

AMR CONTAINMENT IN THE ENVIRONMENT



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Introduction

- ▶ Antimicrobial resistance (AMR) is recognised as one of the most important global issues for human and animal health in terms of societal impact
- ▶ However one of the key gaps in our understanding of AMR is the role of the **environment** in AMR
- ▶ Focus has been “what is going in” and not “what is coming out”
- ▶ Need for us to re-think and re-prioritise so that we see the environment as the source of what is coming back to us

Introduction, contd

- ▶ To achieve this there is need to adopt an AMR-centric approach to waste management
- ▶ This approach will control the dissemination of AMR determinants into the larger environment, which sets resistance growing like a chain reaction.



The role of EMA

- ▶ In Zimbabwe, the Environmental Management Agency, a statutory body established under section 9 of the Environmental Management Act (CAP 20:27) of 2002 is mandated to:
- ▶ regulate and monitor the collection, disposal, treatment and recycling of waste;
- ▶ Waste management laws govern the transportation, treatment, storage, and disposal of all types of waste

Drivers of waste

- ▶ High population densities (40% of the population living in urban areas in 2002 as compared to 22% in 1982)
- ▶ Sprouting illegal settlements
- ▶ Changing consumption patterns
- ▶ Non-provision of bins and inconsistent collection of bins by local authorities
- ▶ People's general attitude towards waste management
- ▶ An estimation of over 1.6 million tonnes of waste are generated in Zimbabwe annually....figure expected to surpass 5million tonnes/yr by 2030 if no action is taken

Impacts of poor waste management

- ▶ Pollution of surface and groundwater
- ▶ Recurrence of diseases such as cholera, typhoid and dysentery
- ▶ People exposed to many antibiotic treatments and the more antibiotic treatments people have , the greater the risk of developing bacterial resistance e.g the cholera outbreak in Harare in 2018
- Loss of aesthetic value of land

IMPROPERLY DISPOSED HAZARDOUS MEDICAL WASTE



Strategies to contain AMR in the environment, in Zimbabwe

- ▶ Commitment to the “One Health” shown by the signing of the NAP by the then minister of the Ministry of Environment, Tourism and Hospitality industries in 2017
- ▶



Surveillance

- ▶ Establishment of AMR monitoring points nationwide
 - so far points established in Harare and Bulawayo but sampling disturbed by the pandemic
- ▶ Surveillance of the points to establish a baseline of antibiotics in the environment and the associated resistances of *E.coli* and Salmonella.
- ▶ Establishment of a baseline will assist in coming up with acceptable standards and limits
- ▶ It will also enhance monitoring

Surveillance, contd

- ▶ The Environmental Management Agency Laboratory participated in the WHO Advisory Group on Integrated Surveillance of Antimicrobial Resistance (**AGISAR**) project
- Types of water samples analysed -borehole, river and sewage samples
- ▶ The laboratory is also a part of the WHO Intergrated Global Surveillance on ESBL-producing *E.coli*

Legal Framework

- ▶ The most important tool that the Agency is using to contain AMR
- ▶ Environmental Management Act (CAP 20:27) as read with its ancillary legislation
- ▶ Statutory Instrument 6 of 2007 Environmental management (Effluent and Solid waste disposal) regulations
- ▶ Statutory Instrument 10 of 2007; Environmental Management (Hazardous Waste Management) regulations
- ▶ Waste Management policy of 2007

Legal Framework, contd

- ▶ These pieces of legislation empower the Agency to;
 - ▶ Carry out inspections
 - ▶ Serve orders
 - ▶ Issue tickets
 - ▶ Take offenders to court/or bring them before the EMA board

Enforcement of Landfill compaction requirements

Before intervention



After intervention



Community Based Organisations (CBOs)

- ▶ The Environmental Management Act provides for stakeholder participation in environmental management hence the establishment of Community Based Organisations.
- ▶ A total of 250 Community Based Organisations are registered with EMA
- ▶ These organisations promote the 3Rs principle, that is reduce, reuse and recycle
- ▶ Encourage waste separation at source-2bin system
 - green bag
 - black bag
- ▶ Pilot projects in Sunningdale, Budiro and Mbare

Engagement of CBOs and Recycling Companies



Zero tolerance to litter” campaign

- ▶ This campaign was meant to raise awareness with the aim of instilling environmental stewardship and attitude change amongst our people with regards to waste management
- ▶ Began in September, 2017- Clean Up the World Month
- ▶ Comes just before the onset of the rainy season
- ▶ This is so because, waste if not properly disposed, will find its way into our streams, rivers and dams thereby causing water pollution
- ▶ The campaign is targets all stakeholders- schools, industry etc
- ▶ The campaign then culminated into the National clean up campaigns

Education and Awareness

- ▶ EMA participates in all education and awareness programmes under the “One Health” programme
- ▶ These include -WAAW(radio programmes, public lectures and also newspaper articles)
- ▶ -part of the team coming up with the Communication Strategy for Zimbabwe
- ▶ Mobile awareness programmes on waste management issues
- ▶ Environmental clubs at schools and also communities

Challenges

- ▶ The Agency acknowledges the importance of AMR and that is why it has embraced it into its day to day activities
- ▶ However a lot still needs to be done in terms of aligning AMR with the current environmental legislation
- ▶ The conventional WWTPs that we have are not designed to address AMR

Conclusion

- ▶ Finally as the saying goes “prevention is better than cure”, it is best if discharge of AMR determinants is prevented so that ultimately we are able to control what is going into the environment and thereby containing AMR in the environment





THANK YOU