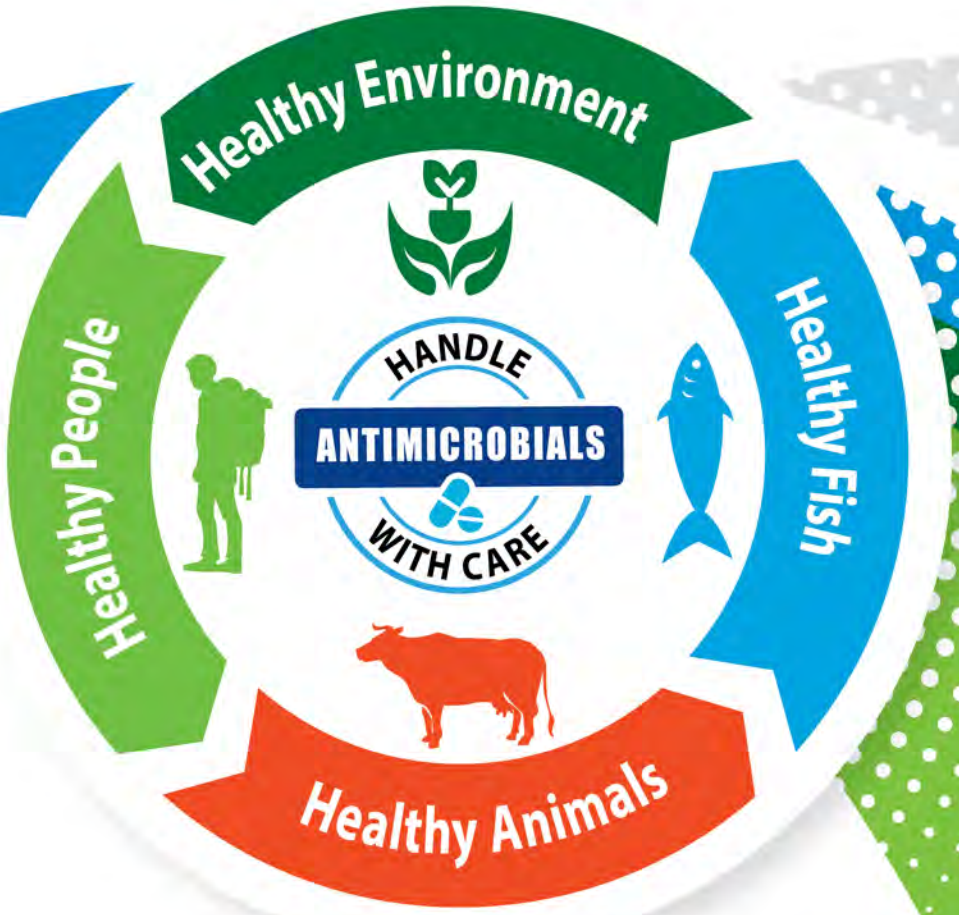
# MULTISECTORAL COMMUNICATION STRATEGY

## TO TACKLE ANTIMICROBIAL RESISTANCE IN BANGLADESH




World Organisation for Animal Health
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2024


The Antimicrobial Resistance (AMR) Multi-Partner Trust Fund
Combatting the rising global threat of AMR through a
One Health Approach

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TO TACKLE ANTIMICROBIAL RESISTANCE IN BANGLADESH

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**Funded by**
The Antimicrobial Resistance (AMR) Multi-Partner Trust Fund
Combatting the rising global threat of AMR through a One
Health Approach


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**SECRETARY**
Ministry of Fisheries & Livestock
Government of the People's Republic of Bangladesh

# MESSAGE

I am delighted to announce the launching of a multisectoral communication strategy to tackle antimicrobial resistance in Bangladesh. As we are all aware, antimicrobial resistance is a growing threat to public health, food security, and sustainable development. It is imperative for us to take proactive measures to address this issue.

The Ministry of Fisheries and Livestock recognizes the need for a coordinated approach involving various sectors including health, agriculture, environment, and animal husbandry. This communication strategy aims to create awareness among the general public, healthcare professionals, farmers, veterinarians, policymakers, and other relevant stakeholders about the responsible use of antimicrobials.

Through this strategy, we will emphasize the importance of proper hygiene practices in livestock farming and aquaculture, judicious use of antibiotics in animal husbandry and fisheries management practices. We will also focus on promoting alternatives such as vaccination and biosecurity measures to reduce reliance on antimicrobials.

It is our belief that by implementing this multisectoral communication strategy effectively; we can curb the rise of antimicrobial resistance in Bangladesh. The success of this initiative hinges upon your active participation and support. Therefore I urge all stakeholders from different sectors – government agencies; civil society organizations; private sector entities; academic institutions; international partners –to join forces with us in combating this critical issue.

Together let's work towards preserving the effectiveness of antimicrobials for future generations' well-being while ensuring sustainable food production systems for our nation's growth.

Thank you for your attention! Let's make a difference together!

**Sayeed Mahmood Belal Haider**

**DIRECTOR GENERAL**
Department of Livestock Services
Government of the People's Republic of Bangladesh

# MESSAGE

This message is to discuss a crucial issue that has been plaguing our nation's livestock sector - antimicrobial resistance (AMR). As we are all aware, AMR poses a significant threat not just to the well-being of our animals, but also to human health and the environment. It is imperative that we take immediate action to address this growing concern.

In light of this, I am delighted to announce the launch of this multisectoral communication strategy aimed at tackling antimicrobial resistance in Bangladesh. This comprehensive strategy will serve as a roadmap for raising awareness among stakeholders, promoting responsible use of antimicrobials, and fostering collaboration between various sectors involved in livestock production.

Our primary goal with this strategy is to educate farmers, veterinarians, and other relevant personnel about the dangers associated with indiscriminate use of antibiotics and other antimicrobials. We will emphasize the importance of adopting alternative approaches such as improved biosecurity measures, vaccination programs, and better animal husbandry practices. To effectively implement this communication strategy, we will leverage various platforms including workshops, seminars, training sessions, print media campaigns, social media channels and collaborations with local organizations. By incorporating both traditional modes of communication as well as modern digital tools into our efforts; we aim to reach a wider audience across different demographics within our country.

Furthermore, it is essential for us to bolster partnerships with key stakeholders such as pharmaceutical companies producing veterinary drugs and feed additives. We must work together towards promoting responsible manufacturing practices that prioritize quality control mechanisms over profit margins. By establishing these partnerships based on mutual goals for combating AMR; we can ensure safer alternatives are easily accessible while discouraging abuse or misuse.

Ultimately it is through collective efforts that we can successfully combat AMR within our livestock sector. Let us strive together towards creating an environment where both animals and humans can thrive without fear from drug-resistant bacteria jeopardizing their well-being.

Let us stand together in this important mission and make a lasting impact on the health and well-being of our nation.

**Dr. Md. Reajul Huq**

**DIRECTOR GENERAL**
Department of Fisheries
Government of the People's Republic of Bangladesh

# MESSAGE

I am delighted to announce the official launch of the Multisectoral Communication Strategy aimed at combating antimicrobial resistance (AMR) within our beloved nation, Bangladesh. As the Director General of the Department of Fisheries, I would like to express my gratitude towards all stakeholders involved in making this crucial initiative a reality.

Antimicrobial resistance has emerged as one of the most pressing global health challenges, necessitating collective efforts from various sectors. In acknowledgement of its severity and potential consequences, our government has recognized the importance of adopting a multisectoral approach that encompasses not only healthcare institutions but also fisheries, agriculture, livestock management, and other relevant industries. The fishing industry plays an essential role in our country's economy and food security. However, it is imperative for us to address AMR effectively within this sector to ensure sustainable development while safeguarding public health. By launching this Multisectoral Communication Strategy today, we are taking an important step towards raising awareness among fishermen and aquaculture farmers about responsible antimicrobial use and hygiene practices.

Effective strategy might include comprehensive communication campaigns that will engage key stakeholders through various channels such as media platforms, workshops, seminars, educational programs at local levels and digital outreach initiatives. It aims to improve knowledge sharing on best practices regarding AMR prevention across different sectors while fostering collaboration amongst relevant authorities.

