

AFRICA REGIONAL STRATEGY ON ANTIMICROBIAL RESISTANCE COMMUNICATIONS AND ADVOCACY

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Acronyms and Abbreviations

AM	Antimicrobial
AMR	Antimicrobial Resistance
ARGs	AMR Genes
AMU	Antimicrobial Use
AU	Africa Union
CSO	Civil Society Organization
FAO	Food and Agriculture Organization of the United Nations
GLASS	Global AMR Surveillance System
HIC	High Income Country
IACG	Inter-Agency Coordinating Group
IPC	Infection Prevention and Control
IPM	Integrated Pest Management
ISPMs	International Standards for Phytosanitary Measures
LMIC	Low and Middle Income Country
M&E	Monitoring and Evaluation
NAP	National Action Plan
NGO	Nongovernmental Organisation
OH	One Health
OIE	World Organisation for Animal Health
REC	Regional Economic Community
SAICM	Strategic Approach to International Chemicals Management
SDGs	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TB	Tuberculosis
TV	Television
UNEP	United Nations Environment Programme
WAAW	World Antimicrobial Awareness Week
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization

1. BACKGROUND

1.1 Introduction

i. Public Health

Antimicrobial Resistance (AMR) occurs when germs including bacteria, viruses, fungi, and parasites change over time and no longer respond to antimicrobials - including antibiotics, antivirals, antifungals and antiparasitic agents - making infections harder to treat and increasing the risk of disease spread, severe illness and death. Antimicrobial resistant germs are found in people, animals, food, plants and the environment (in water, soil and air). They can spread from person to person or between people and animals, including from food of animal origin. While AMR occurs naturally over time, usually through genetic changes, the main drivers of AMR include the misuse and overuse of antimicrobials in human health and agriculture; lack of access to clean Water, Sanitation and Hygiene (WASH) for both humans and animals; poor infection and disease prevention and control in health-care facilities and farms; poor access to quality, affordable medicines, vaccines, and diagnostics; lack of awareness and knowledge; and weak enforcement of legislation. Minimizing the emergence and spread of AMR requires a coordinated, focused multi-sectorial and multinational effort.

ii. Animal Health

Antimicrobials play a critical role in treating animal diseases (aquatic and terrestrial) and therefore animal health and welfare depend on the availability, effectiveness, and appropriate use of quality antimicrobials. These medicines are used for disease control and treatment within a flock, herd or on a farm. Antimicrobials are also used in low concentrations in animal feed to stimulate growth and production which contribute to emergence and spread of AMR. AMR poses a serious threat to the safety and quality of feed and food, food security and livelihoods. Only healthy animals are able to generate food products of acceptable safety and quality for human consumption and contribute to income generation. Adherence to acceptable standards for residues in animal feed and food and products, increases the livestock sectors potential of access to trade and increases public health risks. Animal health and welfare depend on the availability, effectiveness, and appropriate use of quality veterinary medicines, including antimicrobials. Since antimicrobials are extensively used in food-producing animals, the animals can serve as a reservoir of antimicrobial-resistant germs, which can be transmitted to humans. Resistant germs such as bacteria in animals may reach humans through food, water, soil, and manure (used as fertilizer). Antimicrobial resistant germs in animals that may pose a potential risk to human health are zoonotic pathogens transmitted through food, and foodborne pathogens such as *Salmonella* spp, *E. coli*, *Campylobacter* spp, and enterococci. In addition, livestock associated methicillin resistant *Staphylococcus aureus* (LA MRSA) and extended spectrum beta lactamase *E. coli* (\$) are emerging problems throughout the world.

iii. Environment Health

AMR is common among germs found in the environment. However, use of antimicrobial agents such as antibiotics in humans, terrestrial and aquatic animals and companion animals and plants has been associated with the evolution and amplification of antimicrobial resistant pathogens and the AMR genes (ARGs) that they carry. Anthropogenic activities are increasing the importance of the environment as a pathway for human exposure to antimicrobial resistant germs. Freshwater is both a recipient and a carrier of antimicrobial resistant pathogens. For example, antimicrobial resistant pathogens and ARGs being discharged to waterways via open defecation, raw and treated sewage, and liquid effluent from septic tanks and pit toilets pollute the environment. Wastewater discharges from sites where use of antimicrobials can be high, such as hospitals, intensive livestock farms and aquaculture systems are likely to contain particularly elevated concentrations of antimicrobials, antimicrobial resistant organisms and ARGs which might influence AMR spread depending on dilution in the receiving water. Similarly, the use of antimicrobials in terrestrial and aquatic animals

and plants can also contribute to the spread of antimicrobial compounds and their metabolites and clinically relevant ARGs to waterways via point source pollution (e.g., discharge from feedlots or aquaculture ponds) or diffuse pollution.

iv. Plant Health

Crop protection against pest insects and diseases is critical in maintaining and improving crop yields. Over the last decades, agricultural intensification has led to a significant increase in the use of agrochemicals. Despite the growing awareness of integrated pest management and use of disease-resistant crop varieties, pesticides now and in the future will remain needed for many crops. Two major concerns surrounding their use revolve around (i) their negative impacts on human health and the environment (ii) threat of pesticide resistance, affecting insecticides, herbicides, and fungicides (antimicrobial pesticides). Both concerns arise from their misuse and overuse. The negative impacts to public and environmental health are (i) prolonged occupational exposure, risks for consumers and environmental pollution; (ii) the residues of fungicides and antibiotics in crops may encourage emergence of resistant strains of fungus and bacteria. However, while estimates show that the amount of antimicrobials used for crops is relatively low in comparison to the quantities used in livestock, the potential risk of AMR should not be ignored. The solution lies in adoption of Integrated Pest Management (IPM) as well as good agricultural and production practices, biosecurity, and infection control, thereby reducing the need for antimicrobials and the selective pressure for developing AMR.

v. Food Safety

Antimicrobial resistant germs can be found in live animals, in agricultural soil and in the food processing and preparation environment. Furthermore, they can contaminate food prepared in our kitchens if precautions are not taken to control cross-contamination. Resistant microorganisms can cause foodborne infections and generate a potential risk to human beings through possible treatment failure or the transmission of resistance genes among human populations. Untreatable antimicrobial resistant infections can kill plants and food-producing animals or reduce productivity. Both may increase food insecurity. In many cases, the germs responsible for foodborne disease outbreaks are resistant to one or more antimicrobials. If a foodborne illness is caused by a resistant germ and causes a sufficiently severe infection that requires treatment, then the treatment may not work and, so what could have been easily treated in the past, can become life threatening. Food contaminated with bacteria, fungi, viruses, parasites, or toxins at levels high enough that make people sick is unsafe; that would include microbes that are resistant to antimicrobials.¹

1.2 AMR in Africa

i. Overview

In Africa, AMR has already been documented to be a problem for human immunodeficiency virus (HIV) and the pathogens that cause malaria, tuberculosis (TB), typhoid, cholera, meningitis, gonorrhoea, and dysentery. According to the 4th Global AMR Surveillance System (GLASS) report, median resistance rate for the two Sustainable Development Goals (SDG) AMR indicators monitoring the proportion of AMR in bloodstream infections (BSIs) were 36.6% (interquartile range [IQR] 17.5-58.3) for *E. coli* resistant to 3rd generation cephalosporins and 24.9% (IQR 11.4-42.7) for methicillin-resistant *S. aureus* (MRSA). For the WHO African Region, they were respectively 40.1% (IQR 30.7-60) for *E. coli* resistant to 3rd generation cephalosporins and 10.3% (IQR 2.5-21.4) for methicillin-resistant *S. aureus* (MRS). These findings require further investigation to verify the reliability of the results and understand the reasons behind reported high rates.

¹ <http://www.fao.org/food-safety/news/news-details/fr/c/1331603/>

Resistance to priority pathogens such as *Campylobacter* spp., *Salmonella* spp., *Escherichia coli* and *Enterococcus* spp. has also been observed in food production and agriculture systems in Africa. The health and economic costs of AMR are significant and further compounded by a growing global population with rising food demands in Africa. In the African Region, the double burden of communicable and non-communicable diseases, fragile health systems coupled with poverty creates fertile ground for the proliferation of AMR. While AMR will affect all countries adversely, its impact is disproportionately severe in LMICs a significant proportion of which are African countries.

Weak surveillance systems for AMR and weak Antimicrobial Use (AMU) monitoring means there is limited national data on the level of AMR especially in animals and their products. Africa records a high level of AMU in animal production systems especially tetracyclines, aminoglycosides and penicillin. Although a recent trend report by the OIE showed some decrease in quantities of AMU in recent years, the trend is likely to increase the already high prevalence of AMR and multi drug resistance in the continent. Overuse and misuse of antimicrobials coupled with weak AMR surveillance systems in the region is of great concern. The weak WASH systems means that even if resistance emergence is reduced through reduced use of antimicrobials, the existing resistance which is mostly transmitted through the environment will continue to be a concern.

