



BASELINE INFORMATION FOR INTEGRATED ANTIMICROBIAL RESISTANCE SURVEILLANCE IN ZAMBIA Environment

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Outline

- Environmental Sector
- Pollution Control
- Baseline AMR - Environmental



Introduction

- ZEMA is a statutory body established under the Environmental Management Act No. 12 of 2011.
- ...provides for integrated environmental management, the **protection and conservation** of the **environment** and the sustainable management and use of natural resources.



Mandate

- ...to do all such things as are necessary to ensure the sustainable management of natural resources and protection of the environment, and the **prevention and control of pollution...**

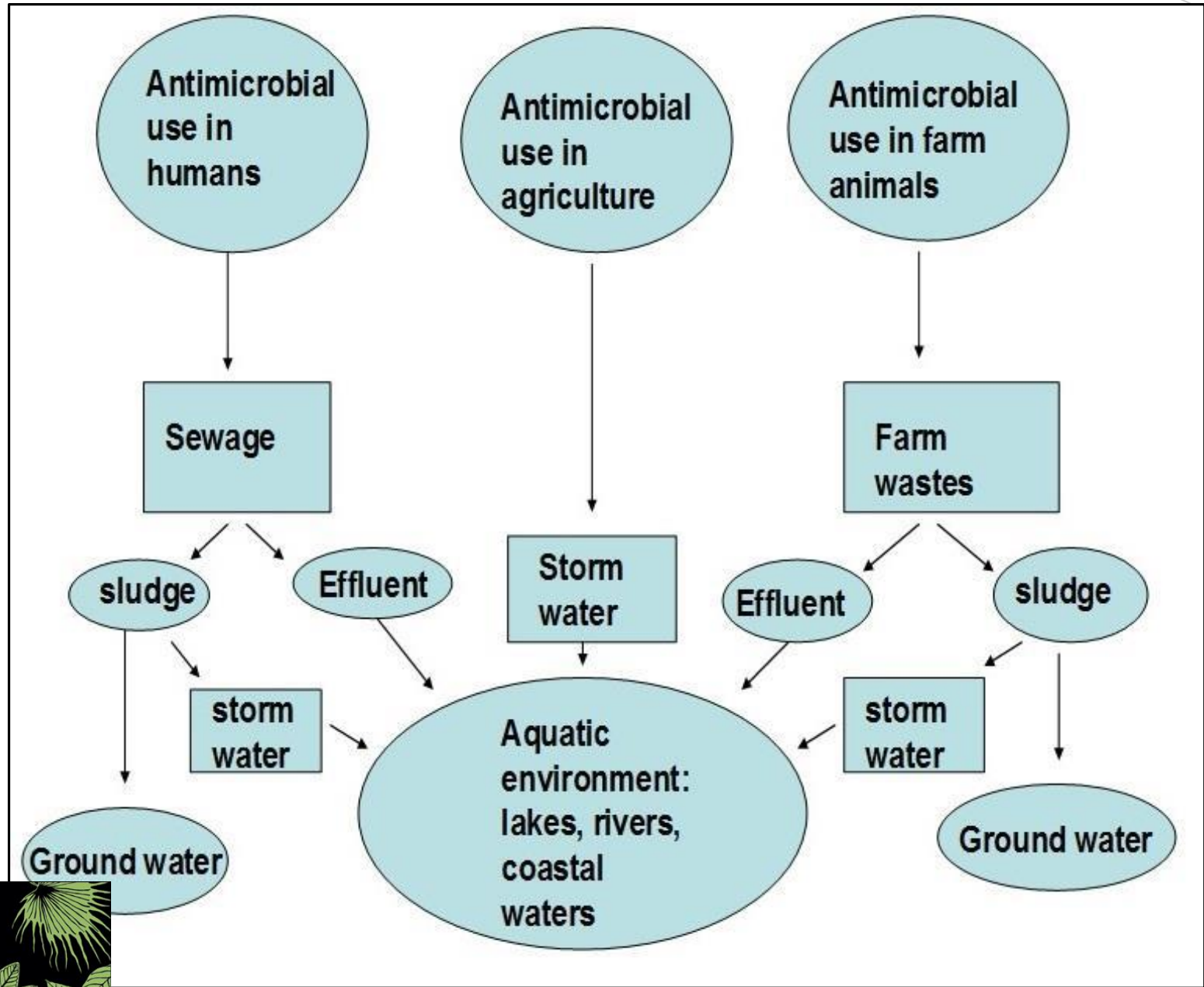


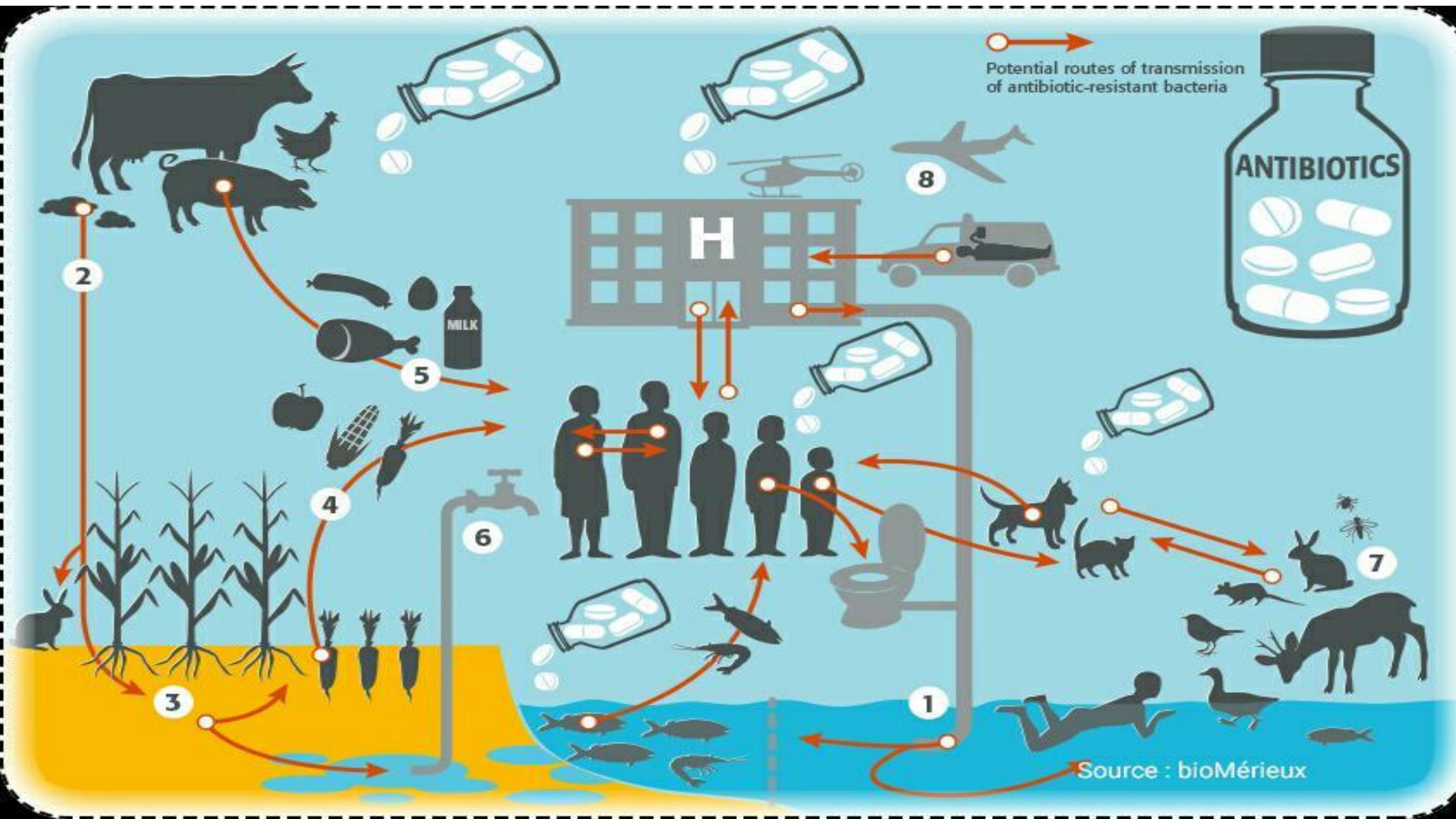
Mission

- To safeguard **human welfare** and the environment, through effective environmental management for present and future generations.



AMR and the Environment





Focus

- ...identifying ...
 - waste generation sources
 - waste disposal methods and
 - laboratories that have the capacity to perform microbiological and analytical studies in environmental samples.
- This framework ...can be useful for other countries as well.



Sources of information

- Zambia Environmental Management Agency
Ministry of Water Development, Sanitation and Environmental Protection
- Ministry of Local Government



Information gaps

- Currently, not much information w.r.t the environment is available with the stakeholders.
- The information gaps
 - No and distribution of point sources;
 - volume of waste generated across each point source;
 - volume of unused drugs from healthcare, domestic and market settings,
-could be collected in subsequent years.



Waste Generation

