



WHO model on Integrated Surveillance of AMR with One health approach

ESBL *Escherichia coli* Tricycle protocol



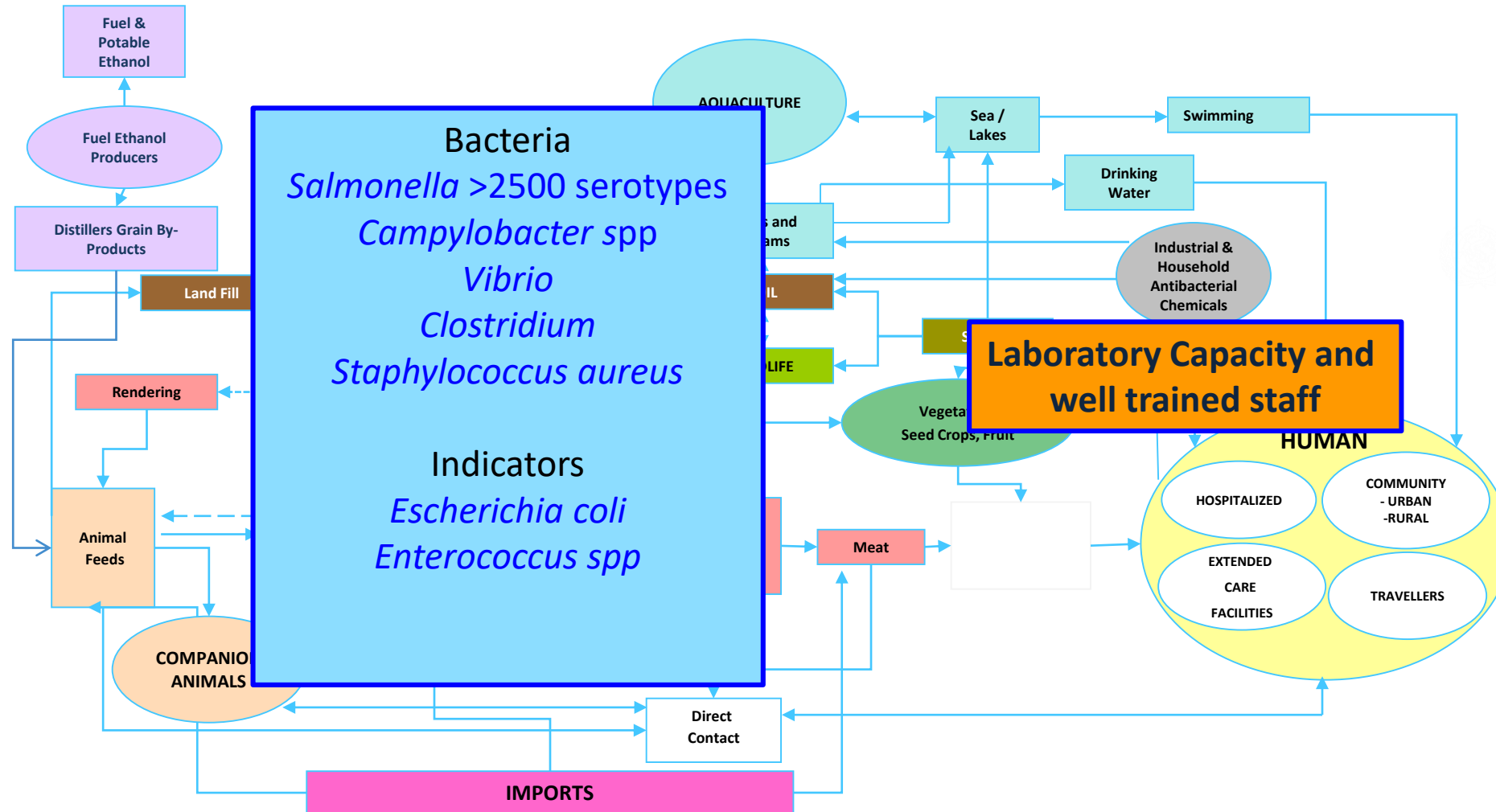
Jorge Matheu

AMR Division

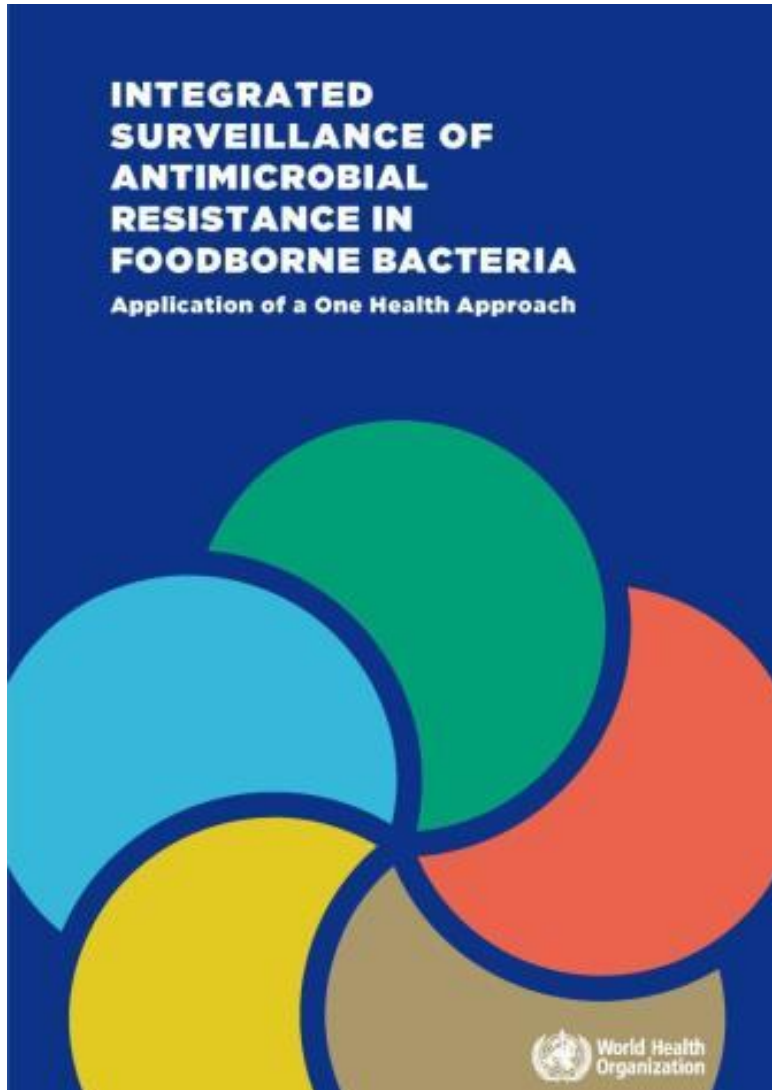
WHO Headquarters

March 16th, 2021

COMPLEXITY OF ANTIMICROBIAL RESISTANCE

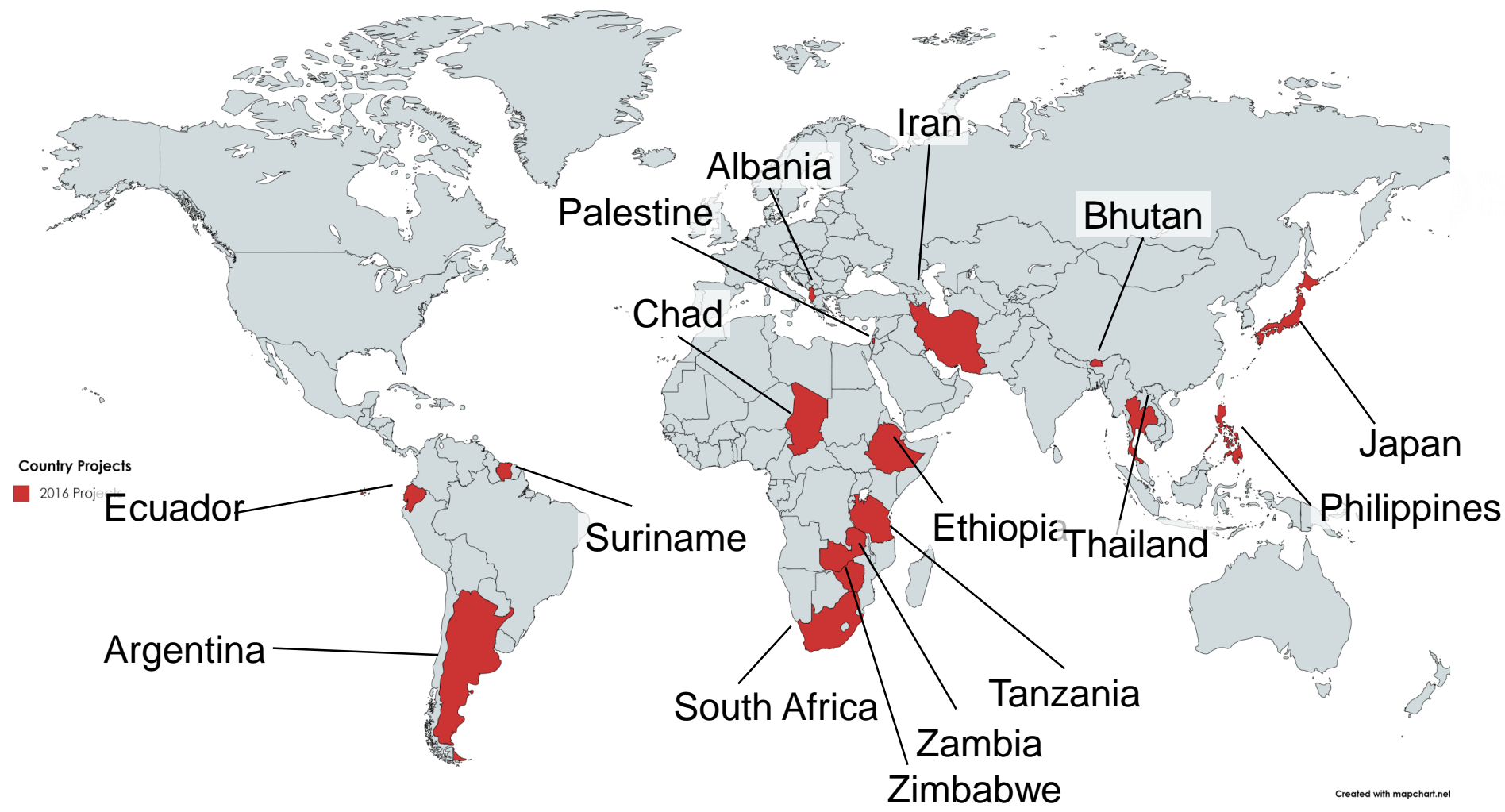


WHO Integrated Surveillance Guidance