As of August 2021, more than 40 African countries have developed multisectoral national action plans/policies for AMR. During the annual World Antimicrobial Awareness Week (WAAW) there have been campaigns both at regional and country level supported by the AU and the Tripartite. In November 2019, Regional WAAW was for the first time jointly commemorated with the Kenya government, WHO, FAO, OIE, AU, RECs and CSO. In November 2020, WAAW was commemorated at continental level for the second time together with WHO, FAO, OIE, UNEP, AU, RECs, and Civil Society.

ii. SWOT Analysis-AMR risk mitigation

Strengths	Weaknesses
<ul style="list-style-type: none"> • Good collaboration among the Regional Tripartite (FAO, OIE and WHO), UNEP, the AU, RECs, CSO, funding institutions and other partners on AMR issues • Development of AMR National Action Plans (NAPs)/Policies by most African countries in the context of the One Health approach • Increasing political commitments towards AMR mitigation • Engagement of CSO • Availability of guidelines and tools such as GLASS and ATLASS • Strong AMR control government-based Champions in many countries • A good number of donors funded projects in a significant number of countries to stimulate AMR investment 	<ul style="list-style-type: none"> • Weak surveillance and lack of integrated systems between the human, animal (terrestrial and aquatic), plant and environment sectors • Low literacy on implication of AMU • Low investment and implementation levels of developed AMR NAPs • Poor enforcement of legislations and standards on AMs • Inadequate national collaboration mechanisms between sectors • Low quality and weak curriculum of professional education on AMR • Limited or weak awareness campaigns • Inadequate WASH systems • Low uptake of wastewater treatment infrastructure

Opportunities	Threats
<ul style="list-style-type: none"> • Increasing interest from potential donors • Developing innovations for diagnostics • Engagement of youth groups • Availability of global frameworks and initiatives (One Health approach, IHR) • AMR pillars are cross-cutting with other programs (laboratory, IPC/WASH, etc.) • Increased interest from students' organizations and youth groups • More countries are reporting consistently on AMU in animals and humans • More focus on adopting the One Health approach to tackle AMR • Networks of experts and reference laboratory and collaborating centers established • Private sector, CSO and NGOs can be engaged on AMR awareness • African universities and research centers have the expertise to provide advisory and educational support • Policy makers and politicians can be informed to address the AMR related problems • Engagement of the Tripartite, UNEP, AU, and other partners for the development of action plans and implementation • Social media can be utilized to convey positive media campaigns 	<ul style="list-style-type: none"> • Low public understanding of AMR • Very few countries consider AMR mitigation as a priority • Lack of sufficient domestic and international resources for AMR mitigation activities • High AMU • Easy access to AM products in most countries • Lack of focus on the development of affordable alternatives to AMs • Lack of involvement of trade, industries, and the private sector • Instability in some African countries • Possible conflict of interest especially among the private sectors • Limited or weak political endorsement or will • Lack of appropriate technologies to remove AMs from wastewater and drinking water • Climate change-induced temperature increase², affecting Africa in particular, is projected to cause changes in pathogenic germs' growth, survival, virulence, and transmission. This could lead to an increased AMR and AMU

1.3 Tripartite-UNEP-AU Collaborations

i. Who we are

➤ *African Union*

The AU is a continental body consisting of the 55 member states that make up the countries of the African Continent. It was officially launched in 2002 as a successor to the Organisation of African Unity (OAU, 1963-1999). In response to the urgent threat of AMR and reflecting the UN consensus on priorities, the AU established a Task Force on AMR in 2018. The Task Force includes all agencies of the AU involved in human, animal, and plant health. The Task Force seeks to strengthen AMR control activities among the AU agencies, support Member States and RECs, and coordinate with partners, including UN agencies, research and academia, industry, development partners, donors, and non-governmental agencies. The AU Task Force serves as the primary coordinator for AMR

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7285162/>

control on the African continent, creating an environment that facilitates the work of Member States, UN agencies, and other organizations. The Task Force prioritizes continent-wide efforts to increase political commitment, mobilize resources and promote policies that improve AMR control across human, animal and plant sectors.

➤ ***Food and Agriculture Organization of the United Nations (FAO)***

FAO is a specialized agency of the UN that leads international efforts to combat hunger by ensuring food security to allow people to lead active and healthy lives. It has five regional offices worldwide, which support its works in over 130 countries. The regional office for Africa (FAO-RAF) includes four sub-regional offices in Central, East, South and West Africa (SFC, SFE, SFS, SFS) and covers 47 countries. FAO regional, sub-regional and country offices comprise a rich pool of experienced multi-disciplinary expertise and knowledge in different sectors such animal (terrestrial and aquatic) production and health, food production and safety, crops, plants, nutrition, water and soil and AMR which is cross cutting across the different sectors under the FAO mandate. There are various ongoing projects aiming at developing and strengthening country level capacity to prevent, detect and respond to animal (terrestrial and aquatic) and plant diseases of economic and public health importance including AMR.

➤ ***World Organisation for Animal Health (OIE)***

The World Organisation for Animal Health or Office International des Epizooties (OIE) is an intergovernmental organisation, established in 1924 responsible for improving animal health worldwide. OIE's mandate covers animal health, both terrestrial and aquatic animals including wildlife, veterinary public health, including zoonotic diseases and animal welfare. The OIE's mission is to ensure transparency in the global animal disease situation; Collect, analyse and disseminate veterinary scientific information; Encourage international solidarity in the control of animal diseases; Safeguard world trade by publishing health standards for international trade in animals and animal products; Improve the legal framework and resources of national Veterinary Services and to provide a better guarantee of food of animal origin and to promote animal welfare through a science-based approach. The OIE Regional Representation for Africa is part of the five regional representations (Americas, Asia and the Pacific, Europe and the Middle East) established by OIE. The purpose of the Representation is to provide to the Member States, services that are adapted to the regional level, so that they may strengthen both surveillance and control of diseases in Africa.

➤ ***World Health Organisation (WHO)***

The WHO is the directing and coordinating authority on International Health within the United Nation System. The organization adheres to values of integrity, professionalism, and respect for diversity as it works to promote health, keep the world safe and serve the vulnerable. WHO has as its primary role to direct international health within the United Nations' system and to lead partners in global health responses. Guided by this primary responsibility, the WHO Regional office for Africa (WHO-AFRO) works towards sustainable regional AMR coordination and supporting countries in the implementation of their NAP and ensures that this is in line with priorities set forth in the WHO 13th General Programme of Work 2019-2023. The WHO 13th General Programme of Work (GPW13) outlines WHO's vision and strategic priorities with respect to public health leadership and driving impact at country level based on three critical priorities with associated targets which are; 1 billion more people with essential health services coverage; 1 billion more people made safer; and 1 billion lives improved. In line with the Global Program of work GPW13 there is a need to strengthen in country capacity to deliver on critical AMR activities. which will contribute to the triple billion goals and drive sustained long term impact at country level.

➤ ***United Nations Environment Programme (UNEP)***

The UNEP is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment. UNEP is increasing its coordinated activities with the Tripartite organizations in different areas promoting and strengthening the capacity of countries to implement the environmental dimensions of the 'One Health' approach (linking human, animal, and ecosystem health), and enhancing and broadening the multi-stakeholder involvement in AMR collective work. Closely linked to it, UNEP is carrying out activities on environmentally persistent pharmaceutical pollutants, considered an emerging policy issue in the Strategic Approach to International Chemicals Management (SAICM) context. In addition, UNEP in cooperation with other relevant partners is also developing a report on pesticides and fertilisers. This report addresses the environmental and health impacts of pesticides and fertilizers and ways of minimizing them, a section dedicated to AMR is included.

ii. Why we need strong collaboration and partnership

Humans, animals, and plants share the many similar germs, which, when harmful need to be combated and prevented at the national, regional, and global levels. Curbing the emergence of AMR therefore requires global, multi-sector harmonisation of the strategies and measures designed to improve the coordination of public, animal, plant, and environmental health policies. The strong collaboration has several advantages:

- Promotes the One Health approach and joint activities and reduced duplication of activities;
- Facilitates the collective development, updating, coordination, monitoring and reporting of AMR;
- Fosters a coordinated approach to avoid partner fatigue;
- Drives inter-sectoral collaboration to attract funding;
- Provides flexibility to grow and adjust the work according to the level of participation;
- Allows holistic oversight and monitoring for joint results;
- Enhance the integration and synergies needed to sustain efforts and the momentum for addressing AMR;
- Allow for leveraging on the different expertise, resources and, mandates of collaborating partners to achieve the desired objectives aligned to a common goal.

iii. What we strive to achieve: our plan

During the WAAW 2019 organized jointly at regional level by the Tripartite and the AU in Nairobi, Kenya (18-24 November 2018), an AMR coordination meeting with the organizing institutions, RECs, and CSO was held. At the end of the meeting, the different participating institutions agreed to set up an African coordination group with the goal to improve the coordination and collaboration on continent-wide activities on the prevention and control of AMR in Africa.

The members of the African Inter Agency coordinating group on antimicrobial resistance and control will work together to:

- Serve as a platform to exchange information about agency activities;
- Share tools, resources and work plans;
- Support development of guidance and recommendations on best tools and resources to support REC level AMR programming (stakeholder workshop, training, regional AMR networks);
- Support guidance and recommendations on best tools and resources to develop, revise and implement One Health AMR NAPs;
- Identify and plan joint activities such as regional awareness and advocacy campaigns, increasing the impact of existing programs, capacity development of laboratories, surveillance, etc.

Members of the continental coordination group will harmonize work at African level under the five following pillars:

- Advocacy, awareness and behaviour change;
- Resource mobilization, and partnership;
- Policy, strategy and legislation;
- Technical guidance and assistance, planning and implementation (to support development and implementation of national action plans);
- Platform for M&E, documentation, exchange of information.

The current communication strategy is one of the joint outputs of the coordination group falling under Pillar 1.