I encourage all stakeholders - government agencies at different levels along with private sector entities - not only from fisheries but also agriculture and veterinary sectors - to actively participate in delivering effective messages on antimicrobial resistance prevention strategies contained within this communication campaign.

Together we can combat AMR by promoting prudent use of antibiotics in fish farming activities while minimizing their excessive utilization across all relevant sectors simultaneously ensuring environmental sustainability. This coordinated effort will undoubtedly contribute significantly towards preserving human well-being alongside securing prosperous futures for our cherished nation.

Let us unite as one force against antimicrobial resistance!

**Syed Md. Alamgir**

**DIRECTOR GENERAL**
Department of Environment
Government of the People's Republic of Bangladesh

# MESSAGE

I am delighted to announce the launch of the Multisectoral Communication Strategy to tackle antimicrobial resistance (AMR) in Bangladesh. As the Director General of the Department of Environment, I believe that our collective efforts are crucial in addressing this pressing issue.

Antimicrobial resistance poses a significant threat to public health, animal health, and environmental sustainability. It requires a coordinated approach involving various sectors such as healthcare, agriculture, veterinary services, and environment. This multisectoral strategy aims to foster collaboration and facilitate effective communication among these sectors.

Through this strategy, we aim to raise awareness about AMR among policymakers, healthcare providers, farmers, consumers, and the general public. We will emphasize the responsible use of antibiotics in healthcare settings and animal husbandry practices while promoting hygiene practices that prevent infections. This initiative also recognizes the importance of environmental stewardship in combating AMR. The improper disposal of pharmaceutical waste contributes significantly to antimicrobial pollution in our ecosystems. Therefore, we will work closely with relevant stakeholders to develop guidelines for safe disposal practices.

I urge all government agencies at national and local levels along with civil society organizations and private sector entities working towards tackling AMR to actively participate in implementing this communication strategy. Together we can create a sustainable future where antibiotics remain effective weapons against bacterial infections.

Let us embrace this opportunity as a united front against antimicrobial resistance by engaging all sectors involved – from human health professionals to veterinarians; from policymakers to researchers; from consumers to producers; each individual has an important role play. I look forward to witnessing our collective efforts yielding positive outcomes in curbing antimicrobial resistance within Bangladesh's borders and beyond.

**Dr. Abdul Hamid**

**DIRECTOR GENERAL**
Directorate General of Drug Administration
Government of the People's Republic of Bangladesh

# MESSAGE

I am pleased to announce the launch of a dedicated multisectoral communication strategy to address antimicrobial resistance in Bangladesh. This critical initiative brings together various sectors to spread awareness about the judicious use of antibiotics and the escalating threat of antimicrobial resistance.

Antimicrobial resistance poses a significant threat to public health and it is imperative that we take prompt and effective action. It is no longer sufficient for us to work in silos; instead, we must join forces across sectors and disciplines to tackle this growing menace. This strategy has been developed with inputs from experts in various fields including healthcare, agriculture, environment, and regulatory bodies, ensuring a comprehensive approach towards addressing AMR.

The ultimate goal of this multisectoral communication strategy is twofold: first, we aim to raise awareness among stakeholders about responsible antibiotic use. We understand that inappropriate use of antibiotics not only contributes significantly to the development of resistance but also leads to adverse patient outcomes. Therefore, through targeted educational campaigns and informative materials, we will emphasize the importance of appropriate antibiotic prescribing practices among healthcare professionals as well as educate patients on the proper use of antibiotics.

Secondly, we seek active participation from all sectors involved in combating AMR. The success of this communication strategy relies heavily on your involvement - be it healthcare professionals promoting prudent prescribing practices or agriculture sector adopting responsible use strategies within livestock production systems. Together with environmental agencies focusing on proper waste management practices and regulation bodies ensuring adherence to guidelines for antimicrobial usage – each sector plays a vital role incurbing the spread of antimicrobial resistance.

I urge each one of you to actively participate in this multisectoral communication strategy by sharing information within your respective communities or organizations. By joining forces today to tackle antimicrobial resistance head-on through education, advocacy efforts,and research collaborations - we can safeguard public health for future generations.

Together let's make a difference!

**Major General Mohammad Yousuf**

**DIRECTOR OF COMMUNICABLE DISEASE CONTROL**
Directorate General of Health Services
Government of the People's Republic of Bangladesh

# MESSAGE

I am thrilled to announce the launch of our groundbreaking multisectoral communication strategy to combat antimicrobial resistance (AMR) in Bangladesh. As the Director of Communicable Disease Control of Health Services, I am immensely proud to be a part of this crucial initiative.

Antimicrobial resistance poses a significant threat to public health worldwide, jeopardizing our ability to treat common infections effectively and undermining medical advancements. Recognizing the urgency of this issue, we have developed a comprehensive communication strategy that engages multiple sectors and stakeholders.

This strategy aims to improve awareness and understanding among healthcare professionals, policymakers, livestock producers, pharmacists, patients, and the general population about the importance of responsible antimicrobial use. By fostering collaboration between various sectors such as human health, animal and aquatic health, agriculture, pharmaceuticals, education institutions and media outlets; we believe we can achieve tangible progress in reducing AMR.

Our approach involves targeted messaging through various channels including social media campaigns, enforcement measures for regulating antimicrobial sales at pharmacies,and educational programs for healthcare providers on rational prescribing practices. Additionally, surveillance systems will be strengthened and research studies conducted to monitor emerging trends in antimicrobial resistance.

Collaboration is key in tackling AMR effectively; hence we encourage all stakeholders to actively participate in this initiative. By working together with collective determination and shared responsibility; we can combat antimicrobial resistance effectively, affecting positive change for generations to come.

Let us embrace this new era with enthusiasm as we strive towards a future where antibiotics remain an effective tool against infectious diseases. Thank you all for your unwavering commitment towards protecting public health.

**Dr. Sheikh Daud Adnan**

World Organisation for Animal Health
Founded as OIE

**REGIONAL REPRESENTATIVE**
World Organisation for Animal Health (WOAH)

# MESSAGE

I am pleased to announce the launch of a new multisectoral communication strategy to address the growing threat of antimicrobial resistance in Bangladesh. As the Regional representative for the World Organisation for Animal Health (WOAH), I believe that this collaborative effort will play a crucial role in raising awareness, promoting responsible use of antibiotics, and fostering cooperation among various sectors to tackle this pressing issue.

Antimicrobial resistance is a complex challenge that requires coordinated action from all sectors, including human health, animal health, agriculture, and environment. By working together and engaging with communities, policymakers, healthcare professionals, and industries, we can effectively combat this global threat.

I convey my sincere appreciation to the government of Bangladesh and all partners involved in developing this communication strategy. I encourage everyone to actively participate in its implementation and contribute towards building a sustainable future free from the devastating threat of antimicrobial resistance.

I believe our united efforts will make a meaningful change on public health through addressing antimicrobial resistance in Bangladesh.

**Dr. Hirofumi Kugita**

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ABBREVIATIONS

# ABBREVIATIONS

| | | |
|---|---|---|
| AMR | = | Antimicrobial Resistance |
| AMP | = | Aquatic Medicinal Product |
| AMU | = | Antimicrobial Usage |
| BDS | = | Bachelor of Dental Surgeon |
| CAB | = | Consumer Association of Bangladesh |
| DGHS | = | Directorate General of Health Services |
| DoE | = | Department of Environment |
| DoF | = | Department of Fisheries |
| DLS | = | Department of Livestock Services |
| EUJAMRAI | = | European Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections |
| FAO | = | Food and Agriculture Organization |
| GAP | = | Good Agriculture Practice |
| GMP | = | Good Manufacturing Practice |
| GPP | = | Good Pharmacy Practice |
| IEC | = | Information, education and communication |
| KPI | = | Key Performance Indicator |
| MBBS | = | Bachelor of Medicine and Bachelor of Surgery |
| MDR | = | Multi Drug Resistant |
| MoFL | = | Ministry of Fisheries and Livestock |
| MoHFW | = | Ministry of Health and Family Welfare |
| MPTF | = | Multi-Partner Trust Fund |
| NAP | = | National Action Plan |
| SAMCO | = | Sub Assistant Community Medical Officer |
| SBCC | = | Community Health Care Provider (CHCP) |
| STG | = | Standard Treatment Guideline |
| SWOT | = | Strength, Weakness, Opportunity and Threat |
| UNEP | = | United Nations Environment Program |
| WAAW | = | World Antimicrobial Awareness Week |
| WHO | = | World Health Organization |
| WOAH | = | World Organisation for Animal Health |
| WOHD | = | World One Health Day |
| XDR | = | Extremely Drug Resistant |


# INTRODUCTION

# INTRODUCTION

Antimicrobial resistance (AMR) is a global health concern that affects both human and animal including aquatic animal health. It occurs when bacteria, viruses, fungi, and parasites develop the ability to resist the drugs used to treat infections, rendering these medications ineffective. The misuse and overuse of antimicrobial drugs in both human medicine and animal agriculture contribute significantly to the emergence and spread of AMR.