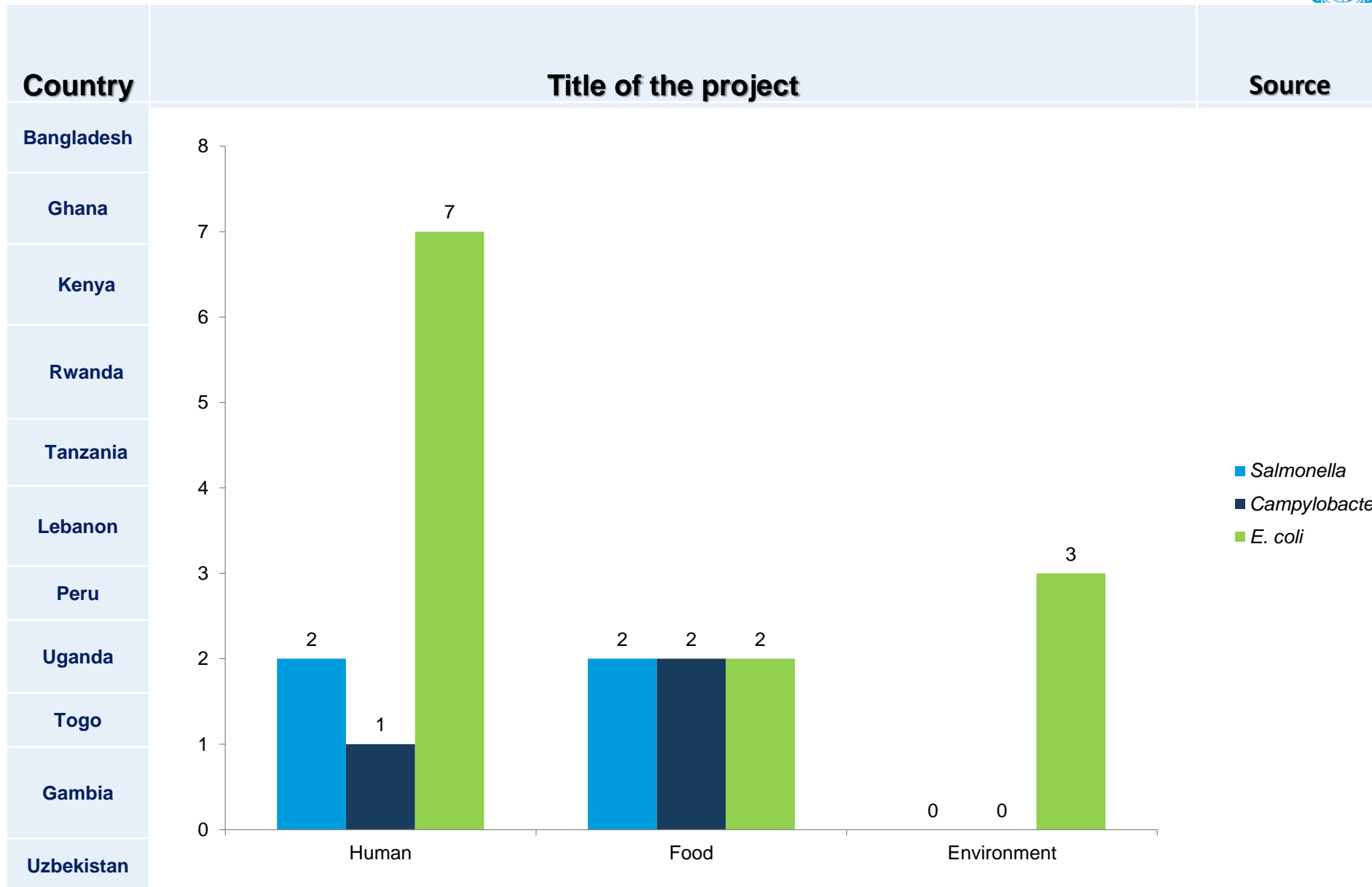


1. Monitoring/ Surveillance of resistance
2. Monitoring/ Surveillance of use
3. Towards fully integrated analysis and reporting

AGISAR projects 2017– 2019



AGISAR Projects 2014



6th AGISAR meeting

Objective: Review progress and lessons learned from AGISAR capacity-building projects

Conclusion: To develop an standardize protocol with One Health approach.

Concept note