During the African continental WAAW 2020 organized jointly by the AU, WHO, FAO, OIE and UNEP, the regional directors of the different institutions signed a joint communique³ committing to unite and light AMR by implementing 7 points of Actions:

- Fostering the One Health multisectoral collaboration;
- Support African Member States in developing, reviewing, updating, and implementing NAPs in line with the One Health approach;
- Strengthening advocacy across all levels, awareness, encouraging behaviour change through evidence;
- Supporting the integration of AMR actions in routine IPC measures, as well as biosecurity and good hygiene practices;
- Supporting the compliance and implementation of international standards for the management of human, animal, environmental and industrial waste;
- Supporting to the greatest extent possible, public-private sector collaborations that support effective and efficient use of AMs
- Engaging with CSO, media, private sector, and the general public to improve AMR awareness

1.4 African Union framework for AMR control

As an affirmation of their commitment to support Africa's efforts to controlling AMR, Africa's Heads of State and Government endorsed the African Common Position on AMR and the AU Framework for AMR Control, 2020-2025.⁴ The declaration marked the endorsement of the AU Task Force on AMR, for monitoring, reviewing, coordinating, and developing policies related to AMR in a One Health approach.

This Task Force represents the AU agencies involved in human, animal and plant health sectors that collaborate to measure, prevent, and mitigate harms from AMR germs. The Task Force seeks to strengthen AMR control activities among the AU agencies, support Member States and RECs, and coordinate with partners, including UN agencies, research and academia, industry, development partners, donors, and non-governmental agencies.

2. SWOT ANALYSIS OF AMR COMMUNICATIONS IN THE REGION

This is a regional level SWOT analysis that Member States can adapt as per the specific country context.

³ <https://africacdc.org/download/communique-of-directors-of-regional-institutions-for-the-africa-continental-world-antimicrobial-awareness-week-2020/>

⁴ <https://africacdc.org/download/african-union-heads-of-state-and-government-endorse-african-common-position-on-controlling-antimicrobial-resistance/>

Strengths	Weaknesses
<ul style="list-style-type: none"> • Regular communication, coordination mechanism is well set up and Africa has a good network • There is high interest and motivation among the members of the Regional Tripartite, UNEP and AU to better advocate for AMR risk mitigation • There are recent topics likely to be subject for further communication (resolutions WHA 072/R6 and R7 on patient safety and improvement of WASH access in health care facilities) • Political interest is growing; Welcome Trust Call to action in Ghana 2018, AU Head of State and Governments endorse common position on AMR • Organizations and national institutions specialized in communication • Global, regional, national and multi-sectoral efforts and support • Previous and ongoing successful campaigns 	<ul style="list-style-type: none"> • Lack of dedicated AMR Communication Officers • No regular budget allocation for AMR Communications activities e.g. for WAAW participation, agencies are mobilizing resources in ad-hoc manner • Lack of harmonization on communication contents between involved organizations • Minimal/lack of knowledge on the level of awareness amongst stakeholders • Inadequate data • The covert nature of AMR hence low prioritization • Inadequate regulations to support AMR NAP implementation • Weak enforcement of existing regulations • Unethical practices by professionals • Risk of a communications strategy that “preaches to the converted”
Opportunities	Threats
<ul style="list-style-type: none"> • Increasing interest from potential donors • Build off-of grass roots communication campaigns • Developing continent-tailored messaging on AMR • Describing AMR in local languages adaptable to community context • Availability of new technologies for communication • Availability of human resources in Health and Agriculture ministries • Identification and communication on best practices • Use of social media to reach young and wide audiences • Use of different communication channels to reach target populations and groups • Re-affirmed commitment to fight AMR 	<ul style="list-style-type: none"> • Technical language of AMR hinders understanding of the risk by the lay people • Lack of the urgency to act by the public as the effects of AMR are gradual not immediate • Competing health issues • Transboundary nature of AMR as a global concern • Easy movement of persons and goods due to globalization

<ul style="list-style-type: none"> • There has been an increased support to the progress made towards financial commitment by private companies • Rich pool of expertise • Recent Intergovernmental Panel on Climate Change (IPCC) report, to build the narrative of urgent impacts of climatic temperature increase on AMR • Conference of the Parties to the Convention on Biological Diversity in 2022, and the role of the African Group Negotiators 	
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3. VISION

The SWOT analysis has identified; high AMU; low literacy on implication of AMU; Limited or weak awareness campaigns among others, as some of the prevailing weaknesses in efforts to prevent and control AMR. In the light of this the overarching vision is to ensure that:

- Africans are aware of the seriousness of AMR and the dangers associated with inappropriate consumption of medicines.
- Pharmacists, dispensers, medical doctors and other Health care workers prescribe antimicrobials effectively and only used when needed.
- Infection prevention and infection control measures are effectively implemented

4. OBJECTIVES

By identifying the target stakeholders and existing gaps, and finding solutions, this communication strategy will primarily support and provide guidance to the regional tripartite, UNEP and the AU in communicating AMR for the region and supporting member states. Further, it will serve as a guide for African countries to communicate on AMR in a harmonious manner.

Specific objectives of this strategy are as the following:

Improve awareness on AMR and its consequences in Africa.

Promote prudent use of antimicrobials among key stakeholders

Improving AMR awareness throughout the society will help enrich the grounds for AMR interventions to step up and strive. With stakeholders' awareness in place, improving governance and capacities, and changing grass-root behaviours will become more effective through more tailored interventions such as trainings, consultations, or behaviour change activities. A Region-wide coordinated AMR education and awareness campaign and on good practices will enhance public awareness and form the foundation for other communications activities.

One voice, bigger impact

By having a fine-tuned, well-coordinated messaging and voice, regional tripartite, UNEP and AU will be able to leverage on each other's networks and resources to have a united voice. Solidary one voice of Africa's key AMR organizations will help make bigger impacts throughout AMR interventions. Further, a well-coordinated messaging in countries with support a better strategy for raising awareness and advocating on AMR issues efficiently.

Positioning Africa as One Health AMR frontrunner

By strengthening Africa's branding and positioning in the fight against AMR, the regional tripartite, UNEP and AU will be able to position Africa as a leading region in combatting AMR with strong One Health partnership. Positioning Africa will help further foster new partnerships to ensure a dynamic AMR risk mitigation scene.

4. STAKEHOLDER ANALYSIS AND COMMUNICATION TARGETS

4.1 Policy level

i. Regional Economic Communities (RECs)

Who are they?

The RECs are regional groupings of African states which have developed individually and have differing roles and structures. Generally, the purpose of the RECs is to facilitate regional economic integration between members of the individual regions and through the wider African Economic Community (AEC), which was established under the Abuja Treaty (1991). The 1980 Lagos Plan of Action for the Development of Africa and the Abuja Treaty proposed the creation of RECs as the basis for wider African integration, with a view to regional and eventual continental integration.

What do they do in the AMR scheme?

The RECS are increasingly involved in coordinating AU Member States' interests in wider areas such as peace and security, development, and governance. The RECs are closely integrated with the AU's work including on AMR and serve as its building blocks.

What is their role in AMR risk mitigation?

- Integration of AMR in priority inter-sectorial health threats that require mitigation in the RECs;
- Establishment of regional and national multisectoral collaboration and coordination with a formal governance mechanism;
- Development of a regional/subregional AMR mitigation action plan;
- Support political engagement in member states;
- Resource mobilization;
- Identification of partners and donors;
- Enhance harmonisation of interventions in countries in their regions.

ii. Member States

Who are they?

A nation or territory considered as an organized political community under one government. AMR cuts across multiple ministries and sectors, including agriculture, fisheries, livestock, health, environment, water, and forestry. Communication that targets each sector specifically could enhance the uptake of awareness activities. Africa has 54 countries.

What do they do in the AMR scheme?

Governments of Member States are wholly responsible for designing, resourcing and implementing comprehensive national AMR policies and strategic plans using the One Health approach.

What is their role in AMR risk mitigation?

- Coordination and engagement of all stakeholders in the development, implementation, monitoring and evaluation of the national AMR strategy/plan, including but not limited to relevant ministries and institutions responsible for human, animal, plant and the environmental

health in both the public and private health sectors, health professional organizations and associations, research councils and funders, universities, CSO, patient advocacy groups, and national and international non-governmental organizations;

- Harmonization of AMR activities and alignment with the AMR NAP;
- Enforcement of existing legislation that has an impact on AMR;
- Resource mobilization;
- Running national AMR public awareness-raising campaigns;
- Pre-service and in-service training of healthcare professionals on AMR.

4.2 Practitioners

i. Health workers

Who are they?

All people engaged in actions whose primary intent is to enhance health. These human resources include clinical staff, such as physicians, nurses, pharmacists, and dentists, as well as management and support staff, i.e., those who do not deliver services directly but are essential to the performance of health systems, such as managers, ambulance drivers and accountants.

What do they do in the AMR scheme?

Clinical staff members are involved in the prescription and administration of antimicrobials and are therefore important in the prudent use of antimicrobials. Laboratory staff members are involved in sample testing to aid in proper diagnosis and therefore appropriate prescription. They also carry out antimicrobial susceptibility testing which determines the efficacy of a given antimicrobial against a microorganism (germ).

What is their role in AMR risk mitigation?