In recent years, there has been a growing recognition of the need for effective communication strategies to address antimicrobial resistance in health sectors. Communication plays a vital role in raising awareness among key stakeholders such as farmers, physicians, veterinarians, policymakers, and the general public about responsible antimicrobial use practices. Effective communication strategies can help promote behavior change by educating target audiences about the impact of AMR on human and animal health and food safety. These strategies aim to empower stakeholders with knowledge and skills to make informed decisions regarding antimicrobial use in One Health approach.

Additionally, communication strategies focus on dispelling misconceptions surrounding antimicrobials while emphasizing the importance of appropriate diagnosis by physicians, veterinarians and aquatic health experts before prescribing these medications. Through targeted messaging campaigns delivered through various channels such as social media platforms, workshops, printed IEC materials, webinars, or press releases; communication efforts can effectively reach different segments of society. Furthermore, collaboration with relevant organizations is crucial for successfully implementing communication strategies on AMR in different deciplines. Partnerships with agricultural associations, private sectors, governmental agencies, and academic institutions enhance credibility while helping broaden outreach efforts.

The development of the strategy is a part of Multi-Partner Trust Fund (MPTF) project to tackle AMR in Bangladesh implemented by a Quadripartite partners, including World Organisation for Animal Health (WOAH), World Health Organization (WHO), Food and Agriculture Organization (FAO) and United Nations Environment Program (UNEP). The development process (Figure 1) of the strategy included drafting of a blueprint initially by WOAH followed by review of the blueprint by the sectoral focal points of the multi-sectoral organizations and quadripartite partners. Later on, two consultation workshops were held on 22 February 2024 and 23 May 2024 to discuss on the blueprint of the strategy. The workshops were attended by the multisectoral organizations, the Directorate General of Health Services (DGHS), Department of Livestock Services (DLS),

Directorate General of Drug Administration (DGDA), Department of Fisheris (DOF), Department of Environemnt (DOE) and other potential national organizations as well as quadraipartite partners, WHO, FAO and WOAH. Further, expert opinions and suggestions of the stakeholders were incorporated to the draft strategy.

The aim of this strategy is to guide the government of Bangladesh to raise the awareness of the potential stakeholders especially human, aquatic, environment and animal health professionals, animal and fish producers, drug sellers, environment scientists, and general public towards prudent use of antimicrobials.

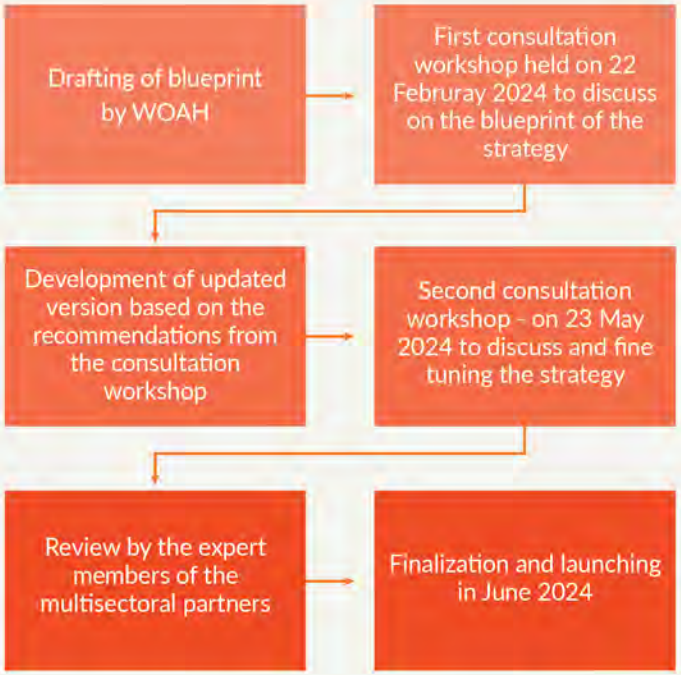


**Figure 1:** Developmental process of the communication strategy to tackle AMR in Bangladesh

## The Social and Behavior Change Communication

To develop the communication strategy to tackle AMR in Bangladesh, we followed the Social and Behavioral Change Communication (SBCC) framework using five SBCC approaches including advocacy, social mobilization, capacity strengthening, development of IEC materials and public campaign to make social and behavioral changes in primary, secondary and tertiary audiences. SBCC is a systematic approach used to design, implement and evaluate communication strategies aimed at promoting positive social and behavioral outcomes within communities or target population. SBCC integrates communication theory, social and behavioral sciences, public health and other fields to facilitate achieving objectives through behavior change.

Many previous studies have successfully used SBCC framework in health sector to create positive changes in target audiences' behavior. The European Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections (EUJAMRAI) has developed the guideline to use SBCC framework in tackling AMR through their work titled as 'Social Behaviour Change Communication strategy to tackle AMR and reduce Healthcare-Associated Infections (HCAIs) in Europe'[1]. In Indonesia, in developing the 'Multisectoral One Health Communication and Advocacy Strategy to Mitigate Antimicrobial Resistance in Indonesia', SBCC framework was considered to design and implement the strategy[2].

According to the SBCC framework, we subdivided our target audience into 3 groups: primary, secondary and tertiary. It should be noted that the grouping does not indicate a scale and all groups could be equally important target audience.

Persons belong to primary group includes farmers (livestock or aquatic), farm workers and consumers etc. Particularly they are the people whose changes in behavior will collectively influence actions to contribute to tackle AMR.

Secondary group includes human, animal, aquatic health care professionals including veterinarians, physicians, nurses, pharmacists, paramedics etc., community health workers, livestock extension officers, associations like farmers association, Consumer Association of Bangladesh (CAB), drug company representatives, medical and veterinary schools, etc. The persons of this group are able to mobilize themselves and others around them through motivating them to practice the recommended activities and behaviors.

Tertiary group includes Ministries, e.g. Ministry of Health and Family Welfare (MoHFW), Ministry of Livestock and Fishereis (MoFL), Ministry of Environemnt Forest and Climate Change, etc. Government departments, e.g. DLS, DGHS, DGDA, and Bangladesh Food Safety Authority (BFSA), etc. Persons under this group is advocated in order to get required policies, resources and structure to mitigate AMR through implementing communication strategy.

## Steps of Communication strategy to tackle AMR

Developing a communication strategy on AMR in human, animal, aquatic and environemntal health sector is an important step in raising awareness and promoting responsible use of antimicrobials. According to European Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections (EUJAMRAI) guideline, we developed this strategy following 8 steps (Figure 2):


Figure 2: Steps in communication strategy to tackle AMR


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Healthy People
Healthy Fish
Healthy Animals
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ANTIMICROBIALS
WITH CARE

# 1 STEP

# STEP-1

## AMR situation analysis for Bangladesh

AMR is a significant public health concern in Bangladesh. The misuse and overuse of antimicrobials in human healthcare, animal agriculture, and the environment have contributed to the emergence and spread of resistant bacteria. In Bangladesh, high rates of antimicrobial use are observed in both human and animal health sectors. Limited awareness about proper antimicrobials use practices, inadequate access to quality healthcare services, and unregulated sale of antimicrobials without prescription are some contributing factors[2-6].