WHO Integrated Global Survey on ESBL-producing *E. coli* using a "One Health" approach - An initiative of the WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (AGISAR).

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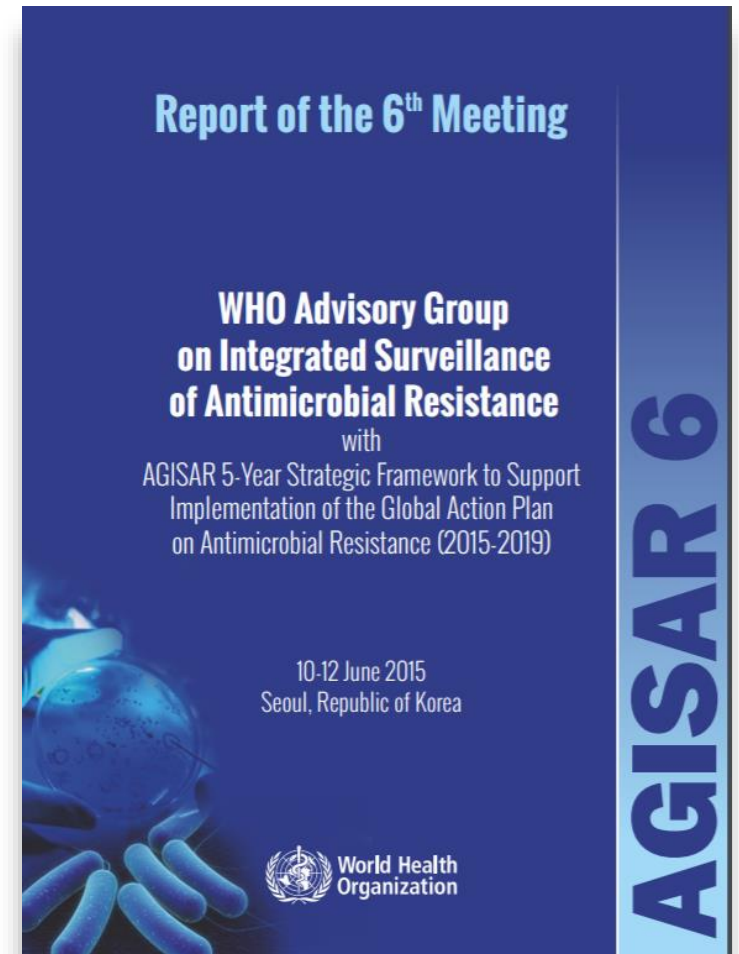


World Health
Organization

**WHO Integrated Global Survey on ESBL-producing *E. coli* using a
"One Health" approach, "The Tricycle Project"**

1st Meeting for ESBL *E. coli* Project Protocol Development

North Carolina, October 18-19, 2016



ESBL Ec Tricycle protocol: Principles

Simple

- One indicator: Extended Spectrum Beta Lactamase (ESBL) producing *Escherichia coli*

Feasible

- Allow many countries the implementation
- Multisectoral engagement
- Few resources required (Laboratory, training)
- Data management (WHONET)