- Adoption of good infection prevention and control practices: ensure hands, instruments and the environment are clean;
- Promote prudent use of antimicrobials: only prescribe and administer antimicrobials when they are needed, according to up to date evidence-based treatment guidelines;
- Support AMR surveillance: report antimicrobial-resistant infections to surveillance teams;
- Good stewardship: talk to patients about how to take antimicrobials correctly, about AMR and the dangers of misusing antimicrobials;
- Promotion of good IPC practices: talk to patients about preventing infections (for example, vaccination, hand washing, practicing safer sex, and good respiratory hygiene such as covering nose and mouth when sneezing);
- Prevent and control Infections/Immunization: encourage patients to take or update their immunization where appropriate. Immunization plays a key role against AMR by preventing infectious diseases, thereby reducing the need for antimicrobials and their inappropriate use.

ii. Pharmacists/Veterinary pharmacists

Who are they?

A pharmacist is a health professional who formulates, dispenses, and provides clinical information on drugs or medications to other health professionals and patients in a hospital setting or a community pharmacy setting. They are also involved in the manufacture and distribution of medicines. Veterinary pharmacists are health professionals in animal health who are involved in dispensing veterinary medications and supplies, complying with regulations, advocating for quality therapeutic practices, and providing consultative services, research, and education.

What do they do in the AMR scheme?

Pharmacists are involved in dispensing of medicines so they are crucial in the prudent use of antimicrobials as they explain to the patients how the medicines should be taken. Those involved in drug manufacturing ensure that the medicines manufactured are of the right quality as falsified and substandard medicines contribute to AMR.

What is their role in AMR risk mitigation?

- Proper patient counselling on how to take dispensed medicines. This includes emphasizing on the need to finish the prescribed dose and talking about AMR with the patients;
- Offering their expertise on medicines within a multidisciplinary team comprised of other health professionals in a hospital setting on the most appropriate antimicrobials for use;
- Only use approved sources of medicines;
- Manage antimicrobials in line with best storage and transport practices;
- Ensure antimicrobials are only sold on the valid prescription of an authorized doctor or veterinarian, including if relevant in the case of nationally regulated internet sales;
- Ensure all products are appropriately labelled. Provide clear and correct information on product use and expiry date;
- Comply with the codes of advertising that are compatible with the principles of responsible and prudent use;
- Keep detailed records (supplier, prescriber, user, name of the product, batch number, quantity, shelf life) to allow for traceability;
- Cooperate with the relevant authorities and provide detailed sales data for the monitoring of antimicrobial use;
- Ensure all staff members are adequately qualified. Participate in and provide training on the appropriate storage, transport and disposal of antimicrobials;
- Adhering to regulatory frameworks and international standards

iii. Veterinarians/Veterinary paraprofessionals

Who are they?

Veterinarians are health professionals with appropriate education, registered or licensed by the relevant veterinary statutory body of a country to practice veterinary medicine/science in that country. Veterinary paraprofessionals are health professionals authorized by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary paraprofessional) in a territory delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary paraprofessional should be defined by the veterinary statutory body depending on qualifications and training, and in accordance with need.

What do they do in the AMR scheme?

Clinical staff members are involved in the prescription and administration of antimicrobials and are therefore important in the prudent use of antimicrobials. They provide professional oversight in the prescription and delivery of antimicrobial products. Veterinary microbiologists are involved in sample testing to aid in proper diagnosis and therefore appropriate prescription. They also carry out antimicrobial susceptibility testing which determines the efficacy of a given antimicrobial against a microorganism.

What is their role in AMR risk mitigation?

- Promotion of good animal husbandry practices, hygiene, biosecurity and vaccination programmes;
- Support a prudent use of antimicrobials: only prescribe and administer antimicrobials after a clinical examination of the animal(s) and only when necessary. The choice of the appropriate antimicrobial needs to take into account of farm records of previous AMU and epidemiological history of the farm, clinical experience and diagnostic insight with reference to relevantly

available guidelines (e.g. national veterinary association), diagnostic laboratory information when available (culture and sensitivity testing), pharmacodynamics (activity against pathogens involved), pharmacokinetics (tissue distribution, efficacy at infection site) and the OIE list of antimicrobials of veterinary importance. If the first-line treatment fails, the second-line treatment should be based on results of diagnostic tests including sensitivity testing. In the absence of test results a different class or sub-class should be used. Combinations of antimicrobials can only be used only if supported by scientific evidence;

- Veterinarians can adopt other alternatives to antimicrobials for prophylactic interventions such as vaccinations, herd health programs and farms biosecurity measures. More information from OIE terrestrial and aquatic codes and standards⁵;
- Continuous training and raising awareness of clients on AMR in order to stay up-to-date on the knowledge and to ensure implementation of good practices of AMU. This should be on information on disease prevention and management, the ability of antimicrobials to select for resistance, the importance for human and animal health, the need to observe responsible and prudent use recommendations, appropriate storage conditions, proper disposal and record keeping;
- Support an efficient data recording: The data recorded should include the quantities of antimicrobials used per animal species, details of all antimicrobials supplied to each farm, treatment schedules (including animal ID and withdrawal period), antimicrobial susceptibility data, comments concerning the response of animals to treatment and adverse reactions including lack of response due to AMR;
- Support AMR surveillance: report antimicrobial-resistant infections to surveillance teams;
- Advise against the use of medicated feed unless under veterinary prescription;
- Improve legislations, policies and frameworks for production, manufacturing, importation, distribution and the use of antimicrobials in the veterinary sector.

iv. Environment and plant health practitioners

Who are they?

Environmental health practitioners are dedicated to protecting public health by monitoring and recommending solutions to reduce pollution levels. Plant health practitioners are academically trained across agricultural science disciplines, through coursework and internships in both pest-related (entomology, plant pathology, nematology, weed science and other pests) and plant-related (agronomy, horticulture, soil science, etc.) subjects, to directly serve agriculture and the general public, through the prevention, diagnosis and management of plant health problems.

What do they do in the AMR scheme?

Environmental health practitioners are concerned with the environmental load of antimicrobial resistant germs, genes, residues and their metabolites resulting from use of antimicrobials in humans, plants and animals. Plant health practitioners are involved in the prudent use of pesticides which play an important role in reducing losses in crop production.

What is their role in AMR risk mitigation?

- Promote integrated manure management to optimize handling of terrestrial animal manure from collection, through storage and treatment up to application. Through this process, it is possible to reduce harmful germs and antimicrobial loads and prevent nutrient losses to a large extent under the site-specific circumstances;
- Collect and treat the wastewater and manure produced in large-scale livestock operations and in aquaculture systems before reusing or disposing of them;

⁵ <https://www.oie.int/en/what-we-do/global-initiatives/antimicrobial-resistance/#ui-id-4>

- Promote improved manure treatment practices and manure treatment facilities, and develop and implement national standards;
- Adopt the multiple barrier concept whenever wastewater is used in plant irrigation. The number of barriers (one to three) depends on the level of wastewater treatment and nature and use of the plant;
- Promote IPM to minimize the use of pesticides including regulating strictly the use of antimicrobial pesticide. IPM is an ecological approach to growing healthy crops;
- Support prevention and distribution of plant pest and diseases through implementation of International Standards for Phytosanitary Measures (ISPMs);
- Support the implementation of the International Code of Conduct on Pesticide Management which provides guidance on best practices in managing pesticides throughout their life-cycle;
- Monitor the antimicrobial release and prevalence of antimicrobials in the environment and drinking water. Data and analyses can help us better understand the concentration, location, and trace of antimicrobial pollution, and in targeting responses.

v. Private sector

➤ *Pharmaceutical Industry*

Who are they?

The pharmaceutical industry develops, produces, and markets drugs or pharmaceuticals licensed for use as medications in human, animal and plant health.

What do they do in the AMR scheme?

The leadership and influence of the pharmaceutical industry is central to the fight against AMR. The role of the pharmaceutical industry is to develop and manufacture safe and effective antimicrobials. The industry should help fight AMR by producing quality medicines and ensure they end up in the right hands and are used prudently and responsibly. They need to ensure the safety, efficacy, and quality of their antimicrobials, and adhere to good manufacturing practices.

What is their role in AMR risk mitigation?

- Ensure the safety, efficacy and quality of their antimicrobials and adhere to good manufacturing practices;
- Obtain marketing authorisation and comply with the codes of advertising to not advertise products containing antimicrobial agents directly to the end user;
- Only use officially authorised distribution systems for the marketing and export of antimicrobials;
- Cooperate with the relevant authorities and share detailed sales data for the monitoring of antimicrobial use and surveillance of AMR;
- Highlight the risk of AMR and the need for responsible and prudent use whenever providing or supplying antimicrobials;
- Participate in training on the prudent and responsible use of antimicrobials;
- Contribute to research to help combat AMR, prioritise and focus on developing alternatives to antimicrobials such as vaccines and rapid and affordable diagnostic tests;
- Adhering to regulatory frameworks and international standards

➤ *Animal feed manufacturers*

Who are they?

Animal feed manufactures are involved in production of animal feed including antimicrobial-containing feed for animals.

What do they do in the AMR scheme?

Feed manufacturers have a key role to play in preserving antimicrobial efficacy and availability. By limiting the access of medicated feed to veterinary prescription, they can counter overuse and misuse that leads to increased AMR. Producers of animal feed containing antimicrobials should adhere to best practice guidelines to combat AM.

What is their role in AMR risk mitigation?