### Antimicrobial use and resistance pattern in human health sector

AMR poses a threat to the effectiveness of common antimicrobials used in treating diseases such as pneumonia, tuberculosis, urinary tract infections, and diarrheal illnesses in humans. This has serious implications for patient outcomes and increases healthcare costs due to longer hospital stays and the need for more expensive treatment options. Several studies have highlighted the escalating rates of antimicrobial resistance in Bangladesh across different pathogens and settings. Imipenem resistance (14.49%) was found in pathogens isolated from urinary tract infection[7]. Many of the common pathogens like Escherichia coli, and Salmonella typhi showed extensive resistant pattern to different low-cost hence commonly used antimicrobial[8-11]. These studies found that 64.28% isolates of Salmonella typhi from blood, sputum, urine and pus were multidrug resistant (MDR)[6]. Another study showed that 50% isolates of Escherichia coli, Staphylococcus aureus, Pseudomonas and Klebsiella was resistant against older and commonly used antimicrobials[9]. One Health Trust reviewed antimicrobial resistance data on 35 antibiotics from 2000 to 2012 in Bangladesh and observed highest resistance against cloxacillin (100%), ampicillin (80%), oxacillin (78%), tetracycline (77%), metronidazole (78%). Five percent resistance against imipenem and 4% against linezolid was recorded[12].

In human health sector in Bangladesh, antimicrobial overuse and misuse are widespread, driven by factors such as inappropriate prescribing practices, self-medication, and unrestricted access to antimicrobials. Several studies reported that prescription of two or more antimicrobials at a time is a frequent practice in Bangladesh[13-16]. Prevalence of antimicrobial prescription without laboratory tests is reported very common in Bangladesh due to unavailability of testing facilities[15-16]. Moreover, prevalence of self-treatment (26.69%-60.86%) in previous studies was found to be remarkably high[17-18]. Self-medication was frequently observed in illnesses like dysentery, diarrhoea and food poisoning (36%); cold, cough and fever (28%); and assumed infections (13%)[17].

## Antimicrobial use and resistance pattern in animal, fish and environmental health sector

In the livestock sector in Bangladesh, inappropriate antimicrobial use for growth promotion or disease prevention is widespread. Poor farm management practices further exacerbate this issue by promoting transmission of resistant bacteria between animals and humans through contaminated food products. Though efforts are underway in Bangladesh to address AMR, the effectiveness is questionable[19].

The AMR situation in animal health sector is not better than the human health sector. It was recorded that more than 55% poultry isolates of E. coli were resistant to at least one or more antibiotics; nearly 22 to 36% were MDR20,[21]. Moreover, 70% of the E. coli isolated from humans, animals, environment, and food samples in Bangladesh was MDR[22]. 42 to 98% Campylobacter spp. isolates of poultry were reported to be MDR23,[24]. E. coli isolates carrying colistin-resistant mcr-1 genes (25%) was reported from broiler and some of them showed resistance against tetracycline, and Beta-Lactam antibiotics[25]. Staphylococcus spp., Streptococcus spp., Bacillus spp., and E. coli isolated from milk were resistant to streptomycin (70-100%), amoxicillin (30-100%), and ampicillin (100%)[26]. MDR and extensively drug resistant (XDR) E. coli and Campylobacter spp. are also prevalent in frozen chicken sold at super shops[24, 27].

In animal health sector, particularly in poultry sector, the antimicrobial use practice is very complex. A great influence of the poultry and feed dealers is observed in the poultry sector especially because they provide financial and technical support to the farms and make farmers obliged to buy chicks, feed and medicine from them. It was observed that, farmers use combined antimicrobials together with banned antimicrobials to poultry all through the production period in accordance to the advice of the poultry dealers[28]. Moreover, in rural areas, due to insufficient veterinary health care services, farmers are largely dependent on (82%) the informal animal health care providers such as unregistered village doctors and drug sellers. Therefore, according to the suggestions of these informal animal health care providers, farmers use antimicrobials often in a suboptimal dose as feed additives for growth promotion and prophylaxis[29]. It was reported that 43.8% farmers used antimicrobials for therapeutic purpose, 31.5% for prophylaxis and 8.2% for growth promotion; remarkably, >60% farmers applied antimicrobials without any prescription[30]. Also, report shows that 94.16% of farmers applied antimicrobials without maintaining the withdrawal period and farmers frequently applied antimicrobials of Watch group (49%), Reserve group (8%) and Last-Resort group (73%)[31].

The factors associated with the antimicrobials overuse and misuse in aquaculture sector are too complex and multifactorial. Its relation was observed with increasing disease burden, low and unpredictable market prices, poor source water quality and inadequate knowledge on sustainable practices and disease management[32]. Oxytetracycline, ciprofloxacin, and amoxycillin are some commonly used antibiotics in aquaculture in Bangladesh either to treat or prevent fish diseases and amoxicillin and oxytetracycline residues were identified in freshwater fish samples[33]. Further, it was observed that antimicrobials used in fish farms were mainly adviced by feed dealers or drug sellers (51%), farmers themselves (31%) and local service providers (18%)[34].

## Antimicrobial drug regulations and policies

Currently, a good number of policies, ordinances, guidelines and laws are in place in Bangladesh aimed to contain AMR in human, animal and environment sector. Moreover, a National Action Plan 2017–2022 to tackle AMR in Bangladesh was developed aligned to the global plan by the Disease Control Unit of the Director General of Health Services, MoHFW. The NAP stressed towards prudent use of antimicrobials in human, animal and environmental sectors through implementing standard treatment guidelines, antibiotic stewardship, development of reference laboratories, Good Manufacturing Practice (GMP), Good Pharmacy Practice (GPP), infection prevention and control, and establishment of a comprehensive surveillance. The Department of Livestock Services (DLS) is the authorized agency to coordinate and implement NAP strategies in the animal health sector of the country. However, research revealed the absence of necessary inter-sectoral coordination needed for the implementation of this multisectoral plan. Useful coordination was observed between the human and livestock/aquatic health sectors, but the environment sector was not on board. In accordance to the plan, the government started few hospital-based awareness programs and surveillance activities without showing any effort to monitor and evaluate the NAP activities. Moreover, the progress of implementation did not gain the required pace due to shortage of trained health workforce and financial resources[35]. Similarly, implementation of other existing policies and strategies faces challenges including limited resources, lack of awareness among healthcare providers, farmers, and the general population, and inadequate enforcement of regulations.

Overall, addressing AMR in Bangladesh requires a multi-sectoral approach that combines regulation, education, surveillance, and collaboration. By promoting responsible antimicrobial use across human, aquatic and animal health sectors, the country can reduce the burden of AMR, preserve the effectiveness of antimicrobials, and safeguard public health.

## SWOT analysis of AMR communication in Bangladesh

While there are strengths in terms of increasing awareness and government commitment in Bangladesh's AMR communication efforts, there are also weaknesses that need attention. Capitalizing on opportunities such as strengthening surveillance systems and leveraging information technology can help overcome challenges associated with limited resources, low public awareness, and gaps in stakeholder engagement. By addressing these weaknesses and leveraging opportunities, Bangladesh can enhance its AMR communication strategy for more effective prevention and control of AMR in the country. The following SWOT analysis was done with the assistance of the experts participated in the 'Communication Strategy' workshop held on 22 February 2024 in Dhaka.

## Table 1 : SWOT analysis of AMR communication in Bangladesh

### Strengths

1. Efforts to raise awareness about AMR and responsible antimicrobial use are growing, with various stakeholders actively engaged in communication campaigns and educational programs.
2. Establishment of government approved One Health Secretariat in Bangladesh.
3. The government has shown commitment by developing national policies, guidelines, and regulations related to AMR communication and surveillance.
4. AMR surveillance is ongoing and AMR containment strategic framework is approved for the period of 2023-28.
5. There is a growing recognition of the need for collaboration among different sectors including healthcare, agriculture, veterinary services, and environmental agencies to address AMR.

### Weaknesses

1. Limited financial resources and infrastructure pose challenges in implementing comprehensive communication strategies on AMR throughout the country.
2. Inadequate coordination among different One Health stakeholders.
3. Lack of AMU surveillance.
4. Despite increasing efforts, there is still a lack of widespread public awareness about the nature, causes, and consequences of AMR in Bangladesh.
5. Not all relevant stakeholders such as farmers, physicians, veterinarians, and policymakers may be adequately engaged or aware of their role in combating AMR.

