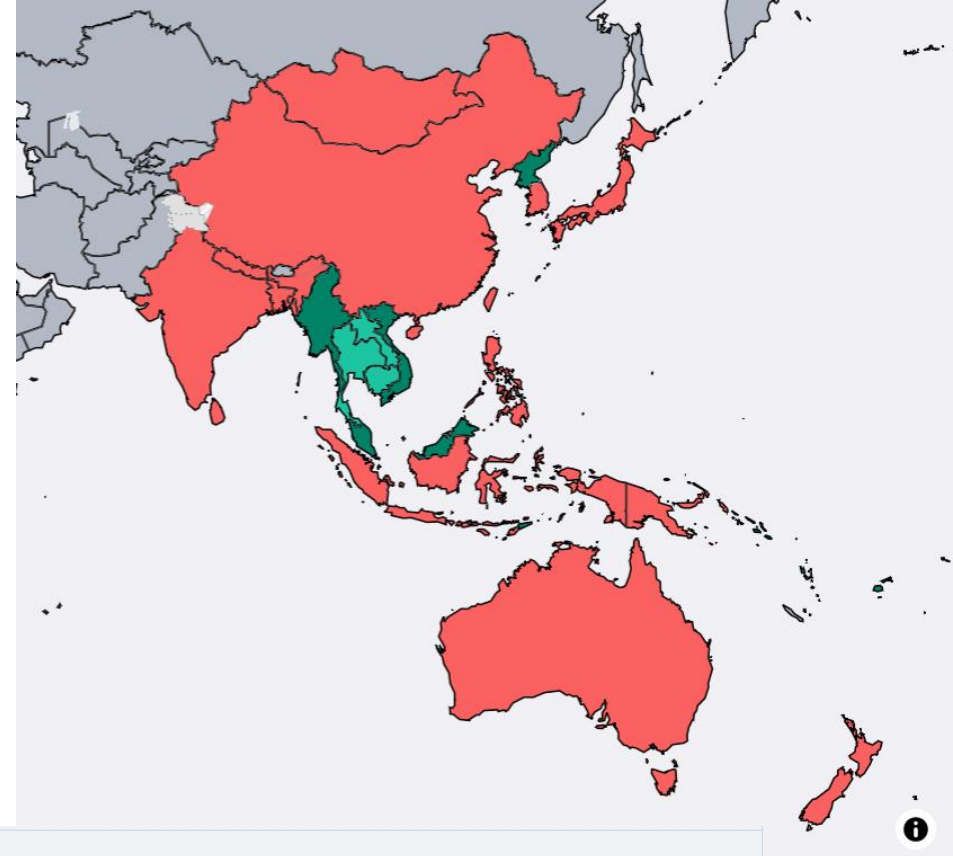
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Human sector: Lab capacity AMR surveillance

Continuity of services for clinical bacteriology labs



3.10b Continuity of services for clinical bacteriology laboratories

- A** No, each bacteriology laboratory manages stock status without compulsory reporting
- D** Yes, some laboratories regularly report stock-status at the national level.
- E** Yes all laboratories regularly report stock-status at the national level.
- Did not respond

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Establishing, building or improving One Health integrated surveillance of AMR and AMU

Status of the Sectors specific Surveillance Systems in the country

Approach A:

- ▶ Using existing sector-specific surveillance systems

Approach B:

- ▶ Building a new integrated surveillance system



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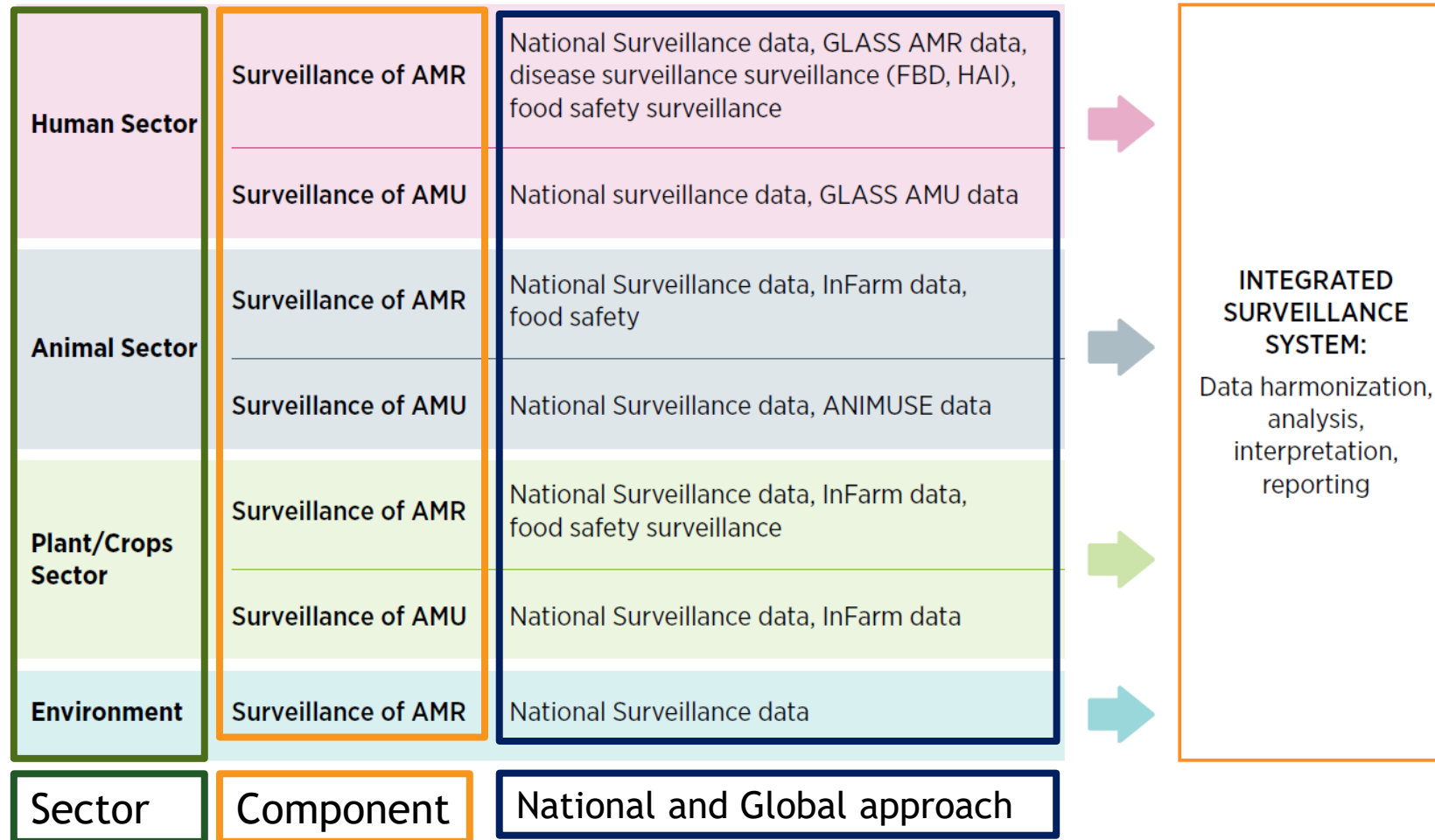
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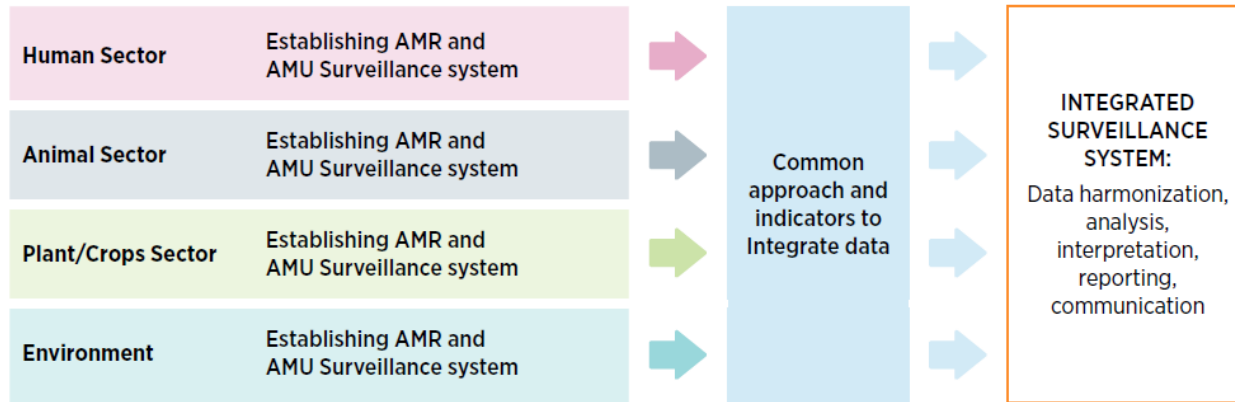
Approach A:

Using existing sector-specific surveillance systems



Approach B: Building a new integrated surveillance system

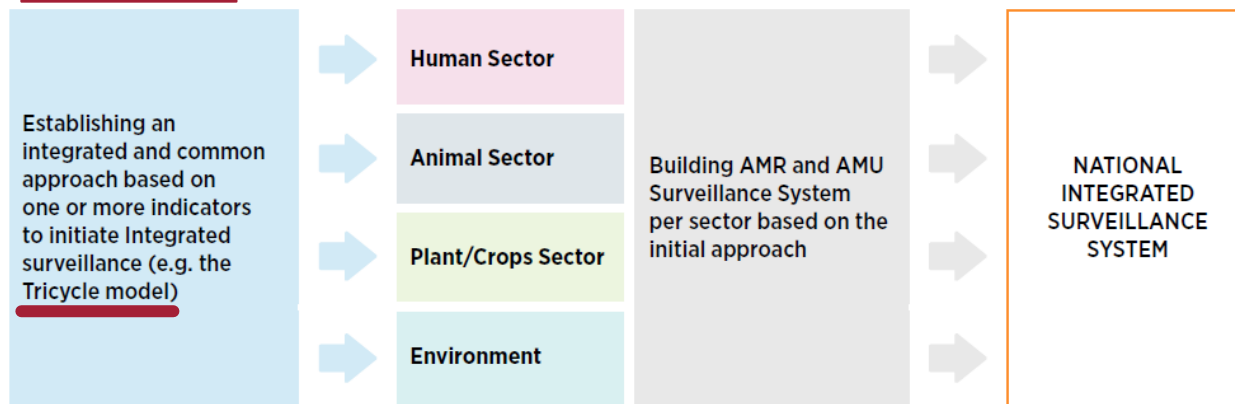
Model 1



Model 1

Establishing sector specific surveillance system from zero

Model 2



Model 2

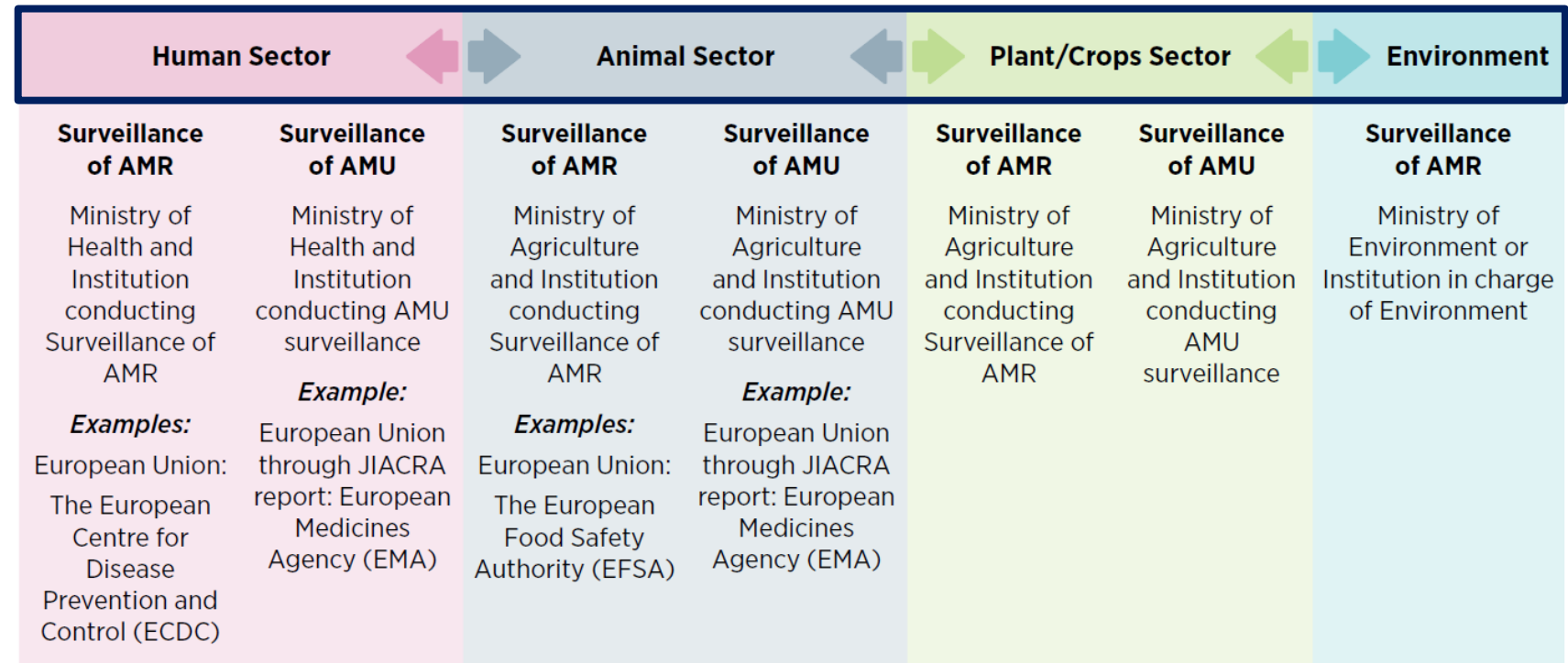
Using an existing OH multisectoral survey or model approach (ESBL Tricycle model)