- They should be approved for the manufacture of medicated feed, and follow all legal requirements for medicated feed;
- Only use approved sources of medicines. Ensure that only approved sources of medications are added to feed, at a level, and for a species and purpose permitted by the drug premix label or a veterinary prescription;
- Avoid contamination with harmful agents and prevent contamination of non-medicated feed;
- Implement best manufacturing practices for optimal hygiene and appropriate mixing to guarantee the homogeneity of antimicrobials in the feed;
- Only supply to farmers following a veterinary prescription;
- Ensure appropriate labelling (level of medication, approved claim, intended species, warnings and cautions) with product identification (ingredients, inclusion rates), directions for use and withdrawal time;
- Keep appropriate records to allow for traceability;
- Cooperate with the relevant authorities and share sales and distribution data for monitoring of AMU.

➤ *Agricultural extension providers*

Who are they?

Agricultural extension officers are intermediaries between research and farmers. They operate as facilitators and communicators, helping farmers in their decision-making and ensuring that appropriate knowledge is implemented to obtain the best results regarding sustainable production and general rural development.

What do they do in the AMR scheme?

They provide critical information to the farmers to help them adopt practices that help in AMR control.

What is their role in AMR risk mitigation?

- Continuous training and raising awareness of clients on AMR in order to stay up-to-date on the knowledge and to ensure implementation of good practices of AMU. This should be on information on disease prevention and management, the ability of antimicrobials to select for resistance, the importance for human and animal health, the need to observe responsible and prudent use recommendations, appropriate storage conditions, proper disposal and record keeping
- Promoting rational use of antimicrobials such as antimicrobial pesticides;
- Promoting proper disposal of expired drugs;
- Promoting good agricultural practices at the farm level.

➤ *Academia and research institutions*

Who are they?

This is the environment or community concerned with the pursuit of research, education, and scholarship.

What do they do in the AMR scheme?

The provision of high-quality education is key to equipping potential professionals with the necessary knowledge to perform efficiently and to fight against AMR effectively. To adequately prepare the graduates to possess the necessary skills and competencies at graduation, the training curriculum needs to cover relevant topics on development of AMR, Antimicrobial Stewardship and hygiene, infection prevention and control.

What is their role in AMR risk mitigation?

- Mobilize academic knowledge and information resources to benefit AMR stakeholders on the ground;
- Pre-service and in-service training of health professionals on AMR;
- Develop capacities, stimulate innovative research, share and disseminate knowledge and experience;
- Engagement in AMR multi-stakeholder processes and dialogues;
- Raise awareness on key AMR
- Produce AMR evidence data

vi. Development partners/Donors/NGOs

Who are they?

Development partners are organisations working in partnership with national and local government bodies for financial or technical support and they include bilateral and multilateral donors as well as international and local NGOs.

What do they do in the AMR scheme?

Given the global threat of AMR and the need to mitigate the public, animal health and economic impact of AMR, various development partners continue to mobilize resources to support Member States to address different aspects of AMU and AMR in countries.

What is their role in AMR risk mitigation?

- Resource mobilisation;
- Ensure complementarity of AMR intervention;
- Ensure focused support that reflects the priorities of countries and regions;
- Foster equitable distribution of resources across the region and ensure that all countries have the threshold of capacity and capabilities to address the emergence and spread of AMR.

vii. Civil Society organizations

Who are they?

Civil Society organizations (CSOs) is made up of citizens and people from different regions around the world organized into constituencies, associations and groups to make their voices heard.

What do they do in the AMR scheme?

CSOs have a long experience of transforming public, animal, plant and environmental health policies and practice through advocacy, education, and community organizing, although their involvement in AMR has, to date, been limited. Engaging CSO on AMR will ensure that civil societies utilize their advocacy capacity and experience to encourage governments into taking action on AMR.

What is their role in AMR risk mitigation?

- Ensuring that excess uses of antimicrobials is curtailed while critical access is not;
- Promoting public awareness of the harms of AMU and AMR on humans, animals, plants and the environment;
- Promoting consumer demand for food free from antimicrobial residues;

- Promoting patient demand for health care that is free from risk of nosocomial infections;
- Promoting animal welfare standards to reduce stress on animals and susceptibility to infection and hence limiting the need to use antimicrobials.

viii. Youth

Who are they?

The United Nations, for statistical purposes, defines ‘youth’, as those persons between the ages of 15 and 24 years, without prejudice to other definitions by Member States.

What do they do in the AMR scheme?

The youth are consumers of antimicrobials and those involved in agriculture also use antimicrobials for their animals or pesticides for their plants.

What is their role in AMR risk mitigation?

- Responsible use of antimicrobials;
- Consumption of antimicrobials only by medical prescription;
- Compliance with medical prescription (dose, duration, frequency, etc.);
- Not to advise or give treatment to someone else;
- Support a good management of drugs to not pollute the environment;
- Infection prevention: vaccination, compliance with hygiene measures;
- Awareness raising among the youth

ix. Professional bodies/Associations

Who are they?

A professional body/association is an organisation with individual members practicing a profession or occupation in which the organisation maintains an oversight of or ensure exchange and continuous development of the knowledge, skills, conduct and practice of that profession or occupation.

What do they do in the AMR scheme?

Health and veterinary professional bodies are important platforms for experience, knowledge and information sharing on AMR. They also regulate the prudent use of medicines including antimicrobials through legislations, guidelines, and SOPs and certificates of continued education and practices. There is evidence that the education and knowledge received about AMU as well as AMR is sometimes insufficient and do not adequately prepare students and professionals for practice, therefore the role of professional bodies in bridging this gap is essential.

What is their role in AMR risk mitigation?

- Providing the forum for sharing good practices in regulating, marketing, prescribing and administering antimicrobials;
- Advocating for learning modules specific to prudent AMU, IPC and AMR in academic and continuing education programmes;
- Advocating, negotiating with, and advising Governments to take appropriate evidence-based policies and actions on AMU and AMR;
- Encouraging and promoting efficiency in and responsibility with regards to the professional practice;
- Exercising effective control over the professional conduct of the occupation;
- Determining the minimum standards of tuition and training required for the profession including AMU and AMR.

x. Student bodies

Who are they?

A student body is an organization with all the students at a particular college or university, considered as a group.

What do they do in the AMR scheme?

Student bodies are a main stakeholder to address AMR in educational settings by providing important platforms for experience, knowledge and information sharing on AMR. They are also important to advocate for AMU at the community level.

What is their role in AMR risk mitigation?

- Advocating for the inclusion of AMR/AMU in curricula and in continued education courses;
- Disseminating information and supporting campaigns in their schools/universities and at community level;
- Organizing meetings (congresses and symposia) to facilitate exchanges between members and with national or international projects, and fostering educational opportunities;
- Support awareness raising.

xi. Regional media

Who are they?

Mass media are those channels of communication which can expose large numbers of people to the same information at the same time. They include media which convey information by sound (radio, audio cassettes); moving pictures (television, film, video); and print (posters, newspapers, leaflets).

What do they do in the AMR scheme?

To prevent and control the spread of AMR, media professionals can become Media Champions and Advocates: Be the voice and the face in the fight against AMR and call on national governments and stakeholders to invest in this fight so that antimicrobials are preserved for as long as possible and lives are saved.

What is their role in AMR risk mitigation?

- Spreading awareness on AMR;
- Promoting prudent use of antimicrobials in all sectors;
- Offering information on government contact details to report AMR issues;
- Answering AMR questions;
- Reinforcing or repeating information and advice. Information heard at a meeting or passed on by a health professional can soon be forgotten. It will be remembered more easily if it is reinforced by mass media.

4.3 End users of antimicrobials

i. Farmers

Who are they?

Farmers are the primary producers of food of plant and animal origin to feed populations. They till the soil to grow food for human and animal consumption, and cash crops for the industries. They also rear both terrestrial and aquatic animals as food and as raw materials for industrial use. They use both land and water bodies as medium for their activities, thereby having constant interaction with these environmental components. Farmers are categorized mainly into crops, livestock, and fish farmers.

What do they do in the AMR scheme?

Livestock and fish farmers raise live animals for food and therefore have the obligation of caring for the health of these animals. These farmers therefore use antimicrobials to primarily treat bacterial, viral, fungal and parasitic diseases in these animals. With the intensification of these farming activities to feed the ever-growing global populations, and with the modern technological advancement in place, current management practices of most farmers have led to inappropriate use of these antimicrobials in farming activities of both livestock and fish farmers, thereby escalating build-up of residues, development and transmission of antimicrobial resistant germs and genes. During treatments, there is overdose and under dose, as well as misapplication of these antimicrobials. In many cases, blanket treatment is given to all animals in a pen even if few animals are sick. Besides the treatments, farmers also use the antimicrobials for preventive purposes, giving sub-optimal doses which give rise to emergence and spread of resistant genes. Again, antimicrobials are being used as growth promoters which are added to feed for healthy animals to speed up growth, and also to increase egg-laying capacities of layer poultry.

In a similar situation, crop farmers use pesticides to promote plants health and productivity on their fields. The misuse and overuse of the antimicrobial pesticides are health hazards. Even though their quantities are smaller than what are used in livestock and fishery sectors, their residues in food crops can still cause emergence of AMR and pose a risk to human, animal, plant, and environmental health.

The improper disposal of unused and expired antimicrobials, as well as the waste materials from these livestock, fish and crop farms contaminate the environment with antimicrobials, thereby promoting the development of AMR in the environment. These threaten not only human health, but also animal health and welfare, plant health, and sustainable livestock, fish and crop production, which has direct implication for food security and people's livelihoods.