Standardized

- Standard laboratory methodology

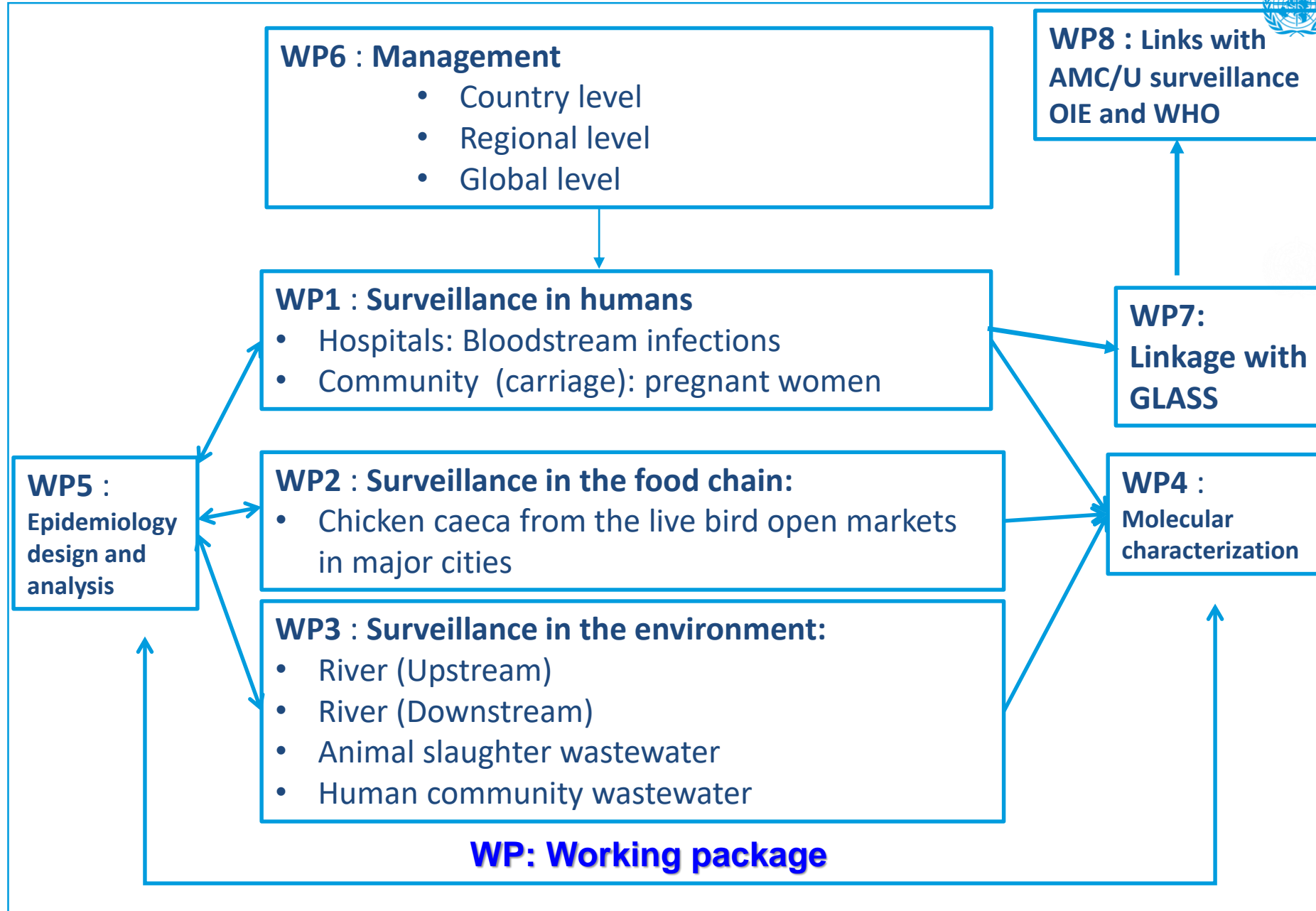


WHO integrated global surveillance on ESBL-producing *E. coli* using a "One Health" approach:
Implementation and opportunities

Aim

To provide Member States with a common, simplified, and integrated multisectoral surveillance system to detect, and then estimate the prevalence of a microorganism indicator with a specific resistance mechanism, ESBL producing *E. coli* in three sectors.

