



APPENDIX 1.1: EXPRESSION OF INTEREST TEMPLATE

The Expression of Interest (EoI) consists of a cover letter from the Responsible Ministry (no template provided) and a brief description of the proposed intervention-implementation research project, using this template and two appendices. The description must not exceed 5 A4 pages using Verdana font size 10 and 1.5 spacing.

Date of submission: _____

Country: _____

Responsible Ministry (or Ministries):

[List name of the Responsible Ministry (or ministries) submitting the EoI and the department within the ministry responsible for the EoI.] Add more rows if necessary.

| Ministry | Relevant Department/Unit |
|----------|--------------------------|
| | |

Point of contact at the Responsible Ministry (or Ministries):

[List name, job title, email-address, and phone number.] Add more rows if necessary.

| Name | Job Title | Email | Phone Number |
|------|-----------|-------|--------------|
| | | | |

1. Describe priority antimicrobial resistance (AMR)-specific or AMR-sensitive challenges/problems.

[Describe a minimum of two AMR-specific or AMR-sensitive challenges/problems you would like to address with financial and technical support from ICARS. The aim of ICARS projects is to produce evidence-based, context-specific, cost-effective solutions to be used by the country to facilitate larger scale implementation to mitigate AMR. You can include problems from different One Health sectors. Be as specific as possible and explain why they are a priority.] Add more rows as needed with a maximum of 5 challenges.

| | Challenge/Problem | Why Prioritized |
|---|---|--|
| 1 | There is evidence of transmission of ESBL-positive <i>E.coli</i> between poultry, occupationally exposed workers, plant-based food and wastewater | The transmission of drug-resistant bacteria at human-animal, animal-environment, animal-plant and plant-environment interfaces presents a risk of food-borne and water-borne diseases in the wider community |

2. Provide evidence in support of the identified AMR challenges/problems.

[Provide relevant technical and contextual evidence in support of the identified challenge/problem. Include data on AMR and antimicrobial use (AMU) relevant to this challenge. This could be from published/unpublished literature, government Ministry reports, annual reports to AMR funders such as the Fleming Fund/MPTF, submissions to WHO GLASS, WOAHA AMU, FAO InFARM etc. Please include references where relevant.] Add more rows if necessary.



| Challenge/ Problem | Evidence |
|-----------------------|--|
| 1 | Antibiotic susceptibility test results and antibiograms (phenotypic data) generated from the Tricycle Project implemented in City X showed similar resistance profiles in ESBL-positive <i>E. coli</i> isolated from poultry litter, hand and stool samples of farm workers, manure used to fertilize lettuce and spinach fields and irrigation water. Whole genome sequencing and bioinformatic analysis (genotypic data) on a sub-sample indicated the presence of similar drug-resistant strains (MLST data), antibiotic resistance genes (ResFinder data), plasmids (PlasmidFinder data) indicating transmission albeit without directionality |

3. (Using the table on page 3) Describe two or more measurable interventions that can potentially address the AMR challenges/problems described above. Indicate how these align with existing or planned AMR interventions in your country. Indicate the strategic objective of the National Action Plan (NAP) on AMR that these interventions will address. Attach the NAP as appendix 1.

NB: All ICARS projects must be measurable using SMART¹ indicators

[List 2 or more interventions that are likely to address the AMR challenges/problems through intervention² and/or implementation research³. Include a list of up to five references in support of the proposed interventions. While ICARS subscribes to the One Health approach to mitigating AMR, we welcome projects that address AMR in ONE or more sectors, i.e. projects do not have to be cross-sectorial.] Add more rows if necessary.

¹ SMART specific, measurable, achievable, realistic, time-bound

² Intervention research is designed to evaluate the direct impacts of treatment or preventive measures on disease in a [human or animal] study population. Study designs include randomized controlled trials, pre-post intervention study designs, non-randomized controlled trials, and quasi-experimental studies. (Reference: Thiese MS. (2014). Observational and interventional study design types; an overview. *Biochimica medica*, 24(2), 199–210. <https://doi.org/10.11613/BM.2014.022>)