What is their role in AMR risk mitigation?

- Management and biosecurity innovations to minimize importation and spread of diseases on the farm and outside the farm;
- Non-antimicrobial growth promoters such as enzymes, probiotics and prebiotics;
- Better use of other animal health technologies, such as vaccines to control infectious disease vector control, and disinfectants;
- Patronize improved diagnostics to improve appropriate drug selection, dosing and length of treatment, and to identify prevalent resistance traits among pathogens to avoid the use of ineffective drugs;
- Use only antimicrobials prescribed by veterinarian and observe dosage and usage period
- Observance of withdrawal periods in crops and animal production
- Reduced dependence on antimicrobials for semen and other material preservation;
- Reduced stocking densities and increased genetic diversity of livestock;
- Increased use of genetic traits for disease resistance; and
- Better waste management;
- Adhering to regulatory frameworks and international standards;
- Acquisition of antimicrobials only from the right source;
- Keeping good and accurate farm records;
- Share accurate and timely farm data to support activities of AMR surveillance systems.

ii. Food processing sector

Who are they?

Food processing is any method aiming at transforming agricultural products into food products or transforming one form of food into other forms and using one or a combination of various processes. The sector involves activities such as washing, chopping, cooking, preservation of foods by (a) modern methods such as refrigeration, canning, pasteurisation, irradiation, and (b) traditional methods such as drying, salting, smoking and fermentation; adding ingredients to food, for example to extend shelf life. Food processing can involve individual household, small production units or industrial manufacturers.

What do they do in the AMR scheme?

Food processing units and individuals are involved in food handling that requires minimum standards to ensure nutritional benefits but also the health of the consumers (humans and animals). The activities should be carried out to avoid contamination of the food with potential germs, some of which can be pathogenic and/or also carriers of AMR factors. Further, the activities, especially in industrial setting, should aim at limiting contamination of the environment with waste that may contain risky germs. In feed production, antimicrobials are sometimes also added in low concentrations to animal feed as a way of stimulating growth and this can promote AMR.

What is their role in AMR risk mitigation?

- Applying good food safety management practices;
- Ensure food is stored and prepared in a clean environment to avoid cross-contamination;
- Follow good hygienic practices to control cross-contamination in food processing and preparation environment;
- Practise good personal hygiene, such as hand washing with soap and water;
- Practice the 4Cs: clean well, cook thoroughly, chill correctly, avoid cross-contamination
- Promote greater awareness through health extension work that reaches out to farmers, medical and veterinary professionals, consumers, and even children;
- Better enforcement of existing regulations by governments;
- Ensure a proper waste management to avoid environmental contamination.

iii. Private clinic (human health)

Who are they?

A private clinic is an establishment or hospital department where outpatients are given medical treatment or advice owned by a for-profit company or a non-profit organization and which is privately funded.

What do they do in the AMR scheme?

Clinical staff members are involved in the prescription and administration of antimicrobials and are therefore important in the prudent use of antimicrobials. Laboratory staff members are involved in sample testing to aid in proper diagnosis and therefore appropriate prescription. They also carry out antimicrobial susceptibility testing which determines the efficacy of a given antimicrobial against a microorganism (germ).

What is their role in AMR risk mitigation?

- Adoption of good IPC practices: ensure hands, instruments and the environment are clean;
- Prudent use of antimicrobials: only prescribe and administer antimicrobials when they are needed, according to up to date evidence-based treatment guidelines;
- Support AMR surveillance: report antimicrobial-resistant infections to surveillance teams;
- Good stewardship: talk to patients about how to take antimicrobials correctly, AMR and the dangers of misusing antimicrobials;

- Promotion of IPC practices: talk to patients about preventing infections (for example, vaccination, hand washing, practicing safer sex, and good respiratory hygiene such as covering nose and mouth when sneezing);
- Prevent and control Infections/Immunization: encourage patients to take or update their immunization where appropriate. Immunization plays a key role against AMR by preventing infectious diseases, thereby reducing the need for antimicrobials and their inappropriate use.

iv. Private clinic (animal health)

Who are they?

These are facilities providing prevention, cure, and alleviation of diseases and injuries to animals and that are owned by a for-profit company or a non-profit organization and which is privately funded.

What do they do in the AMR scheme?

Clinical staff members are involved in the prescription and administration of antimicrobials and are therefore important in the prudent use of antimicrobials. Veterinary microbiologists are involved in sample testing to aid in proper diagnosis and therefore appropriate prescription. They also carry out antimicrobial susceptibility testing which determines the efficacy of a given antimicrobial against a microorganism (germ).

What is their role in AMR risk mitigation?

- Promotion of good animal husbandry practices, hygiene, biosecurity and vaccination programmes;
- Promoting prudent use of antimicrobials: only prescribe and administer antimicrobials after a clinical examination of animals and only when necessary. The choice of the appropriate antimicrobial needs to take into account of farm records of previous AMU and epidemiological history of the farm, clinical experience and diagnostic insight with reference to relevantly available guidelines (e.g. national veterinary association), diagnostic laboratory information when available (culture and susceptibility testing), pharmacodynamics (activity against pathogens involved), pharmacokinetics (tissue distribution, efficacy at infection site) and the OIE list of antimicrobials of veterinary importance.
- Continuous training and raising awareness of clients on AMR in order to stay up-to-date on the knowledge and to ensure implementation of good practices of AMU. This should be on information on disease prevention and management, the ability of antimicrobials to select for resistance, the importance for human and animal health, the need to observe responsible and prudent use recommendations, appropriate storage conditions, proper disposal and record keeping;
- Data recording: These should include the quantities of antimicrobials used per animal species, details of all antimicrobials supplied to each farm, treatment schedules (including animal ID and withdrawal period), antimicrobial susceptibility data, comments concerning the response of animals to treatment and adverse reactions including lack of response due to AMR;
- Support AMR surveillance: report antimicrobial-resistant infections to surveillance teams;
- Advise against the use of medicated feed unless under veterinary prescription.

v. General public

Who are they?

The general public herein refers to those members of society who do not belong to any of the organizations or target groups identified above.

What do they do in the AMR scheme?

Human behaviour plays a very important role in maintaining or attenuating the phenomenon of AMR. Indeed, the human being through his behaviour and his interactions can accelerate and diffuse the problem of AMR. Misuse, abuse or self-consumption of antimicrobials; the lack of respect of hygiene standards; the poor management of the waste; the lack of use of effective infection prevention and control measures are all factors that aggravate the problem of AMR.

What is their role in AMR risk mitigation?

- Responsible use of antimicrobials;
- Consumption of antimicrobials only by medical prescription;
- Compliance with medical prescription (dose, duration, frequency, etc.);
- Not to advise or give treatment to someone else;
- Good management of drugs to not pollute the environment;
- Infection prevention: vaccination, compliance with hygiene measures.

5. COMMUNICATION GUIDELINES, CHANNELS/EVENTS/TOOLS AND KEY MESSAGES

Results from an online discussion entitled 'Improving communications for Antimicrobial Resistance (AMR) in Africa: How should we move forward?' were published⁶ with the following recommendations on communication guidelines and channels:

5.1 Communication Guidelines

A one-size-fits-all approach does not work in all contexts, and there is hence the need to utilize different communication strategies to capture the attention of different groups of stakeholders. The following suggestions could make AMR communication more effective in general:

i. Keep the message simple

Messages used to raise awareness on AMR need to be simple and accessible. Keeping technical language to a minimum and using real-life examples will help people internalize the messages.

ii. Consistently use the term Antimicrobial Resistance (AMR)

To avoid confusing the audience and diluting the message, the term AMR should be consistently used. Rather than splitting communication efforts along different categories of antimicrobial drugs (antifungal, antibiotics, etc.), using one term to refer to the problems arising from an overuse of any one of these medications would streamline the communication campaigns. Using AMR as a general category would also simplify efforts aimed at making communications less technical and more accessible to rural stakeholders.

iii. Make AMR more relatable and tangible as an issue

AMR issues are often perceived as something abstract, especially when individuals do not know anyone who has experienced any concrete negative effects. Therefore, it would be useful to present examples of real people who have suffered losses due to AMR. Examples could also include cases where antimicrobials have been used incorrectly, thus failing to yield the expected benefits while still costing money.

iv. Target the communication

It is important to design the communication efforts based on the intended audience. Several factors that greatly influence the perception of risk among a particular audience – such as level of awareness, prior knowledge, general attitude to health and safety, behavioural tendencies present in a given community, and socio-cultural differences – are sometimes ignored when attempting to

⁶ <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1371889/>

communicate with that audience. Generic terms (e.g., prudent, judicious, careful) that are often employed to define the proper use of antimicrobials can carry very different meanings and connotations across different cultures.

v. Multisectoral collaboration

There is need to build coordinated multi and intersectoral collaborations, both for the creation as well as the implementation of AMR communication initiatives. A proper coordination mechanism will help bring together relevant actors to provide information and develop strategies on how to address AMR, including effective communication strategies.

vi. Engage media

There should be frequent and systematic engagement with media personnel and journalists to help them understand the issue of AMR and provide them with accurate information. A competitive grant-giving system could provide an incentive for journalists to tackle this topic. At the same time, it would be crucial to engage in long-term partnerships with relevant media organizations to ensure that AMR stays on their agenda and to develop contextualized and continuous communication campaigns.

vii. Physical workshops

While traditional and social media are without doubt an important way to engage stakeholders, workshops are also important. They constitute an effective and well-tested method of communication at the field level in many African countries. Getting knowledgeable persons to spend time in physical proximity with stakeholders helps to build trust and facilitates the sharing of personal experiences, allowing for a seamless integration of question-and-answer rounds that can help clarify important messages. Focus group discussions are a particularly useful format. These allow experts to present their information while at the same time giving them a sense of existing options, priorities and practices which can help in adapting their communication approach.

viii. Link the communication clearly to the desired behaviour change

One pitfall to avoid is focusing too much on the communication side of things, and thus losing sight of the end goal: namely, behaviour change. Therefore, it needs to be clear from the very beginning what the communication efforts aim to achieve and what the stakeholders are expected to do once they are properly informed on the issue. It should be very clear that the intent is not to demonize antimicrobials or to discourage their use completely; rather, the messages should stress that these drugs can be an important tool when used properly and only when necessary. Enforcement of legislations and making it difficult for public to access antimicrobials easily contribute to making behaviour change easier.

ix. Ensure communication in the local language

To effectively reach stakeholders like farmers at the grassroots level, it is indispensable to communicate in the local language. Clear and concise messages on AMR in various local languages can be disseminated through local radio and television networks, thus increasing the likelihood of uptake. The same is true for booklets and small pamphlets used to inform dialogues at the local level.

