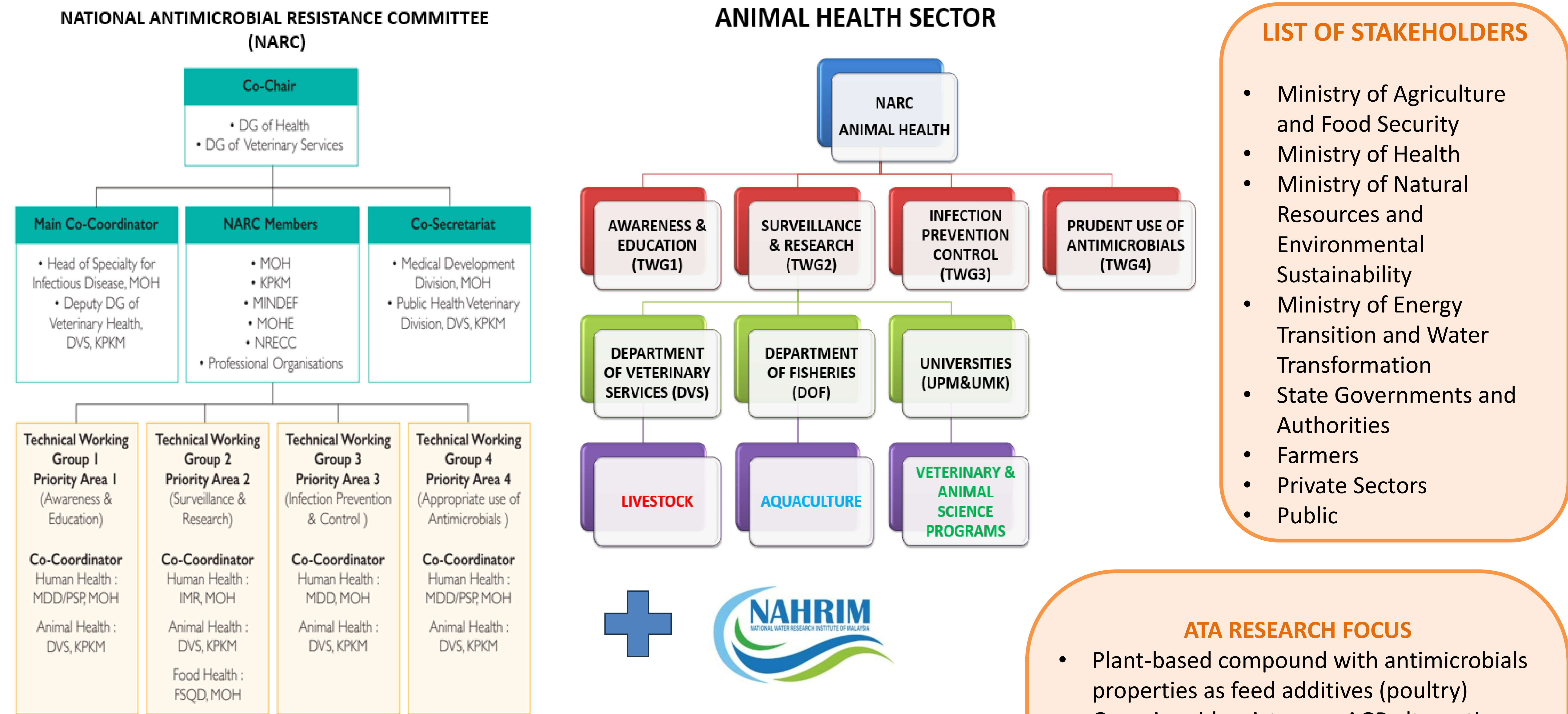


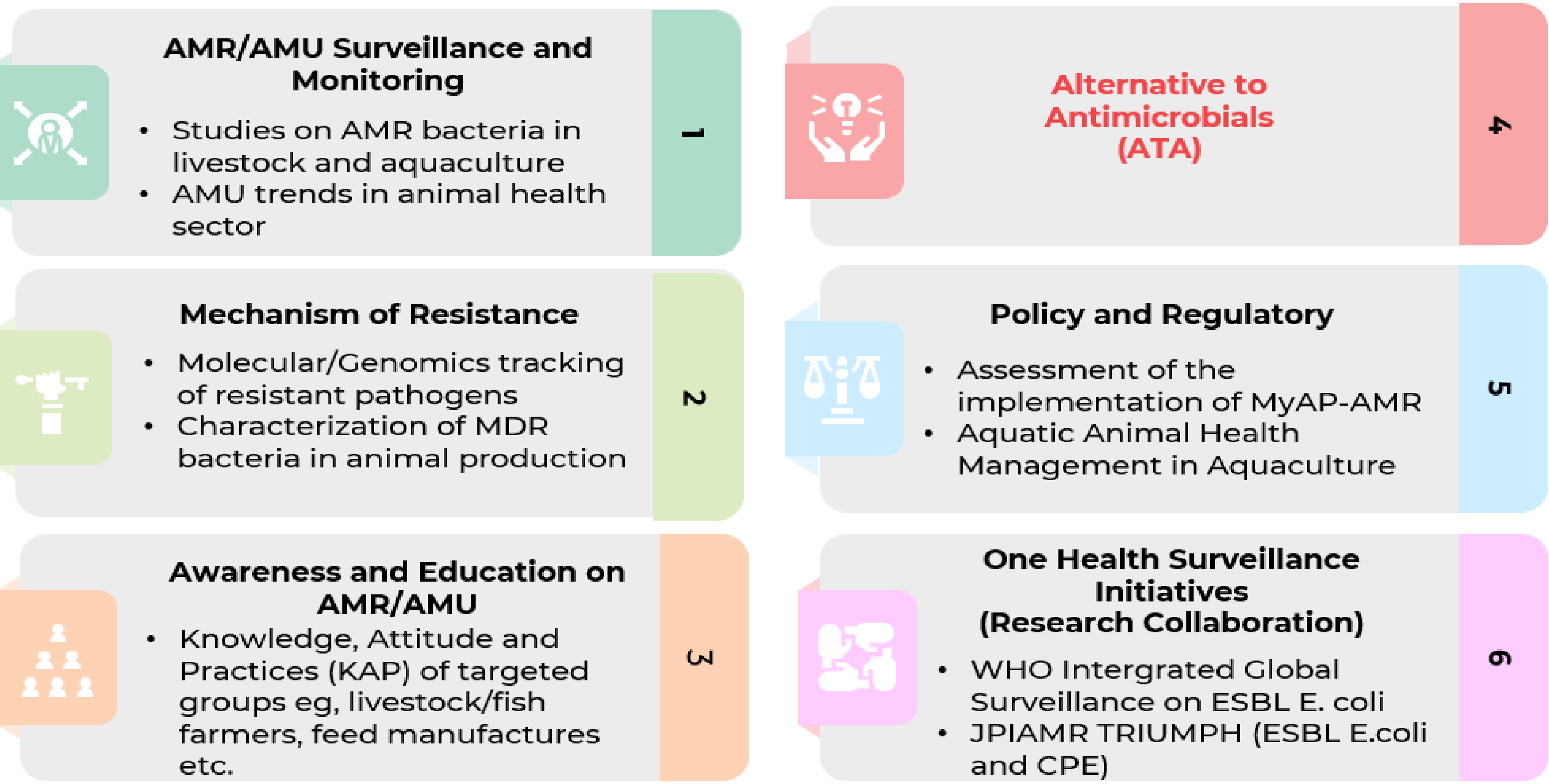
The Current State of AMR Research Activities Including Alternative to Antimicrobials (ATA) and Collaboration Opportunities in Malaysia

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BACKGROUND OF AMR RESEARCH IN MALAYSIA (ANIMAL HEALTH SECTOR)



KEY AREAS OF AMR RESEARCH IN ANIMAL HEALTH SECTOR



- ATA RESEARCH FOCUS**
- Plant-based compound with antimicrobials properties as feed additives (poultry)
 - Organic acids mixture as AGP alternative (poultry)
 - Development of vaccines for animal diseases (livestock and fish)
- REGULATORY BARRIERS**
- Approval processes – DVS and NPRA
 - International trade standards – CODEX Alimentarius, WTO-SPS Agreements
 - Intellectual Property and Patents
- PRACTICAL BARRIERS**
- Costly
 - Efficacy and consistency
 - Limited local expertise
 - Market acceptance

CHALLENGES AND SOLUTIONS TO AMR/ATA RESEARCH

C1	C2	C3	C4
High research and development cost in AMR/AMU/ATA	Low market acceptance and industry adoption to new treatments or alternatives	Efficacy and consistency issues of the ATA	Limited local expertise on AMR/AMU/ATA
S1	S2	S3	S4
<ul style="list-style-type: none">• Increase funding or incentive for R&D in AMR/AMU/ATA from government or private sectors• Collaboration with private sector thru public-private partnership initiative for innovation	<ul style="list-style-type: none">• Educate farmers and veterinarians on alternative treatments and long-term benefits of reducing antimicrobial use	<ul style="list-style-type: none">• Comprehensive ATA research to ensure consistency of the ATA across environmental factors, animal conditions, and formulation stability	<ul style="list-style-type: none">• Collaboration with global institution• Promoting research collaboration through One Health approaches

COLLABORATION OPPORTUNITIES

- Research on alternatives to antimicrobials in the animal health sector
- Improving AMR and AMU surveillance in the animal health sector
- Molecular and genomics tracking of resistant pathogens
- Monitoring the aquatic and terrestrial animal discharge to the environment (water bodies)
- Risk assessment of AMR transmission through the food chain
- Role of digital technology and artificial intelligence (AI) in early disease detection and antimicrobial stewardship

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