



# WHO model for Integrated Surveillance on AMR

## The ESBL Ec Tricycle protocol

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# ESBL Ec Tricycle

Extended Spectrum Beta Lactamase (ESBL) producing *Escherichia coli*  
Simple microorganism and resistance mechanism as indicator  
Simple surveillance across the three sectors  
To allow comparison between countries and assess effect of interventions



ESBL *E. coli*



Human



Food chain



Environment



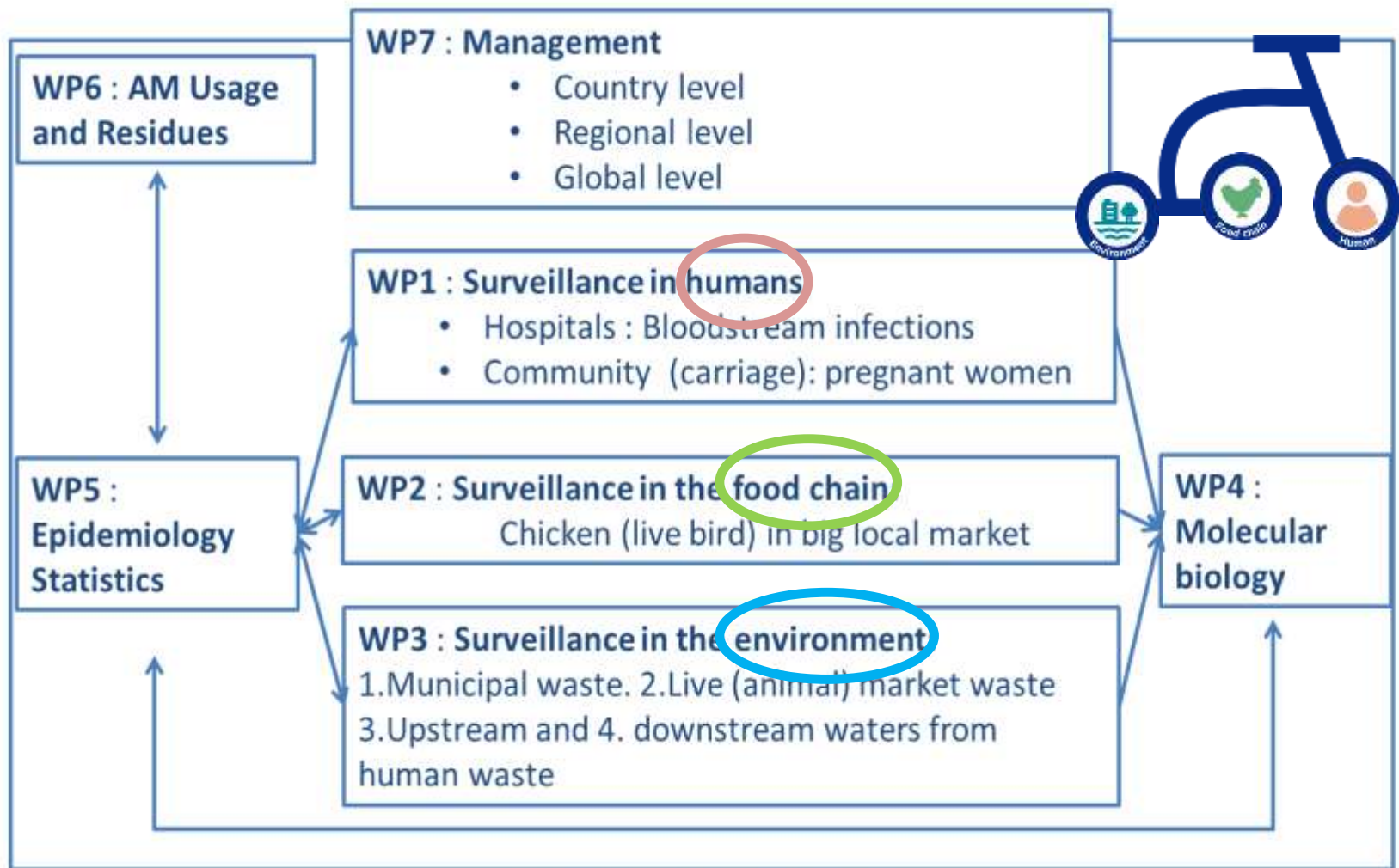


Figure 1. ESBL Ec Tricycle project.  
WP Working Package



# Pilot countries

Region	Final Selection
AFRO	Ghana, Senegal, Madagascar
EMRO	Pakistan, Jordan
SEARO	Indonesia, India, Nepal
WPRO	Malaysia