5.2 Communication Channels

There is a need to make use of both traditional and modern media. While social media is an effective tool to reach out to the younger generation and to connect with food consumers, traditional communication channels, especially radio programming, are an effective way to reach people in more remote rural areas.

i. Social media

Taking advantage of social media channels to disseminate information and engage stakeholders is of paramount importance. Here it is however very important to carefully assess which social media channels are used by the target audiences, keeping in mind that this can vary substantially across countries and age groups). Strong presence of the topic on social media has the added benefit that traditional media are more likely to take notice of the issue.

ii. Storytelling

Storytelling is a powerful tool to achieve behaviour change. Without any first-hand evidence of the detrimental effects of AMR, it is harder for stakeholders to get invested in it as a problem to address. Real-life stories of individuals who have endured hardships due to AMR will make messages much more relatable. When properly formulated, these can also be presented as success stories which can be engrossing and motivational.

iii. Educational curricula

AMR should be included in educational curricula at all levels. Seminars should be held at regular intervals for the teachers as well in order to give them a better understanding of the issue, allowing them to convey information without the need to rely on external experts.

iv. Interpersonal communication channels

Efforts to introduce AMR-related messages into existing group activities, such as theatre groups or youth organizations, should be considered especially when it comes to raising awareness among the youth. Such efforts can have the additional benefit of making youth a part of the communication efforts, thus increasing ownership of the information and potentially the uptake by the whole community.

v. Visual communication

Producing publications such as posters, infographics and videos in the local language and using simple words can help make messages accessible and more interesting. Comics are also an additional effective way to convey messages through storytelling.

vi. Traditional institutions

To ensure engagement with local stakeholders and to give credibility to AMR communication campaigns, it is important to involve local institutions, both official and customary. In many rural areas the authority of traditional or tribal leaders is strong, and therefore these leaders should be involved in meetings with the communities. Religious leaders should also be involved as they are trusted by their communities and can be instrumental in adapting messages to a style that resonates with a particular community.

5.3 Communication and Advocacy Table

COMMUNICATION AND ADVOCACY TABLE

AMR stakeholder

Targets	Final outcome	Message	Communication Channel/Events	Communication Material/Tools
RECs/Member states	Stronger governance & capacity for AMR mitigation activities	<ul style="list-style-type: none"> • AMR is a continental and global health risk (lessons learnt from COVID-19) • One Health collaboration is crucial for effective prevention and response • We must act now to save lives • AMR is a global human, animal, plant and environmental health concern • It is a shared responsibility to prevent or minimize AMR • The tripartite and partners is supporting Member Countries in their fight against AMR, and to encourage the national ownership and implementation of international Standards • Robust and holistic regulatory environment is key to control AMR • Acting today to protect the future efficacy of antimicrobials • Support countries in NAP implementation 	<ul style="list-style-type: none"> • Trainings • Guidelines • Coordination meetings • Study tours • WAAW 	<ul style="list-style-type: none"> • Policy briefs, reports • Brochures, training materials, audiovisual materials

		<ul style="list-style-type: none"> • Make AMR a priority. Commit resources to tackling AMR and meeting national AMR action plan targets now • Ensure AMR is firmly on the political agenda • Involve all stages of stakeholders in policy decisions: Involving stakeholders from all stages of the food chain and across public and private sectors will help develop more effective and coherent policies and legislation. 		
<p>Health workers/ Veterinarians/ Veterinary paraprofessionals</p>	<p>Responsible and prudent prescription of AM</p> <p>Provide adequate guidance/advice to patients on use of AM</p>	<ul style="list-style-type: none"> • AM should be prescribed only when necessary • Cross-cutting areas for AMR prevention measures (IPC, WASH, etc) • Patients should receive advice/guidance on use and abuse of AM • AMR is a global human, animal and environmental health concern • Consider the list of AM agents of veterinary importance, when prescribing AM agent • Promote good IPC measures to reduce cross infection 	<ul style="list-style-type: none"> • Door to door visits • Trainings/capacity building workshops • Mass/ local media • School visits • Farmers & field days • Continuous professional development 	<ul style="list-style-type: none"> • Brochures • Posters • Training materials & courses • Jingles • TV/radio discussions • SOPs and guidelines • Literature reviews

		<ul style="list-style-type: none"> • Unnecessary lengthy duration of AM treatment and inappropriate use of broad-spectrum AMs should be avoided • Use narrow spectrum AMs wherever possible • Start conversations on good practices when treating animals with AMs • When visiting farms and dispensing medicines, discuss AMR and animal health with farmers to open a dialogue on the issue • Be part of the AMR movement. Create, join and talk at human, animal, plant and environment health clubs, groups and meetings in your area. Share examples of your work in AMR to encourage others to become AMR champions. 		
<p>Pharmacists/ Veterinary pharmacists</p>	<p>Responsible sale of AM Proper guidance on use of AM to clients</p>	<ul style="list-style-type: none"> • AM should be sold when only needed – preferably with a doctor’s prescription • National regulations to be enhanced • Patients should receive advice/guidance on use and abuse of AM 	<ul style="list-style-type: none"> • Door to door visits • Trainings/Capacity building workshops • Mass/ local media 	<ul style="list-style-type: none"> • Brochures • Posters • Training materials & courses • Jingles • TV/radio discussions • Social media

		<ul style="list-style-type: none"> • AMR is a global human, animal, plant and environmental health concern • Misuse and over-use of AMs are main drivers of AMR 		
Environment and plant health practitioners	<ul style="list-style-type: none"> • AM Waste management and occupational safety • Improved awareness of AMR & the environment • Improved monitoring and action plans 	<ul style="list-style-type: none"> • Mind the impact of AM residues • Ecosystems underpin the health of the planet and in turn that of humankind. Nature plays a crucial role in combatting AMR, as it is both a recipient and a spreader of AMs. • The key reasons contributing to AMR include misuse and overuse of AMs in human health, food-animal production and agriculture, along with poor management of waste emanating from households, farms, factories and human and veterinary healthcare settings • Only prescribe pesticides as a last resort: Pesticides are not the only solution. Only prescribe pesticides as a last resort for controlling diseases 	<ul style="list-style-type: none"> • WASH measures • Mass/local media • Websites or online workshops • Contributions at regional and national African water weeks • Training for environmental practitioners (e.g. on monitoring and policy development) • Mass/ local media training for environmental journalists 	<ul style="list-style-type: none"> • Brochures • TV/radio discussions • Training materials and courses • Technical brief
Pharmaceutical industry	Manufacturing capacity strengthened	<ul style="list-style-type: none"> • Discharging AMs (drugs) into the environment increases AMR • Adhere to appropriate waste management practices of AMs 	<ul style="list-style-type: none"> • Consultative meeting with stakeholders • Capacity building workshops for 	<ul style="list-style-type: none"> • Brochures • Posters • Training materials and courses for Regulatory Inspectors

	Development of new drugs (Research and Development)	<ul style="list-style-type: none"> • Rational use of AMs reduces AMR • Adhere to good drug and pharmaceutical importation, manufacturing, distribution and disposal guidelines/practices • Promote and participate in accredited drug dispensing outlet systems to improve access to quality medicines and pharmaceutical services 	manufacturers and regulatory inspectors	<ul style="list-style-type: none"> • AMR aide-mémoire for regulatory inspectors
Feed manufacturers	Responsible production of feeds	<ul style="list-style-type: none"> • AMR is a health risk • AMs shouldn't be added in feeds • Feed manufacturers have a key role to play in preserving AM efficacy and availability • Limiting the access of medicated feed to veterinary prescription • Counter overuse and misuse that leads to increased AMR • Adhere to best practice guidelines to combat AMR • As feed manufacturers it is your responsibility. Your leadership and influence is central to this fight, demonstrating your professionalism and commitment to the sector 	<ul style="list-style-type: none"> • Discussion groups • Mass/local media • Trainings 	<ul style="list-style-type: none"> • Brochures • Videos • Posters