Structure of the ESBL Ec Tricycle for implementation



Laboratory methodology

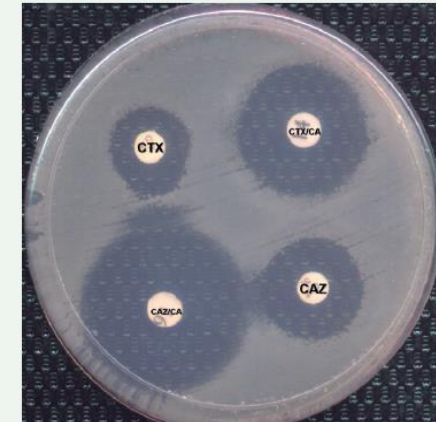
Standardized culture media:

- Human and food chain: MacConkey* + Cefotaxime (4µg/ml)
- Environment: Tryptone Bile X-glucuronide + Cefotaxime (4µg/ml)
- ESBL confirmation
 - EUCAST and CLSI

Figure 5.8 Combination disk diffusion test

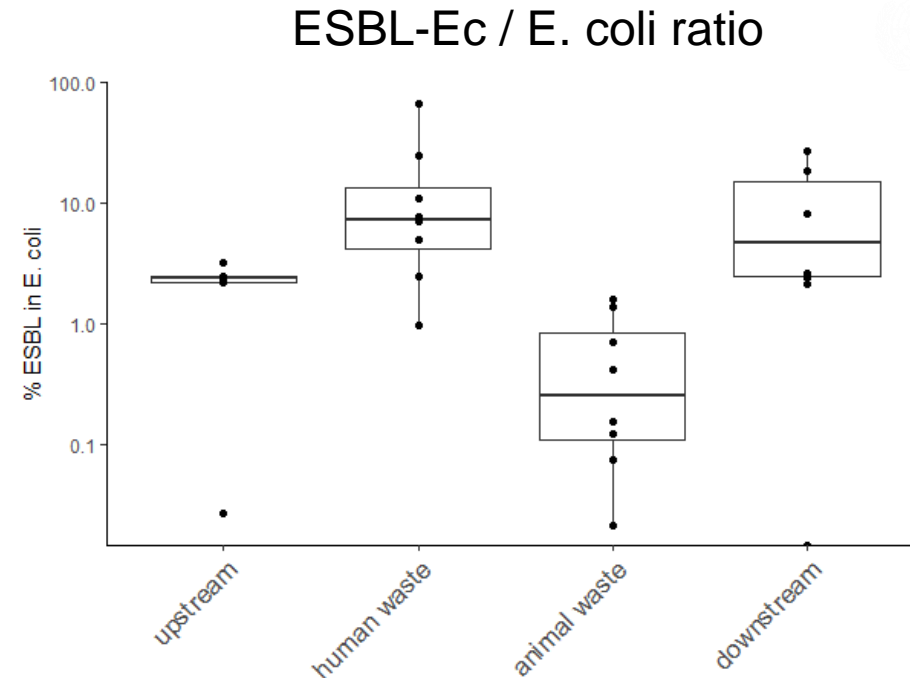
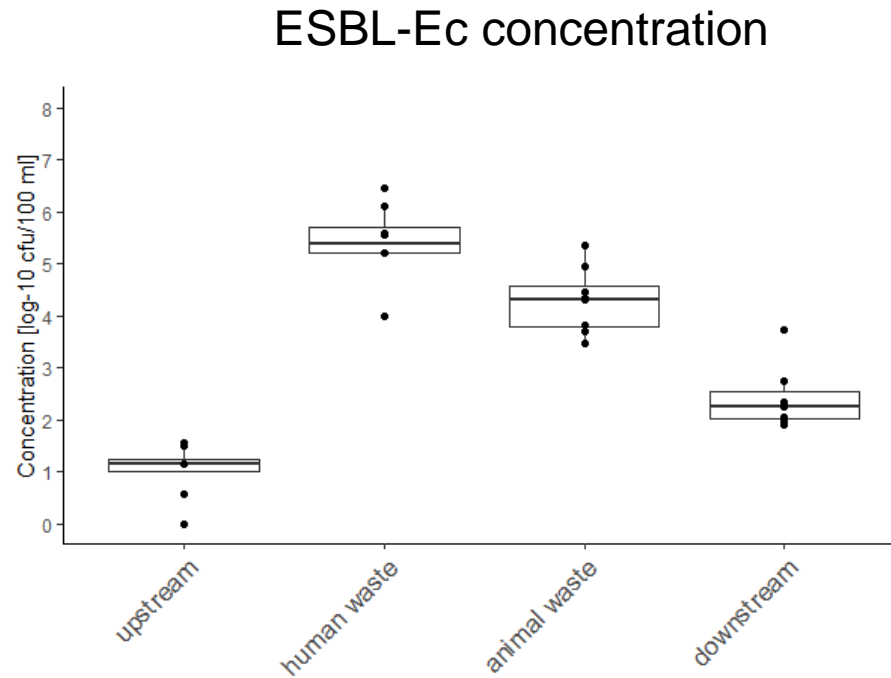
CTX=cefotaxime CTX/CA= cefotaxime/clavulanic acid