Joint integration of an integrated surveillance system: Governance and coordination

Approach 1: Intersectoral integration

NATIONAL INTEGRATED SURVEILLANCE SYSTEM Joint integration and coordination

All sectors involve
integrating
responsibilities



Joint integration of an integrated surveillance system: Governance and coordination

Approach 2: National entity integrating data from OH sectors

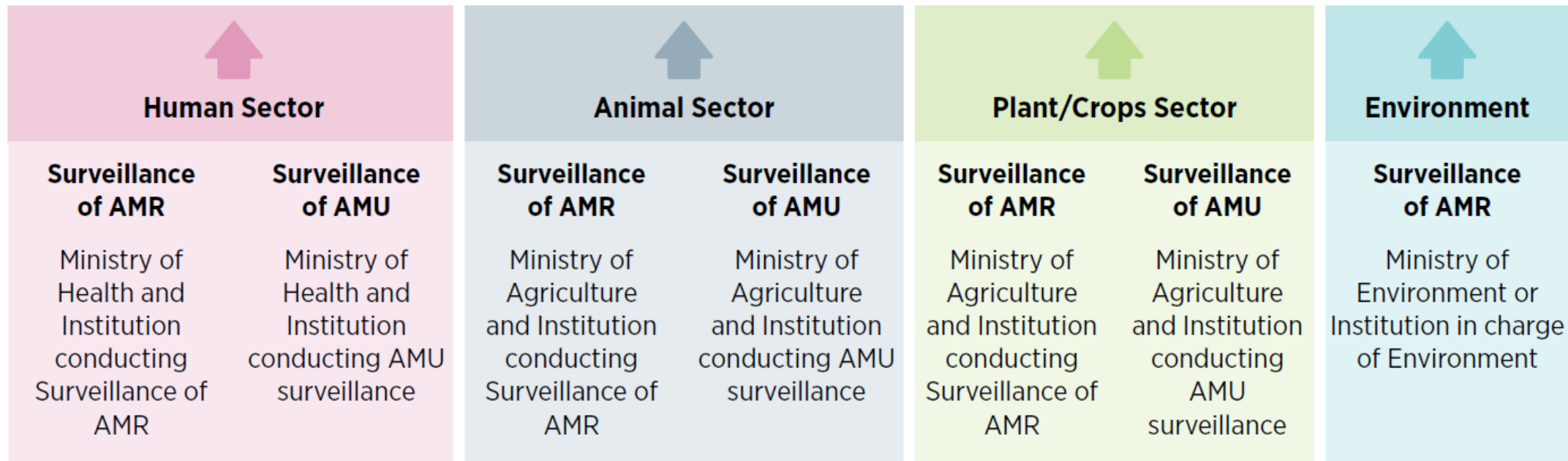
National
coordinator
of OHISA



NATIONAL INTEGRATED SURVEILLANCE SYSTEM

Joint integration and coordination

***National Entity Establish to Integrate data from different sectors**



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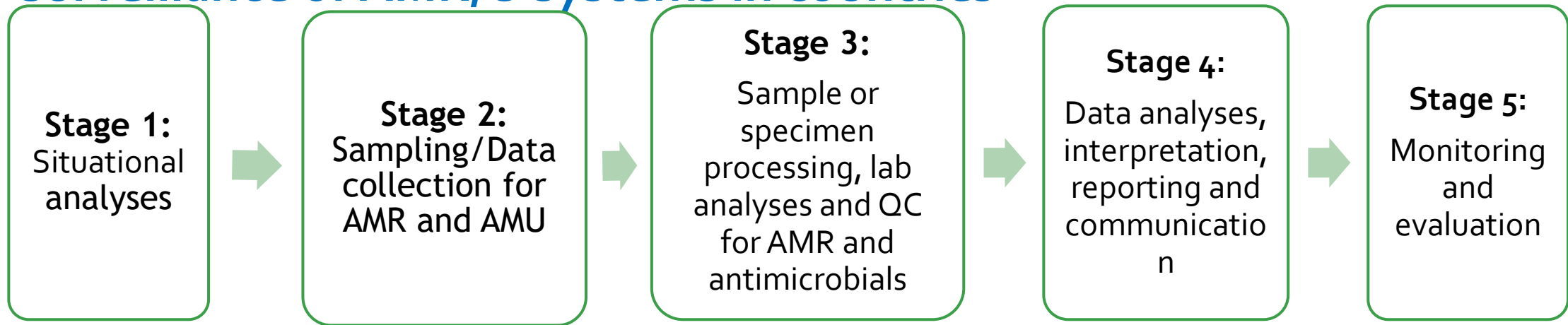


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Stages in establishing/enhancing One Health integrated surveillance of AMR/U systems in countries



Steps for stage 1:

- Conducting the situation analysis, planning, resourcing, and stakeholder mapping
- Priority setting
- Epidemiological design of the system
- AMR and AMU data sharing across sectors

From the situation analysis to formal establishment of the system

The success of integrated surveillance depends on synergistic alignment of existing surveillance infrastructure, governance and legislative, national health priorities and resources

Resources and requirements

- ▶ The input that the system requires to function in two or more sectors
- ▶ The three categories are:
 - ▶ Human Resources
 - ▶ Infrastructure
 - ▶ Consumables

One-time capital investment and recurring maintenance costs



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Human resources

- ▶ National coordinator
- ▶ Microbiologist, laboratory technicians
- ▶ Pharmacist
- ▶ Epidemiologist
- ▶ Bioinformaticians,
- ▶ Data analysts experts,
- ▶ Statisticians
- ▶ AMU surveillance officers,
- ▶ Network management specialists
- ▶ IT managers
- ▶ Field sample collectors



Key functions

- ▶ Sampling and data collection:
- ▶ Sample analysis, interpretation and reporting
- ▶ Data analysis, reporting, interpretation and communication