- Pharmaceutical manufacturing companies
- Human and veterinary healthcare settings
- Animal establishments
- Abattoirs/slaughter houses
- Animal feed manufacturing plants
- Dairy and meat processing units
- Effluent treatment plants
- Sewage treatment plants



Waste disposal methods

- Pharmaceutical manufacturing companies, human and veterinary healthcare settings:
 - Incineration; ash is treated as non-hazardous waste
 - Inertisation for injectables, and dilution for liquids
- Animal establishments, abattoirs/slaughter houses, animal feed manufacturing plants, dairy and processing units
 - Liquid waste is treated and discharged into the aquatic environment
 - Solid waste is disposed of at the general waste disposal sites (landfills)
 - Condemned meat at slaughter houses and processing units is incinerated



Waste disposal methods

- Effluent treatment plants
 - Effluent from industrial process such as food processing companies is discharged into the aquatic environment
- Sewage treatment plants
 - Trickling filter systems, activated sludge system
- Unused/expired antimicrobials
 - Incineration in hospitals



Laboratory Capacity

- No laboratories with ZEMA. However, ZEMA collaborates with the following laboratories/institutions*:
 - Alfred H Knight Industrial Laboratory
 - National Institute for Scientific and Industrial Research
 - UNZA
 - Zambia Bureau of Standards
 - Toxicology laboratory commissioned at UNZA



Note!

- *These collaborating laboratories do not perform AMR testing in the environmental samples in particular, but with some capacity they could adapt or include AMR
- Notes: Additional baseline information can be obtained from other stakeholders such as CSO, Dairy/Beef Association of Zambia, HPCZ, local municipality, MoH, MoHE, MFL,VCZ and ZAMRA



End

Thanks