### Opportunities

1. Strengthening surveillance systems can provide accurate data on AMR patterns that can inform targeted communication efforts for specific regions or populations.
2. Possibility of including AMR in the undergraduate and postgraduate curriculum of health-related education. As young generation have more receptiveness, they might play a significant role in future in AMR containment.
3. The widespread use of mobile phones and internet access in Bangladesh provides an opportunity to leverage technology-based communication platforms such as social media, mobile applications, and online resources to reach a broader audience with AMR messaging.
4. Engaging healthcare professionals through training programs and continuing education initiatives can enhance their understanding of AMR and enable them to effectively communicate responsible antimicrobial use practices to patients.

### Threats

1. Overcoming misinformation about antimicrobials and resistance, as well as resistance to changing existing practices, poses a threat to effective communication strategies on AMR.
2. Aggressive nature of antimicrobials marketing in Bangladesh might be the greatest threat.
3. Farmers are highly dependent on the feed, seed and drug sellers for their farming practices due to inadequate animal health services in villages.
4. Inadequate enforcement of regulations related to responsible antimicrobial use in both human healthcare and animal agriculture may undermine the impact of communication efforts.
5. Lack of coordination between different stakeholders and fragmented communication efforts can lead to inconsistent messaging or duplication of efforts.


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# 2 STEP

# STEP-2

## Overall aim and objectives

The overall goal of this communication strategy is to outline the communication principles to be applied on the critical stakeholders to contribute to their social and behavioral changes to mitigate AMR and its consequences.

The specific objectives of the strategy are to -

1. Raise awareness among farmers, physicians, veterinarians, aquatic health experts, policymakers, and the general public about the risks and consequences of AMR in human, animal and environment health.
2. Educate stakeholders about responsible antimicrobial use practices, including proper dosage, administration techniques, and adherence to withdrawal periods.
3. Improve stakeholders' knowledge and understanding of AMR mechanisms, factors contributing to its development, and the role of antimicrobial use in animal agriculture.
4. Encourage stakeholders to adopt behaviors that promote responsible antimicrobial use, such as seeking expert advice before administering antimicrobials or implementing preventive measures to reduce disease incidence.
5. Equip stakeholders with information and tools that enable them to make informed decisions regarding antimicrobial use by providing guidelines, supporting materials, and resources on responsible antimicrobial use in different health sector.
6. Advocate for the development and implementation of policies and regulations that promote responsible antimicrobial use in different health sector, aligning with national AMR action plans.
7. Establish monitoring and evaluation mechanisms to assess the effectiveness of communication efforts, measure changes in knowledge, attitudes, and behaviors, and make necessary adjustments to improve impact over time.


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# 3 STEP

# STEP-3

## Target Audience

By considering the specific needs, interests, and knowledge levels of each target audience, a communication strategy on AMR becomes more effective in generating awareness, promoting behavior change, and encouraging responsible antimicrobial use across various stakeholder groups. During the 1st and 2nd 'Commuication Strategy' workshops held in 22 February 2024 and 23 May 2024, respectively in Dhaka, Bangladesh, expert groups were asked to identify the target audiances (Table 2) and prioritize the target audiences (Table 3) for the four main sectors related to AMR in Bangladesh – human, animal, aquatic and environmental health sector. According to social ecological model, the target communication audiences were further divided into – Primary group, Secondary group and Tartiary group.

### Table 2 : Traget audiences for AMR communication identified by the stakeholders

| Sector | Group of audiences | Target audiences |
|---|---|---|
| Human health | Primary | Mass population |
| | Secondary | Physician |
| | | Local Health Administrator (DD, CS, UHFPO) |
| | | Medical students (MBBS/BDS students) |
| | | Nurses & Midwifes |
| | | Sub Assistant Community Medical Officer (SACMO) |
| | | Community Health Care Provider (CHCP) |
| | | Pharmacists/Drug dispensers |
| | | Informal health care provider/Non registered practitioner Traditional healer |
| | | Pharmaceutical companies |
| | | Health related NGOs |
| | Tertiary | Ministry of Health and Family Welfare |
| | | Directorate General of Health Services (DGHS) |
| | | Directorate General of Medical Education (DGME) |

| Sector | Group of audiences | Target audiences |
|---|---|---|
| | Tertiary | Directorate General of Drug Administration |
| Animal health | Primary | Farmers, farm owners |
| | | Feed & chick seller, LBM Poultry seller |
| | | Drug seller |
| | Secondary | Veterinarians |
| | | Veterianry students |
| | | Pharmaceutical company representative |
| | | Quack/Traditional healer |
| | | Feed manufacturer |
| | | Animal health paraprofessionals |
| | Tertiary | Ministry of Fisheries and Livestock |
| | | Department of Livestock Services |
| | | Universities |
| | | Pharmaceutical Companies/Drug importers |
| | | Feed Manufacturer |
| | | Directorate General of Drug Adminstration |
| | | Bangladesh Veterinary Council (BVC) |
| | | Bangladesh Veterinary Association (BVA) |
| | | Animal Health Companies Association of Bangladesh (AHCAB) Bangladesh Poultry Industries Central Council (BPICC) |
| | | Dairy Association |
| Aquatic health | Primary | Farmer/producer |
| | | Hatchery operators/owners |
| | Secondary | Aquatic Animal Health Professionals Professionals/Fisheries Expert |
| | | Para professionals/Diploma professionals |
| | | Fisheries students |
| | | Feed manufacturer/dealer/retailers |
| | | Aquatic medicinal products (AMP) dealer/retailer |
| | | Pharmaceutical companies/Importers |

| Sector | Group of audiences | Target audiences |
|---|---|---|
| | Tertiary | Ministry of Fisheries and Livestock |
| | | Department of Fisheries |
| | | Directorate General of Drug Administration (DGDA) |
| | | Bangladesh Fisheries Research Institute (BFRI) |
| | | Academia/Universities |
| | | Bangladesh Fisheries Professional Associations (Fisheries Society of Bangladesh, Bangladesh Aqua Product Companies Association, Shrimp Hatchery Association, Bangladesh Frozen Food Exporter Association etc.) |
| Environmental health | Primary | Farmer/farm owner |
| | | Mass Population |
| | | Poultry and meat processors |
| | Secondary | Hospital authority |
| | | Industrial authority |
| | | Pharmaceutical company/manufacturer |
| | | Drug and feed seller |
| | | Feed manufacturer |
| | Tertiary | Ministry of Environment, Forest and Climate Change |
| | | Department of Environment |
| | | Local government/City Corporation |
| | | Ministry of Health and Family Welfare |
| | | Ministry of Fisheries and Livestock |
| | | Ministry of Industries |

## Table 3 : Prioritized target audiences for AMR communication in Bangladesh

| Sector | Prioritization index | Target audience |
|---|---|---|
| Human health | 1 | Physician |
| | 2 | Medical students (MBBS/BDS) |
| | 3 | Nurses and Midwives |
| | 4 | Community Health Care Provider (CHCP) |
| | 5 | Sub Assistant Community Medical Officer (SACMO) |
| | 6 | Pharmacists and Drug dispensers |
| | 7 | Pharmaceutical companies |
| | 8 | Informal helath care provider/Traditional healer/Non registered Practitioners |
| | 9 | Mass population |
| | 10 | Policy maker |
| | 11 | Local Health Administrator (DD, CS, UHFPO) |
| Animal health | 1 | Farmers, Farm owners |
| | 2 | Feed and chick seller, LBM poultry seller |
| | 3 | Drug seller |
| | 4 | Quack/Traditional healer |
| | 5 | Animal Health Para-professionals |
| | 6 | Pharmaceutical company representatives |
| | 7 | Veterinarians |
| | 8 | Veterinary students |
| | 9 | Policy maker |
| | 10 | Pharmaceutical companies Drug importers |
| | 11 | Feed manufacturer |
| | 12 | Academia/Universities |
| | 13 | Professional and other associations |

| Sector | Prioritization index | Target audience |
|---|---|---|
| Aquatic health | 1 | Fish farmer/producer/hatchery operator |
| | 2 | Aquatic Animal Health Professional/ Fisheries expert |
| | 3 | Aquatic medicinal products (AMP) seller |
| | 4 | Pharmaceutical company |
| | 5 | Feed manufacturer |
| | 6 | Para-professionals |
| | 7 | Fisheries students |
| | 8 | Policy makers |
| | | |
| Environmental health | 1 | Mass population |
| | 2 | Farmer/farm owner |
| | 3 | Poultry and meat processor |
| | 4 | Pharmaceutical manufacturer |
| | 5 | Drug/feed seller |
| | 6 | Hospital authority |
| | 7 | Feed manufacturer |
| | 8 | Industrial authority |