³ Implementation Research is the scientific inquiry into questions concerning implementation—the act of carrying an intervention (policy, programme or practice) into effect in real world settings. Implementation research evaluates the acceptability, adaptability, adoption, appropriateness, costs, coverage, feasibility, and sustainability of interventions. (References: Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. (2013). Implementation research: what it is and how to do it. *BMJ*; **347**: f6753. <https://bjsm.bmj.com/lookup/doi/10.1136/bmj.f6753>. + Bauer MS, Damschroder L, Hagedorn H, Smith J, Kilbourne AM. (2015). An introduction to implementation science for the non-specialist. *BMC Psychology*; **3**: 32. Available at: <http://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-015-0089-9>.

| | Challenge/Problem | Potential Intervention(s) | Alignment with Existing or Planned Interventions | Objective of NAP on AMR Addressed by Intervention |
|--|--|--|--|---|
| 1 | Transmission of ESBL-positive <i>E. coli</i> at interfaces | 1.1 Initiate as part of the farm biosecurity programme, the use of personal protective equipment, shower-in-shower-out, hand washing at critical points, foot baths etc. | Builds on the existing Tricycle Project and is aligned with AMR mitigation using the One Health approach that features in the second NAP on AMR in Country X | Strategic objectives 2 and 3 and 4 of the NAP on surveillance and research, and, infection prevention and control and biosecurity |
| 1.2 Treat manure using composting technology prior to use as fertilizer | | Strategic objectives 2 of the NAP on surveillance and research | | |
| 1.3 Pre-treat wastewater by ozonation or using activated carbon prior to transfer into irrigation pond | | N/A | | |



4. Describe how the Ministry will integrate learnings from each of the proposed interventions into country policies, programmes and practices to mitigate AMR.

[Describe how the Responsible Ministry envisions sustainable uptake and scale-up of successful interventions following completion of the project.]

| Challenge/ Problem | Scale-Up Plan |
|--------------------|--|
| 1 | <p>The Ministry of Agriculture will develop and enforce legislation/policies/best practice guidelines on the:</p> <ul style="list-style-type: none"> • Health, safety and protection of occupationally-exposed workers • Pre-treatment of manure before use as fertilizer • Pre-treatment of wastewater before use for irrigation |

5. List the stakeholders you will engage to facilitate the implementation of each of the proposed interventions.

[List the relevant stakeholders with whom the project proposal will be co-developed. This includes research institutions/universities and public, private and non-governmental stakeholders.] Add more rows if necessary.

| Intervention | Stakeholders | Role in the Project |
|---|--|---|
| 1.1 PPE for farm workers | <ul style="list-style-type: none"> • University/Research Organization • Food Animal Producers • Worker Protection Organizations/Unions • Ministry of Agriculture | <ul style="list-style-type: none"> • Develop project proposal/ protocol, apply for ethical approval, conduct the research in collaboration with the Ministry of Agriculture • Develop and implement PPE and biosecurity policies, provide PPE and biosecurity infrastructure • Agitate for health, safety and protection of occupationally-exposed workers • Endorse and facilitate the implementation of the project. Fund and facilitate scale-up upon proof of concept |
| 1.2 Composting of manure | <ul style="list-style-type: none"> • University/Research Organization | <ul style="list-style-type: none"> • Develop project proposal/ protocol, apply for ethical approval, conduct the research in collaboration with the Ministry of Agriculture |
| 1.3 BAT to reduce contamination of irrigation water | <ul style="list-style-type: none"> • Companies that procure/install/maintain BAT for manure and wastewater processing • Economist | <ul style="list-style-type: none"> • Identify, install, maintain, monitor and evaluate BAT in terms of technical feasibility for scale-up • Evaluate BAT in terms of economic feasibility |



| | | |
|--|---|---|
| | <ul style="list-style-type: none">• Consumers• Food Animal and Crop Farmers/Producers• Animal and Plant Food Producers and Environmental Health Organizations• Ministry of Agriculture | <ul style="list-style-type: none">• Create a demand for safe food, not contaminated with drug-resistant bacteria• Participate in pilot research projects with a view to scale-up upon proof of concept• Endorse and facilitate the pilot research projects with a view to scale-up upon proof of concept• Endorse and facilitate the implementation of the project. Fund and facilitate scale-up upon proof of concept |
|--|---|---|

References

[List the references in support of 2 and 3]



Appendix 1 National Action Plan on AMR