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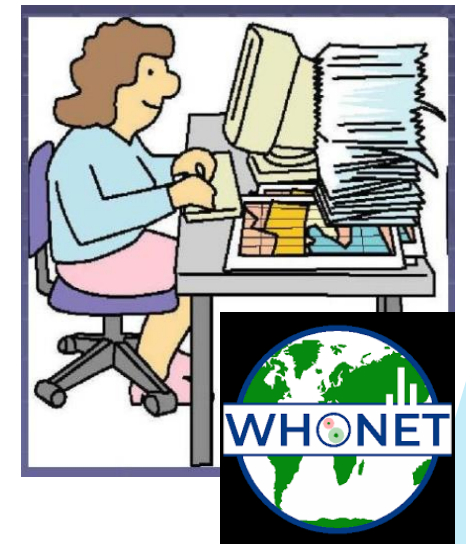
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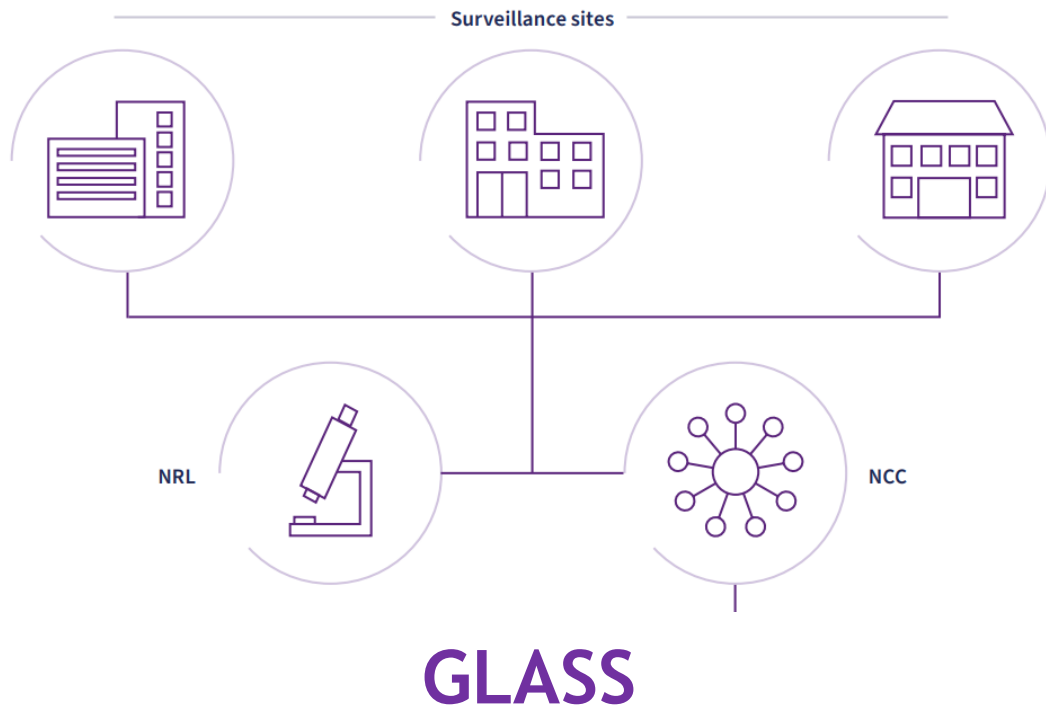
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Infrastructure

- ▶ Refers to the physical resources and nonphysical systems that require maintenance. Infrastructure takes three distinct forms
 - ▶ Institutional infrastructure, such as laboratory space and facilities;
 - ▶ equipment, such as laboratory equipment that requires maintenance, such as a PCR machine, and vehicles; and
 - ▶ supporting systems, such as utilities systems, information and communication technology systems, transport and logistics.