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# 4 STEP

# STEP-4

## Key Messages

Clear and concise messages should be developed that communicate the importance of responsible/prudent antimicrobial use, the impact of antimicrobial resistance on human, animal, aquatic and environmental health and food safety, and the role of various stakeholders in combating this issue. The messages should:

a. Emphasize the importance of using antimicrobials judiciously and only when necessary to prevent the emergence and spread of AMR.

b. Highlight the interconnectedness of human, animal, aquatic and environmental health, showcasing how responsible antimicrobial use in these sectors contributes to safeguarding public health.

c. Emphasize that responsible antimicrobial use helps ensure proper care and welfare for animals by treating infections effectively while minimizing unnecessary exposure to antimicrobials.

d. Promote proactive measures such as vaccination programs, biosecurity practices, and good husbandry to reduce the need for antimicrobials in animal agriculture.

e. Educate stakeholders about the significance of accurate diagnosis by physicians/veterinarians before prescribing antimicrobials, as this ensures targeted treatment and reduces unnecessary medication use.

f. Raise awareness about alternative approaches for promoting health, such as improved nutrition, management practices, probiotics/prebiotics, phage therapy or immune-stimulants, that can reduce reliance on antimicrobials.

g. Emphasize on development of standard treatment guidelines, antibiotic stewardship, development of reference laboratories, Good Manufacturing Practice (GMP), Good Pharmacy Practice (GPP), infection prevention and control.

h. Stress the need for collaboration among stakeholders from different health sectors.


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# 5 STEP

# STEP-5

## Channels

It is imperative to determine the most effective communication channels to reach the key messages to the target audiences. This may include social media campaigns, educational workshops, printed materials (brochures, posters), webinars, or press releases.
Here are some channels to consider:

a. Social media: Utilization of popular social media platforms such as Facebook, Twitter, Instagram, and LinkedIn might be very effective to share educational content, infographics, videos, and success stories related to responsible antibiotic use.
b. Websites and Blogs: Creating a dedicated website or blog that serves as a hub of information on AMR would be a good way to reach a wide range of audiences. The website should be regularly updated with articles, case studies, expert interviews, and practical guidelines for stakeholders.

c. Workshops and training sessions: Organization of workshops or training sessions for farmers, physicians, veterinarians, and other stakeholders involved with human, aquatic and animal health would be necessary to raise awareness. These interactive sessions can provide hands-on education and promote discussion on responsible antibiotic use practices.

d. Printed materials: Development and dissemination of Information, Education and Communication (IEC) materials including brochures, leaflets, flyers, posters, and banners were proved to be a very effective way to communicate key messages about AMR prevention strategies. These materials can be distributed at health facilities, veterinary clinics, farmers' gatherings, schools, and agricultural events and public places.

e. Webinars and online courses: Conduct webinars or develop online courses that offer comprehensive knowledge about AMR prevention, strategies for responsible antibiotic use, and practical tips for farmers, physicians, veterinarians and other stakeholders. This accessible format allows participants to learn at their own pace and from anywhere with an internet connection.

f. Press releases and media engagement: Issuing press releases to media outlets will sensitize the local and national media and will help raise awareness about AMR among mass population. Engaging and providing journalists with accurate information, expert interviews, or success stories that highlight the importance of responsible antibiotic use in health sectors may reach a wide range of audiences.

g. Collaboration with industry associations and professional organizations: Partnering with industry associations, such as agricultural organizations or veterinary associations, and professional organizations can help amplify communication efforts by reaching a wider audience through their newsletters, conferences, or websites.

h. Public service announcements (PSAs): Radio stations or television networks can be used to develop PSAs that deliver concise messages about responsible antibiotic use in animal agriculture and health sector. These short announcements can reach a large audience within specific geographical regions.

i. Online forums and discussion boards: Creating and participating in online forums, discussion boards, and social media groups focused on human, animal and aquatic health can help to be engaged directly with stakeholders, answer questions, and share information about AMR prevention strategies.

Expert opinions were gathered through 'Communication Strategy' workshop on the target audience specific key messages and the probable channels to communicate it. The recommendations are listed in Table 3.

## Table 3 : Recommended key messages and channels to communicate with target audiences

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Human health | Physicians | Re-think before prescribing any antimicrobials (if needed or not) | • Advocacy<br>• Pre-service & in-service training STG, DGHS app<br>• Through different professional societies<br>• Engaging experts/role model of the community |
| | | Prescribe antimicrobials preferably based on culture and sensitivity report | |
| | | Choose antimicrobials based on national guideline | |
| | Medical students | AMR related knowledge should be disseminated with priorities | • Academic curriculum,<br>• Competitive extracurricular activities |
| | Pharmacists and Drug dispensers | Up to 20,000 BDT fine will be charged for the sale of antimicrobials without a prescription from a registered doctor. | • Advocacy Training<br>• Campaigns<br>• Poster, leaflets, campaigns<br>• Focus group discussion<br>• Uthan boithok<br>• Electronic Media processing |
| | | Identify the antimicrobials with red labeled packaging and "Antibiotic" written on it. | |
| | Nurses, SACMOs, CHCP | Antimicrobials are not required in common cold, fever, diarrhea | |

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Human health | Mass population | By taking antimicrobials unnecessarily, do not harm yourself and your family | • Posters and social media<br>• Miking<br>• Rallies<br>• Leaflets festoons<br>• Awareness through text message, TV scrolling, newspaper, billboard |
| | | Don't throw away expired or damaged antimicrobials in soil, water, or the trash. Submit those at your nearest pharmacy | |
| | | Don't use antimicrobials without the registered doctor's prescription | |
| | | Don't take antimicrobials for common cold, viral fever, diarrhea, COVID-19 without registered doctor's prescription | |
| | | Wash your hand and maintain personal hygiene | |
| Animal health | Veterinarians | Prescribe antimicrobials rationally, particularly in food animals | • Training |
| | | Advise the farmer for good farming practice. | |
| | | Prescribe antimicrobials preferably based on culture and sensitivity report | |
| | | Prescribe alternatives to antimicrobials | |
| | | Follow 4-Ds rules (right drug, dose, duration & de-escalation) during prescription | |
| | | Follow standard treatment guidelines during prescrption | |
| | | Aware the farmer about drug withdrawal period | |

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Animal health | Farmers farm owners | Do not use antimicrobials without prescription from registered veterinarians. | • Training<br>• Awareness<br>• Motivation<br>• Leaflet & poster<br>• Documentary<br>• Providing vaccination and deworming guideline<br>• Providing biosecurity guideline |
| | | Stricktly follow the prescription and withdrawal period of the antimicrobials | |
| | | Carry out complete and routine vaccinations according to schedule for healthy animals | |
| | | Maintain and promote good agricultural practices throughout the production cycle | |
| | | Practice routine vaccination and deworming | |
| | | Ensure and maintain good biosecurity practices | |
| | | Dispose excess antimicrobials according to standard protocol | |
| | Drug seller | Do not sell antimicrobials without prescription | • Training<br>• Awareness<br>• Use of legislation |
| | | Store antimicrobials and other drugs at appropriate conditions according to the manufacturers recommendations | |
| | | Selling antimicrobials without prescription is a punishable offense under Drug and Cosmetic Act, 2023 | |
| | | Do not change the drugs that are prescribed by the veterinarians | |
| | | Do not advice any drugs yourself to the farmers | |
| | Feed seller | Only sell the feed and maintain proper storage | • Training<br>• Awareness<br>• Use of legislation |