CAZ=ceftazidime CAZ/CA= ceftazidime/clavulanic acid

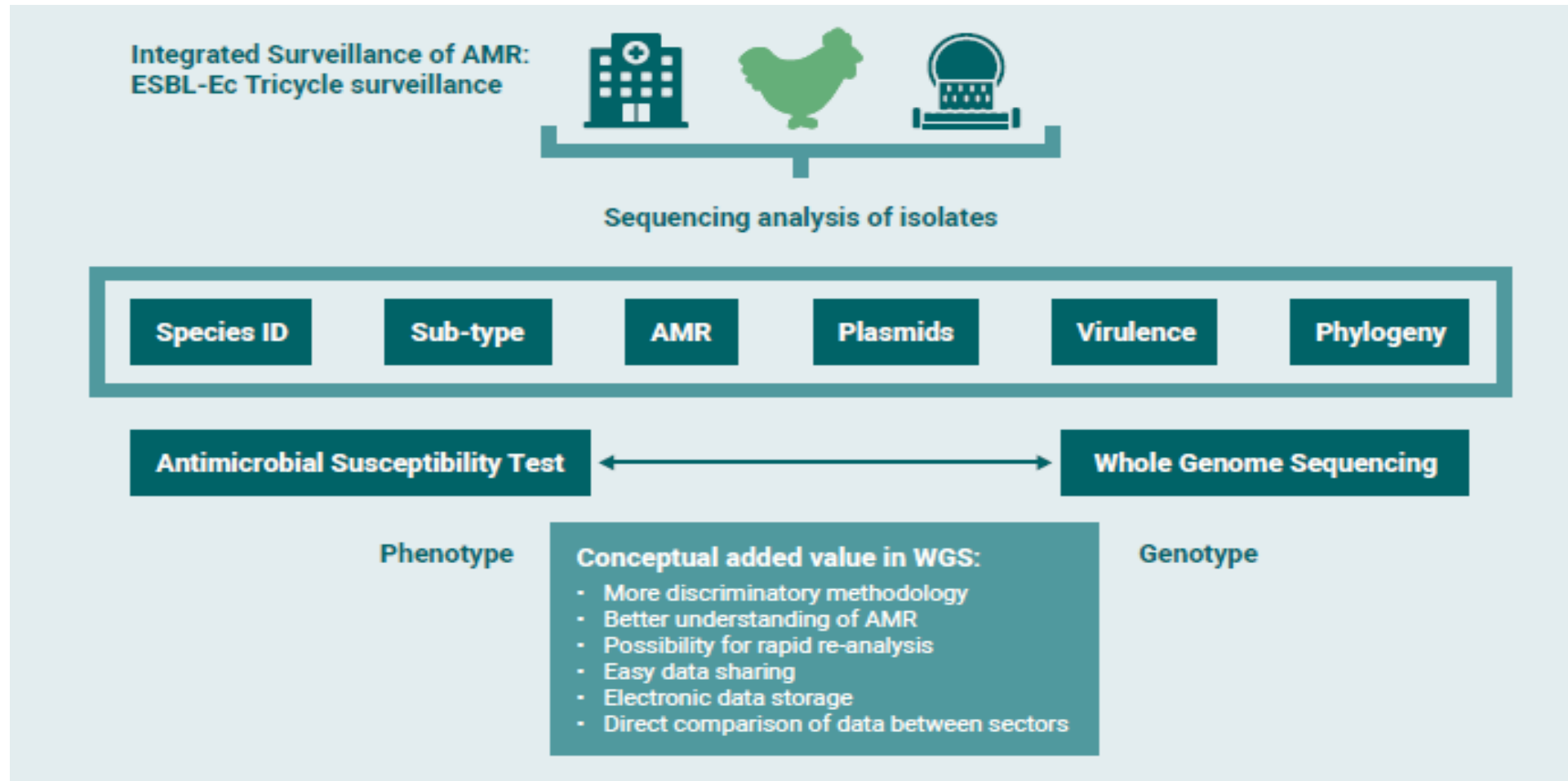


Outcome WP3 Environment

- Expected results – hypothetical data



Sequencing analysis



Implementation in countries

Pilot countries	
Region	Country
Africa	Ghana, Madagascar, Senegal
Eastern Mediterranean	Pakistan, Jordan
South East Asia	Indonesia, India, Nepal
Western Pacific Asia	Malaysia