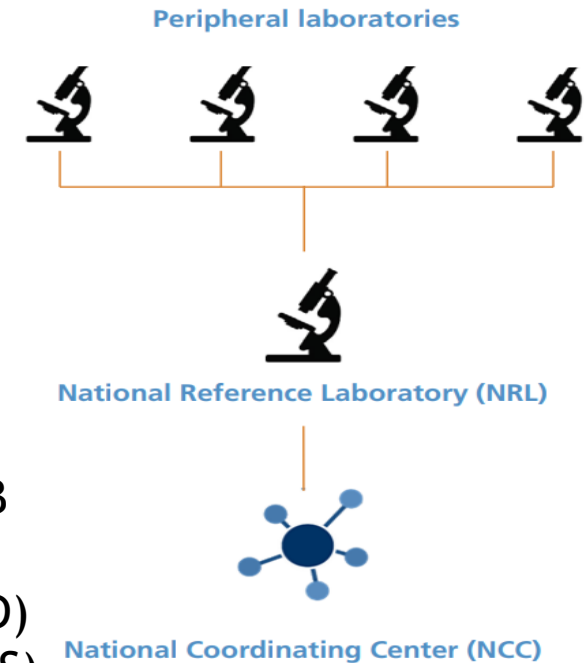


Infrastructure: Laboratory capacities



SURVEILLANCE SITES
(Community, Hospital,
Farms)
Routine analysis

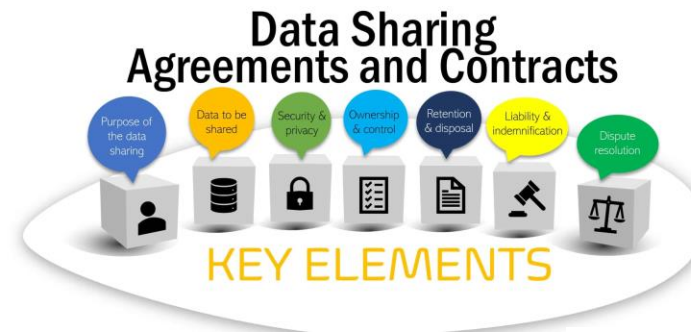
- NATIONAL REFERENCE LAB**
- Coordination
 - Special Surveillance (FBD)
 - Specialized analysis (WGS)



Quality Assurance system
Proficiency testing

Institutional Infrastructure: Collaborative Framework

- ▶ Interdisciplinary collaborative agreements
- ▶ Data-sharing resources
- ▶ Data repository infrastructure or access to a data repository
- ▶ Legal and regulatory framework
- ▶ Digitized and electronic records systems
- ▶ IT tools for data collection and analysis
- ▶ Dedicated physical structures for laboratory work



Supporting systems infrastructure

- ▶ Basic utilities:
 - ▶ Electricity
 - ▶ potable water supply
 - ▶ cold chain
 - ▶ access to computers and Internet
 - ▶ back-up power generator and water reservoir
- ▶ Safe biological waste disposal
- ▶ Biosafety infrastructure
- ▶ Information and communication technology infrastructure



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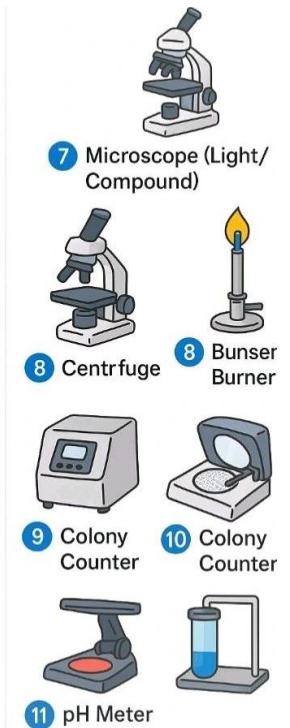
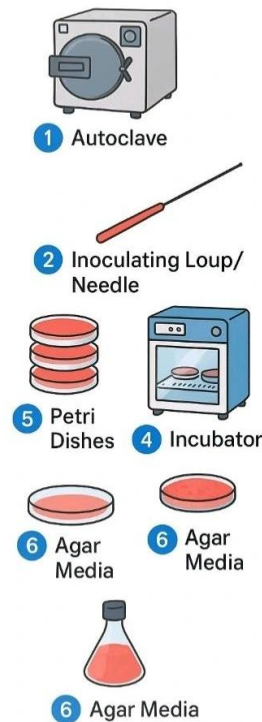
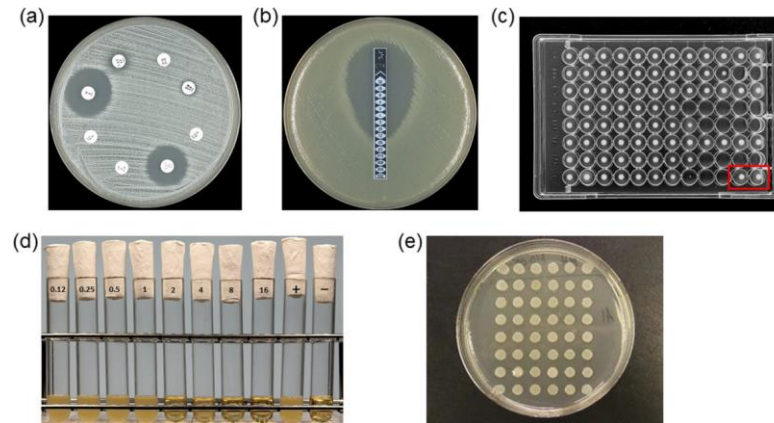
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Consumables

- ▶ Consumables are single-use or disposable materials or equipment. Examples include antimicrobial panels, discs, culture media, AST media, laboratory reagents, supplies and equipment that does not require maintenance.



Thank you



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