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Animal health | Feed seller | Don't sell any veterinary medicine without drug lisence | • Training<br>• Awareness<br>• Use of legislation |
| | | Selling of drugs without license is a punishable offense under Drug and Cosmetic Act, 2023 | |
| | Feed manufacturer | Do not use antimicrobials in feed formulations | • Training<br>• Awareness<br>• Use of legislation |
| | | Use of antimicrobials in feed is a punishable offense under Fish Feed and Animal Feed Act 2010 | |
| | Pharmaceutical company's marketing representatives | Do not prescribe the farmer without having registration from Bangladesh Veterinary Council | • Training<br>• Awareness<br>• Use of legislation |
| | | Visit only the registered veterinarians for promotional purpose | |
| | Quack/ Traditional healer | Do not use or prescribe antimicrobials in animals/birds, or even do not advice AMs to the farmers | • Training<br>• Awareness<br>• Use of legislation |
| | | Only registered veterinarians can prescribe antimicrobials | |
| | | Prescribing antimicrobials without registration is a punishable offense under Bangladesh Veterinary council Act 2019 and Drug and Cosmetic Act 2023 | |
| | Policy makers | Arrange continuous funding for the AMR surveillance and research | • Policy brief<br>• Official letter<br>• Meeting<br>• Workshop. |
| | | Develop policy guidelines (AMs, AMU etc.) | |
| | | Advocate coordinated information sharing on AMR | |
| | | Develop/review standard treatment guidelines | |

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Animal health | Policy makers | Establish Antimicrobial Stewadship Unit at DLS | • Policy brief<br>• Official letter<br>• Meeting<br>• Workshop. |
| Aquatic health | Aquatic Animal Health Professionals/Fisheries Expert | Ensure prudent use of antimicrobials | • Pre-service and<br>• In-service training/Professional education/STG |
| | | Promote Good Agriculture Practice (GAP) and farm biosecurity to prevent AMR | |
| | | Sensitize farmers regarding AMR, AMU and withdrawal period | |
| | | Monitor withdrawal period of antimicrobials | |
| | Fish farmer | Do not use antimicrobials without expert advice | • Training Awareness<br>• Motivation<br>• Leaflet & poster<br>• Documentary |
| | | Ensure good aquaculture practice to prevent AMR | |
| | Para Professionals/diploma professionals | Do not prescribe antimicrobials, advice preventive measures only | • Training<br>• Awareness<br>• Use of legislation |
| | Feed Manufacturer | Do not use antimicrobials in feed preparations | • Training Awareness<br>• Use of legislation |
| | AMP Manufacturer | Indicate (label) target species, dose and withdrawal period in product | • Training<br>• Awareness<br>• Use of legislation |
| | Policy Maker | Develop and execute policy/regulations/treatment guidelines regarding AMR/AMU | • Sectoral plans for communicatio n on AMR |
| | | Develop Core MT and Divisional Human Resources for AMR/AMU | |
| | | Allocate necessary funding for AMR/AMU | |

| Sector | Target audience | Key messages | Channels |
|---|---|---|---|
| Aquatic health | BFRI and universities | Facilitate research on AMR<br>Incorporate AMR in syllabus | • Advocacy<br>• Revision of syllabus |
| Environmental health | Farm owner | Do not throw farm waste, excessive antimicrobials and packages in the environment<br>Store farm waste in separate bag from other waste | • Awareness campaign, workshop, training, text message, electronic print media, advocacy |
| | Hospital authority | Establish and follow standard waste water treatment and waste management system | • Awareness campaign, workshop, training |
| | Industrial authority | Establish and follow standard waste water treatment and waste management system | • Awareness campaign, workshop, training, text message, electronic print media, advocacy |
| | Pharmaceutical company | Maintain proper disposal system of expired antimicrobials and by-products | • Awareness campaign, Workshop, training, text message, electronic print media, advocacy |
| | Consumer | Follow registered physicians prescriptions for antimicrobials<br>Do not throw expired or extra antimicrobials and its packages in environment | • Text message,<br>• Electronic and print media<br>• Advocacy |
| | Poultry and meat processor | Do not throw waste here and there | • Awareness campaign,<br>• Text message, Electronic and print media<br>• Advocacy |
| | Drug seller | Do not sell antimicrobials without prescription of registered physicians | • Awareness campaign,<br>• Text message, Electronic and print media<br>• Advocacy |


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# 6 STEP

# STEP-6

## Proposed work plan

Proposed activites throughtout the year under different components can be carried out towards social and behavioral changes among the target audiences (Table 4). Communication and advocacy strategy developed by different countries were reviewed to draft this plan and adapted for Bangladesh context through recommendations from the 'Communication Strategy' workshop.

### Table 4 : Proposed activites of communication strategy to tackle AMR in Bangladesh

| Indicative activity | Target audiance | Technical lead | Support | Indicated time frame |
|---|---|---|---|---|
| **Advocacy** | | | | |
| **Organization of multisectoral meetings or seminars or workshops** | Multisectoral misintries, departments and directorates | DGHS, DLS, DoF, and DoE | One Health Secretariat and Quadripartite partners | World Antimicrobial Awareness Week (WAAW) and World One Health Day (WOHD) or any suitable time |
| **Development of multisectoral guidelines to promote rationale use of antimicrobials** | Veterinarians, physicians, aquatic health expert and related health care workers | DGHS, DGDA, DLS, DoF, and DoE | One Health Secretariat and Quadripartite partners | Need based |
| **Review to update the current gudilines and strategies related to AMR** | Veterinarians, physicians, aquatic health expert and related health care workers, farmers and related industries | DGHS, and DLS, DoF, DoE | One Health Secretariat and Quadripartite partners | Need based |
| **Media briefings to sensitize local and national media and increase media coverage on AMR** | National and local media | DGHS, DLS, DoF, and DoE | One Health Secretariat and Quadripartite partners | Twice a year |

| Indicative activity | Target audiance | Technical lead | Support | Indicated time frame |
|---|---|---|---|---|
| **Social mobilization** | | | | |
| **Arrangement of essay, poster and photography competition on AMR** | Students of multisectoral deciplines | DGHS, DLS, DoF, and DoE | One Health Secretariat and Quadripartite partners | WAAW and WOHD |
| **Appreciation to best farmer for following good agriculture practice** | Farmer | DLS, DoF | FAO, and WOAH | Once a year |
| **Capacity building** | | | | |
| **Provide training to farmer on good agriculture practice and IPC** | Farmer | DLS, DoF | WOAH and FAO | Leading organization will make schedule |
| **Provide training to human, animal and fish health care worker on AMR. AMU and STG** | Physician, veterinarians, aquatic health expert and related health care workers | DGHS, DLS, DoF | Quadripartite partners | Leading organization will make schedule |
| **Enhance environmental management capacity including waste management** | Farmers, health facilities, and private sector | DoE | UNEP | Leading organization will make schedule |
| **Incorporation of AMR and AMU in curriculum** | Students of different health related deciplines | DLS, DoF, DoE and DGHS | Universities | Need basis |
| **Public campaign** | | | | |
| **Dissemination of existing target audience specific IEC materials** | Mass population, farmer, physician, veterinarians, aquatic health expert and related health care workers, drug and feed seller and manufacturer | DLS, DoF, DoE and DGHS | One Health Secretariat and Quadripartite partners | WAAW and WOHD |

| Indicative activity | Target audiance | Technical lead | Support | Indicated time frame |
|---|---|---|---|---|
| **Public campaign** | | | | |
| **Development of new IEC materials and dissemination to specific target audiences** | Mass population, farmer, physician, veterinarians, aquatic health expert and related health care workers, drug and feed seller and manufacturer | DLS, DoF, DoE and DGHS | One Health Secretariat and Quadripartite partners | WAAW and WOHD |
| **Organization of campaign on safe food** | Mass population | Food Safety Authority | DLS, DoF, DGHS and Quadripartite partners | Twice a year |
| **Organization of FGD (Uthan Boithak) to raise awareness about AMR and AMU** | Farmer, feed and drug seller, feed and drug manufacturer | DLS, DoF | FAO, WOAH | Leading organization will make schedule |


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# 7 STEP

# STEP-7

## Implementation

For a proper implementation of the work plan, a dedicated person/focal point should be assigned under each organization who will be responsible for all AMR communication related activities of the organization. Moreover, partnerships play a crucial role in developing and implementing a comprehensive communication strategy on AMR. Collaborating with relevant organizations can help broaden the reach, enhance credibility, and leverage shared resources.