<p>Agricultural extension officers</p>		<ul style="list-style-type: none"> • Misuse and overuse of AMs such as pesticides leads to AMR • Negative implications to animal, plant, human and environmental health- increased resistance will lead to increased losses and mortality in animals and people; • Good agricultural practices- farm biosecurity, vaccinations, IPC, IPM reduce the need for AMs including pesticides 	<ul style="list-style-type: none"> • Door to door visits • Trainings/capacity building workshops • Mass/ local media • School visits • Farmers & field days • Continuous professional development 	<ul style="list-style-type: none"> • Jingles • TV/radio discussions • Posters • Flip charts for training
<p>Academia and research institutions</p>	<p>Increased research and better integration of AMR in curricula</p>	<ul style="list-style-type: none"> • AMR knowledge and evidence should be increased through research and teaching • More AMU/AMR data should be generated • Work with policy makers to translate evidence into policies • Champion AMR as a key issue within your institutions: Make AMR a mandatory part of the curriculum. Lead cross-sectoral events and activities, including lectures, webinars and seminars to increase understanding of the spread of AMR across sectors • Share knowledge across borders: Invite researchers from around the world to speak at your institutions and share ideas on addressing AMR 	<ul style="list-style-type: none"> • Study tours, discussions • Coordination meetings, technical collaborations 	<ul style="list-style-type: none"> • Reports, assessments, technical documents, Scientific publications

<p>Development partners/Donors/NGOs</p>	<p>AMR Governance & Implementation of national action plans strengthened</p>	<ul style="list-style-type: none"> • Multisectoral coordination and collaboration should be promoted • Resource mobilization & Financial support • Prioritize AMR in development projects and funding • Support high-risk countries/areas of work • Advocate for political commitments • Fill knowledge gaps: Support research and projects on AMR where evidence is lacking 	<ul style="list-style-type: none"> • Regional and National Workshops on resource mobilization 	<ul style="list-style-type: none"> • Reports • Resource mobilization strategy • Mapping list/directory of Partners, donors/NGOs • AMR implementation tools/guidance documents
<p>Civil Society</p>	<p>Implementation of national action plans Social cohesion on AMR Improved</p>	<ul style="list-style-type: none"> • We are the champions for AMR control • Advocacy and joint implementation of communication strategy • Create dialogue: Discuss AMR with the communities in which you work, and raise awareness of the need to keep AMs working • Incorporate AMR actions into existing and new projects: Many actions to reduce the spread of superbugs have benefits for health, sanitation, disease control and waste management. These actions can be 	<ul style="list-style-type: none"> • Social media engagement • Meetings • Field interventions • Civil society capacity building workshops 	<ul style="list-style-type: none"> • Booklets • Brochures /pamphlets • Mapping list/directors of AMR civil society organizations

		<p>inexpensive to implement. Incorporate these into existing initiatives.</p>		
<p>Youth</p>	<p>AMR Ambassadors and Champions</p>	<ul style="list-style-type: none"> • Use AMs if ONLY prescribed by your doctor • The future of AMs depends on us, we must handle AMs carefully • Raise public awareness • Raise your voice. Champion AMR as a priority for your student groups and associations and lead awareness raising activities such as walks, talks, and events within your communities • Share examples of your advocacy work on social media and with journalists. Inspire other groups to take action and become 'AMR champions' • Look after yourself and your family • Effective self-care ways to help you feel better if there is no need for AMs • Self-limiting mild infections such as colds and most coughs, sinusitis, earache and sore throats don't need AMs 	<ul style="list-style-type: none"> • Social media engagement • Community engagement • Social media influencers • Trainings & Capacity building workshops • AMR as part of school club activities 	<ul style="list-style-type: none"> • Communication materials • Booklets, brochures, Pamphlets • Mass Media (TV, Radio) • Social media platforms • Education (online courses)

		<ul style="list-style-type: none"> • Follow hygiene and cough etiquettes to minimize the risk of spreading infection • Antibiotics do not prevent or treat viral infections including COVID-19, they only work on bacterial infections. 		
Professional bodies/Student bodies	<p>Inclusion of AMR into agenda and platform of professional student bodies</p> <p>Survey for decision making</p> <p>Advocate on AMR related issues</p>	<ul style="list-style-type: none"> • Survey on the implementation of communication strategy • AMR advocacy and dissemination of information on AMR • Consumer groups and professional associations can play a pivotal role in increasing the awareness about AMU 	<ul style="list-style-type: none"> • Track progress against specific indicators • Door to door visits • Trainings/capacity building workshops • Mass/ local media • School visits • Continuous professional development 	<ul style="list-style-type: none"> • Reports • Social media • Continuing Medical Education & Online courses on AMR • Policy Briefs
Regional media	Awareness on AMR	<ul style="list-style-type: none"> • Raise public awareness • Share examples of your advocacy work on social media and with journalists • Inspire other communication experts to take action and become 'AMR champions' • Supporting behavior change models 	<ul style="list-style-type: none"> • Broadcasting on AMR topics • Mass/ local media training for journalists 	<ul style="list-style-type: none"> • Reports • Social media • TV, radio, videos
Farmers	Prudent and responsible use of AM	<ul style="list-style-type: none"> • AMR is a health risk • Ensure safe husbandry practices for production of food including good nutrition, hygiene and animal welfare 	<ul style="list-style-type: none"> • Grass-root activity • Community engagement • Mass/local media • Dialogue 	<ul style="list-style-type: none"> • Video, Brochure • Promotional item • Biosecurity posters,

		<ul style="list-style-type: none"> • AMR can be transferred between animals and humans and vice versa, therefore it is important to practice good hygiene to minimize the risk • Use AMs prescribed by your veterinarian in accordance with their labelling instructions • You have an important role of providing safe food to the community • Maintain and promote good agricultural practices throughout the production cycle • Keep the highest farm biosecurity standards all the time • Vaccinate your animals at the right time and space to prevent disease occurrence • Use only AMs that have been prescribed by a veterinarian • Acquire AMs from reliable sources • Never use AMs for prophylaxis and growth promotion • Spread the word, not the microbes! Tell other farmers and community members what you have 	<ul style="list-style-type: none"> • local radio and TV channels • infographics for distribution • jingles • use of popular local artists • channelling messages through school children to their parent farmers • churches and mosques • through government and private extension workers • through farmer-based organisations 	
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		<p>learned about why it is important to use AMs responsibly</p> <ul style="list-style-type: none"> • Only use pesticides as a last resort: Pesticides are not the only solution. Only use pesticides on your plants as a last resort for controlling diseases. 		
Food processing sector		<ul style="list-style-type: none"> • Strengthening food hygiene practices can reduce food contamination • Follow good practices to precautions to control cross-contamination in food processing and preparation environment, including the kitchen • Practice the 4Cs are: <ul style="list-style-type: none"> *Clean well *Cook thoroughly *Chill correctly *Avoid cross-contamination • Ensure food is stored and prepared in a clean environment to avoid cross-contamination. • Practise good personal hygiene, such as hand washing with soap and water 	<ul style="list-style-type: none"> • Discussion groups • Mass/local media • Trainings 	<ul style="list-style-type: none"> • Brochures, • Videos • Posters

		<ul style="list-style-type: none"> • Discuss AMR with your colleagues, family, friends and community. Encourage your workplace to develop and adopt measures that help reduce the spread of AMR. • Help keep AMs working for everyone. Follow your doctor's advice on whether you or your family need AM drugs. Always seek expert medical advice before taking AM drugs. 		
General public	Community engagement	<ul style="list-style-type: none"> • AMR is a Health Risk • Do not purchase AMs from street corners • Do not buy AMs without a prescription • Do not share AMs with others • Get AMs only from a licensed health professional • Complete your full course of treatment as prescribed by your health professional • Get vaccinated to prevent infections • Practice good hygiene 	<ul style="list-style-type: none"> • WAAW • Global Soil Symposium • World Veterinary Day • YouTube playlist • Videos • Tripartite interactive platform 	<ul style="list-style-type: none"> • Knowledge, Attitudes and Practices Survey (KAP+) • Regional communication toolkits • Brochures, Posters and Pamphlets

		<ul style="list-style-type: none"> • AMs should be taken as prescribed, never saved for later • Appropriate use of AMs will slow down the development of AMR • There are very few new AMs in the development pipeline, which is why it is important we use our existing AMs wisely • Prevention of AMR is our shared responsibility. Everyone can take action • Good infection control measures can prevent AMR spread in both humans and animals • Consider use of alternatives to AMs, when indicated • Don't take AMs in the absence of clinical evidence of microbial infection • Ensure food is stored and prepared in a clean environment to avoid cross-contamination 		
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6. EVALUATION OF COMMUNICATION EFFORTS

Communications impact can be tracked via:

- i. **Social media engagement:** Audience engagement, high level engagement, hashtag engagement, number of retweets (tracked using Hootsuite)
- ii. **Web engagement:** Increased numbers of visitors, visits and length of visits to the AMR webpages (tracked using Google Analytics)
- iii. **Media engagement:** coverage, reach and piece quality (tracked using Meltwater)
- iv. **Event attendance**
- v. **Social science research:** surveys, key-informant interviews, focus group discussions and behavioural science experiments

A logical framework should be drafted to outline components of the strategy and action plan. This will include performance indicators, means of verification and assumptions made. Reporting should be made at the conclusion of each activity.

7. WORKPLAN AND BUDGET

For any communication event/ project, a clear workplan defining the objectives, the expected outputs/outcomes, the activities, the target stakeholders, the budget as well as a monitoring and evaluation plan should be appropriately elaborated.