# Results of implementation



# Human and Chicken Data

Country	Human						Food chain (Caeca)		
	Hospital			Community			Total Samples	ESBL E coli (% Samples/ESBL Ec)	95%CI
	Total E coli isolated	ESBL E coli (% Total E coli/ESBL Ec)	95%CI	Total Samples	ESBL E coli (% Total Samples/ESBL Ec)	95%CI			
1	34	26 (76)	0.58-0.89	53	23 (43)	0.29-0.57	120	94 (78)*	0.69-0.85
2	318	69 (22)	0.17-0.26	100	20 (20)	0.12-0.29	240	147 (61)	0.54-0.67
3	2	1 (NC)	0.1-0.98	99	38 (38)	0.28-0.48	60	26 (43)	0.30-0.56
4	157	113 (72)	0.64-0.78	92	12 (12)	0.06-0.21	240	87 (36)	0.30-0.42
5	6	2 (NC)	0.04-0.77	89	6 (7)	0.02-0.14	160	102 (64)	0.55-0.71

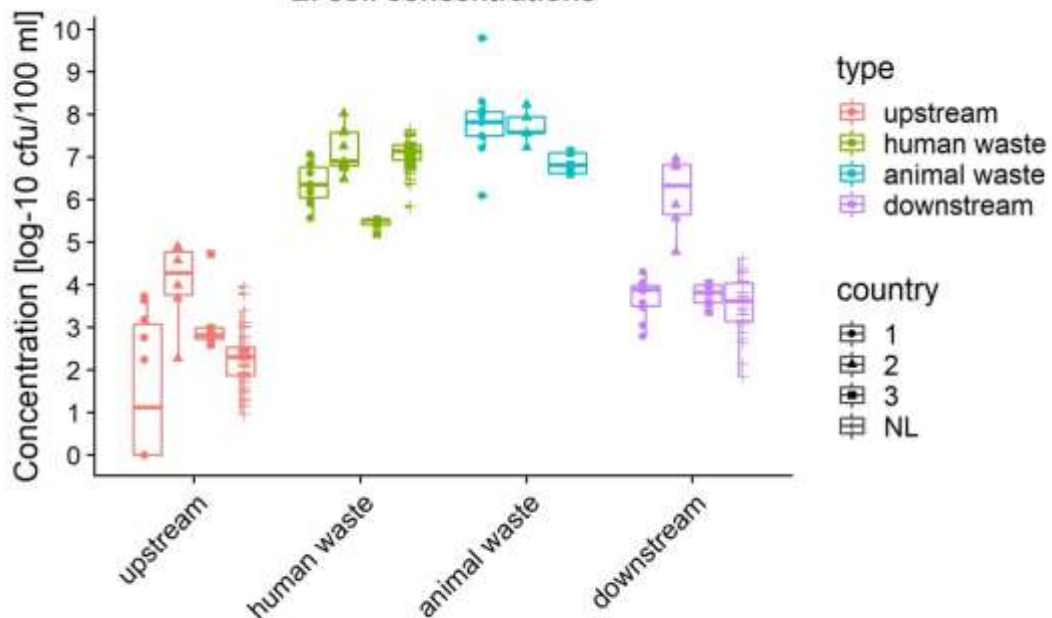
\*ESBL confirmation in process, NC = Not calculated

28/06/2019

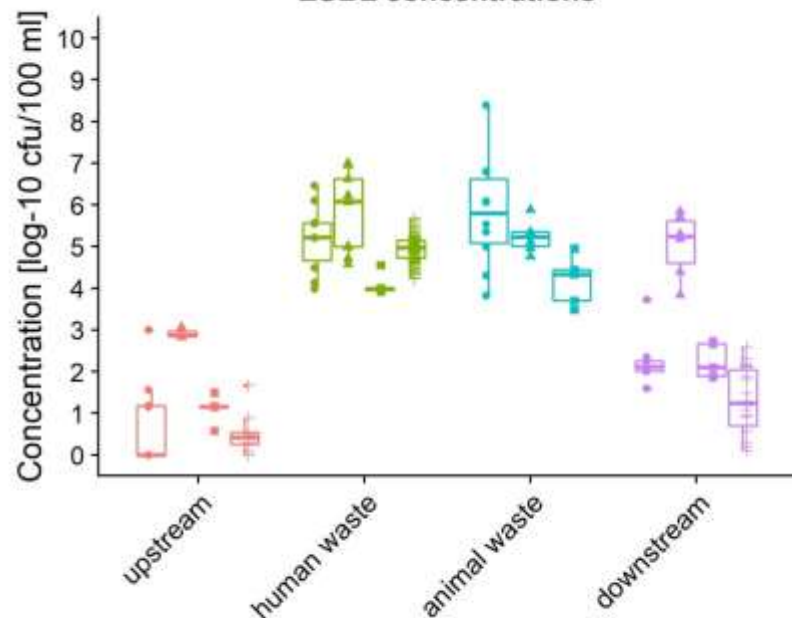


# WP3 Environment results analysis

### E. coli concentrations



### ESBL concentrations



# Countries joining 2021

Region	Final Selection
<b>AFRO</b>	Zimbabwe, Zambia, Morocco, Nigeria, Burkina Faso
<b>EMRO</b>	Morocco, Iran and Sudan
<b>SEARO</b>	Bhutan





Tricycle offers an unique multisectoral integrated surveillance program for AMR

Three sectors involved: public health, agriculture and environment

A protocol is adopted and this should be stringently followed to generate robust data

There will be an online training module available



**THANK YOU**