As for resource mobilization for the implementation of the communication activities, Multi-Partner Trust Fund for AMR in Bangladesh may serve opportunities during the project period. Food and Agriculture Organization of the United Nations (FAO), United Nations Environment Programme (UNEP), World Health Organization (WHO), and World Organisation for Animal Health (WOAH) can provide support in developing the capacity of Bangladesh to implement this Communication Strategy.


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# 8 STEP

# STEP-8

## Monitoring and evaluation

Monitoring and evaluation are crucial components of a communication strategy on AMR in health. They allow for the assessment of the effectiveness and impact of the communication efforts, ensuring that the strategy is achieving its intended objectives. Metrics should be established to assess the impact of the communication efforts over time. This may include tracking changes in behavior related to antibiotic use or conducting surveys to measure awareness levels. By implementing a robust monitoring and evaluation framework, stakeholders can gain valuable insights into the effectiveness of their communication efforts. This allows for evidence-based decision-making, optimization of resources, and continuous improvement of the strategy over time. Here are some considerations to develop monitoring and evaluation framework:

- Defining specific, measurable, attainable, relevant, and time-bound (SMART) objectives for the communication strategy is the first requirement to establish a monitoring and evaluation framework. These objectives should align with the overall goals of reducing AMR.

- Determining Key Performance Indicators (KPIs) that will be used to measure progress towards achieving the objectives would be the second most important requirement to develop the monitoring and evaluation framework. Examples of KPIs include changes in awareness levels among target audiences, adoption of responsible antibiotic use practices by farmers or professionals, or reduction in antibiotic sales/use within specific populations.

- It is necessary to select appropriate methods for collecting relevant data to evaluate the effectiveness of communication efforts. These methods may include surveys, interviews, focus groups, social media analytics, and analysis of sales records or prescription data.

- Conducting a baseline assessment prior to implementing the communication plan to establish initial levels of knowledge, attitudes, and behaviors related to AMR and responsible antibiotic use will serve as a benchmark against which progress can be measured.

- Implementation of a systematic process of ongoing monitoring mgiht be necessary to track the implementation and progress of the communication strategy. This may involve regular surveys or assessments to measure changes in awareness, knowledge, attitudes, and behaviors related to AMR and responsible antibiotic use over time.

- The collected data should be analyzed using appropriate statistical methods or

qualitative analysis techniques. This will allow for a comprehensive understanding of trends, patterns, and insights related to the impact of the communication strategy.

- Regular reports should be prepared by summarizing the findings from monitoring and evaluation activities. This may include presenting key results, discussing any challenges encountered, drawing conclusions, and making recommendations for future improvements or adjustments to the communication strategy.

- A process of getting feedback from the stakeholders such as farmers, physicians, veterinarians, environment specialists and policymakers regarding their perceptions of the communication efforts should be established. This can be done through surveys, focus groups discussions, or interviews. Their inputs should be accounted in refining future messaging or strategies.

- The last but not the least, the communication strategy should continuously be adapted and refined based on insights gained through monitoring and evaluation activities. Regular review of the strategy's effectiveness and making adjustments as needed is imperative to ensure it remains relevant and impactful.

The proposed monitoring and evaluation framework is given in Table 5.

## Table 5 : Proposed monitoring and evaluation framework for communicating AMR

| Milestones | Process indicators | | Means of varification |
|---|---|---|---|
| | Quantitative | Qualitative | |
| **Advocacy** | | | |
| **Multisectoral meetings or seminars or workshops organized** | • No. of events<br>• No. of total participants<br>• No. of participants from different sectors<br>• No. of recommendations made<br>• No. of report developed and disseminated | • Active interactive discussion<br>• Quality of the report | • Reports<br>• Survey on participant feedback |
| **Multisectoral guidelines to promote rationale use of antimicrobials developed** | • No. of guidelines developed<br>• No. of organizations participated in development | • Quality of the material<br>• Satisfaction of the target audience | • Guidelines<br>• Reports<br>• Survey on target audience feedback |
| **The existing gudilines and strategies related to AMR is reviewed and updated** | • No. of guidelines and strategies reviewed and updated<br>• No. of organizations participated in review process | • Quality of the material<br>• Satisfaction of the target audience | • Guidelines<br>• Reports<br>• Survey on target audience feedback |
| **Media briefings aranged to sensitize local and national media and increase media coverage on AMR** | • No. of media briefings<br>• No. of journalists and no. of media attended<br>• No. of newspaper reports at local and national level | • Quality of the coverage, such as in front page or with picture or others | • News paper stories<br>• Press release from organizing agency<br>• Documentation |

| Milestones | Process indicators | | Means of varification |
|---|---|---|---|
| | Quantitative | Qualitative | |
| **Social mobilization** | | | |
| **Essay, poster and photography competition on AMR arranged** | • No. of competitions held<br>• No. of participants in each of the competitions | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Documentation<br>• Social media feeds<br>• Participatory photography or video<br>• Poster, photograph or essays<br>• Direct observations |
| **Reward program arranged to recognize best farmer for following good agriculture practice** | • No. of program held<br>• No. of participants in each program rewarded | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Documnetation<br>• Social media feeds<br>• Direct observation |
| **Capacity building** | | | |
| **Training arranged to farmer on good agriculture practice, IPC and AMR/AMU knowledge** | • No. of training held<br>• No. of participants in each training | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Focus group discussions<br>• Surveys<br>• Exit interviews<br>• Direct observations |
| **Training arranged to human, animal and aquatic health care worker on AMR, AMU and STG** | • No. of training held<br>• No. of participants in each training | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Focus group discussions<br>• Post evaluation<br>• Exit interviews<br>• Direct observations |
| **Environmental management capacity including waste management enhanced** | • No. of seminar and workshops arranged<br>• No. of training program arranged | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Focus group discussions<br>• Post evaluation<br>• Exit interviews<br>• Direct observations |

| Milestones | Process indicators | | Means of varification |
|---|---|---|---|
| | Quantitative | Qualitative | |
| **Capacity building** | | | |
| **Topics on AMR and AMU in curriculum included** | • No. of veterinary and medical schools agreed with the concept<br>• No. of schools arranged special lectures on AMR and AMU for students<br>• No. of schools included topics in their curriculum | • Level of participation of schools of different diciplines | • Documentation<br>• Direct observation |
| **Public campaign** | | | |
| **Dissemination of existing target audience specific IEC materials** | • No. of people accessing repository of materials | • Quality of existing materials<br>• Clarity of existing materials | • Documentation<br>• IEC materials<br>• Survey |
| **New IEC materials developed and disseminated to specific target audiences** | • No. of new IEC materials developed<br>• New IEC materials reached to no. of target audiences<br>• No. of IEC materials distributed | • Quality of the materials<br>• Clarity of content<br>• Level of inclusion | • Documentation<br>• IEC materials<br>• Survey |
| **Campaign on safe food organized** | • No. of campaigns organized<br>• No. of target groups reached | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Documentation<br>• Media coverage including social media<br>• Direct observation |
| **FGD (Uthan Boithak) to raise awareness about AMR and AMU organized** | • No. of campaigns organized<br>• No. of target groups reached | • Level of participation<br>• Level of satisfaction<br>• Level of inclusion of target groups | • Documentation<br>• Media coverage including social media<br>• Direct observation |

# CONCLUSION

In conclusion, this document presents a comprehensive multisectoral communication strategy to tackle antimicrobial resistance (AMR) in Bangladesh. The strategy is based on the expert opinions gathered through a 'Communication Strategy' workshop held on 22 February 2024 in Dhaka, Bangladesh. Experts and stakeholders from human, animal, aquatic and environmental health services of Bangladesh along with quadripartite partner organizations attended the meeting. The strategy emphazise the importance of raising awareness, promoting responsible antimicrobial use practices in human, animal, aquatic and environmental health sector, and advocating for policies that align with national containment plans. The strategy follows the Social and Behavioral Change Communication (SBCC) framework and includes steps like situation analysis, defining objectives, identifying target audiences, creating key messages, selecting channels for communication, proposing a work plan, implementing the strategy, and monitoring and evaluating its effectiveness. Implemention of the strategy might facilitate Bangladesh to mitigate the risks of AMR and safegurad public health.

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