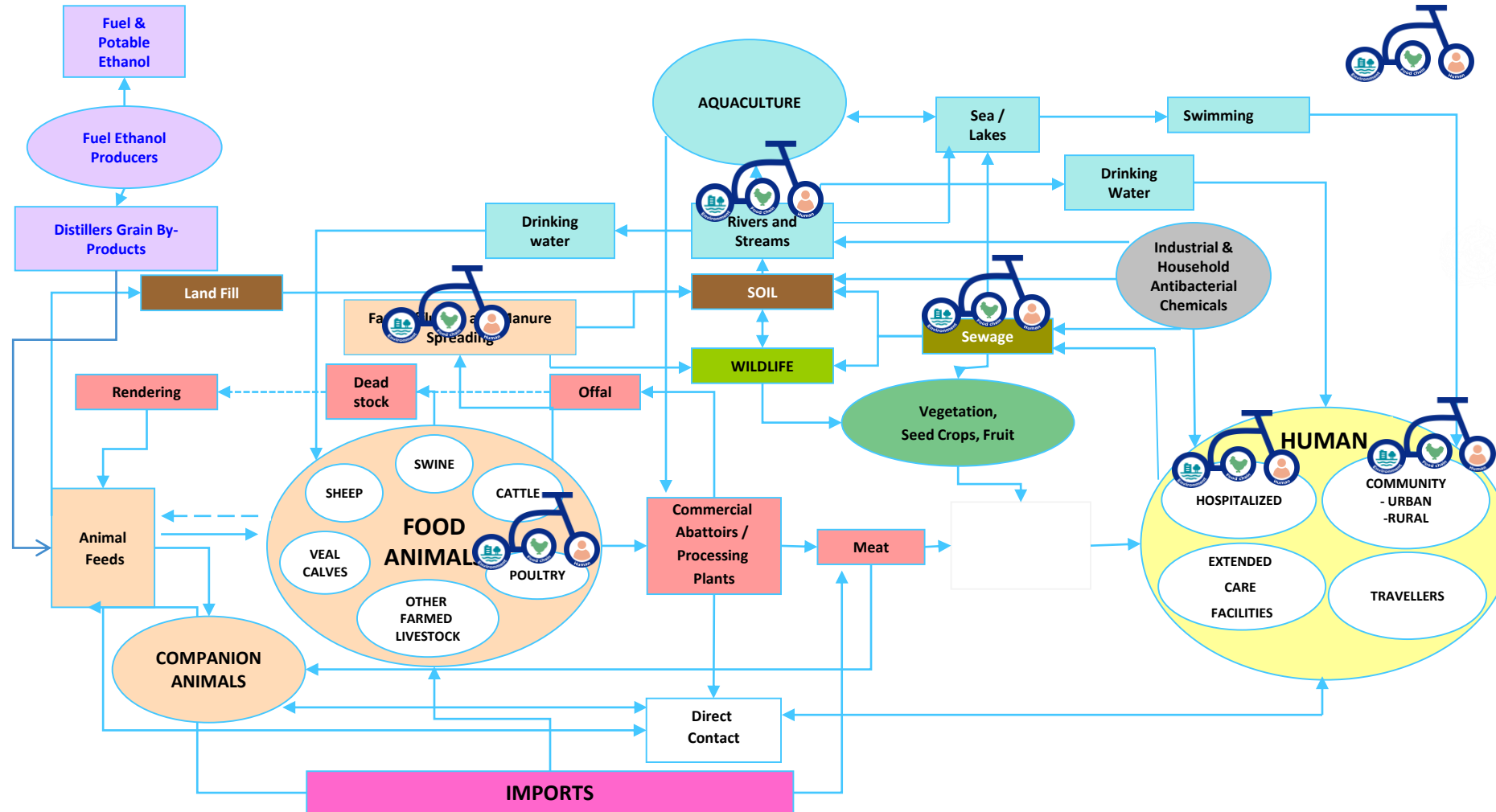
Countries implementing in 2021	
Region	Country
Africa	Cameroon, Nigeria, Zambia, Zimbabwe
Eastern Mediterranean	Iran, Morocco, Sudan
South East Asia	Bhutan
Western Pacific Asia	Lao PDR

Next steps

- Translating the protocol in different UN languages
- Online training courses April 2021
- GLASS Tricycle module to collect data from countries implementing



COMPLEXITY OF ANTIMICROBIAL RESISTANCE





WHO integrated global surveillance
on ESBL-producing *E. coli* using a
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THANK YOU