# TACKLING ANTIMICROBIAL RESISTANCE (AMR) TOGETHER

## Working Paper 1.0: Multisectoral coordination

World Health Organization

# TACKLING ANTIMICROBIAL RESISTANCE (AMR) TOGETHER

## Working Paper 1.0: Multisectoral coordination

World Health Organization

WHO/WSI/AMR/2018.2



**Suggested citation.** Tackling antimicrobial resistance (AMR) together. Working paper 1.0: Multisectoral coordination. Geneva: World Health Organization; 2018 (WHO/HWSI/AMR/2018.2).

**Cataloguing-in-Publication (CIP) data.** CIP data are available at http://apps.who.int/iris.



Editing by Dr Sian Lewis, PhD

Layout by Sue Hobbs

All icons provided under a Creative Commons licence by the Noun Project. Figure 1: Guilherme Furtado, agric, Aiden icons, Gregor Cresnar, Dinosoft labs, Tom Walsh. Figure 2: Bruno Castro, zidney, Arafat Uddin, Susannanova. Figure 4: Wilson Joseph, Richard de Vos, Creative Stall, icon 54. Figure 5: Camilo Nunez, Davo Sime, Aneeque Ahmed, Susannanova, alrigel, Monica Stromann. Figure 7: Monica Stromann. Figure 8: Monica Stromann, ruliani, Roy Charles, Kick, Juan Pablo Bravo, Wilson Joseph.

# Contents

# Acknowledgements

This paper was developed by Evelyn Wesangula and Breeda Hickey from the Antimicrobial Resistance Secretariat of the World Health Organization (WHO) in Geneva, under the supervision of Senior Technical Officer, Liz Tayler. It would not have been possible without the invaluable contributions of the following people, who contributed to the country case studies upon which this paper is based:

**From Ethiopia:** Tenaw Andualem, Secretary and Coordinator, AMR Containment Advisory Committee; Mengistab W. Aregay, WHO Essential Medicine and Drug Consultant, Ethiopian Food, Medicine and Health Care Administration and Control Authority (EFMHACA); and Paul Mainuka, Medical Officer, WHO Ethiopia.

**From the Philippines:** Carmela Barcelona, WHO AMR focal point; Roderick Salenga, Technical Officer, WHO Papua New Guinea; Nina Tolentino, Pharmaceutical Division, Office for Policy and Health Systems, Department of Health; and Marie Abenes, Veterinary Laboratory Division, Bureau of Animal Industry, Department of Agriculture.

**From Thailand:** Nithima Sumpradit, Bureau of Drug Control, Food and Drug Administration, Ministry of Public Health; Suriya Wongkongkathep, senior public health consultant, formerly Deputy Permanent Secretary and currently expert member of the National Policy Committee on AMR; Julaporn Srihna, Department of Livestock Development, Ministry of Agriculture and Cooperatives; Noppawan Janejai, Department of Medical Science, Ministry of Public Health; and Richard Brown, Programme Officer, WHO Thailand.

**From Kenya:** Allan Azegele and Jane Lwoyero from the Ministry of Agriculture, Livestock and Fisheries; Jarred Nyakiba, Ministry of Health; Linus Ndegwa, Centers for Disease Control and Prevention Kenya; Regina Mbindyo, WHO Kenya; and Tabitha Kimani, FAO Kenya.

The team is also grateful for valuable comments received from: Sabiha Essack, Director of the Antimicrobial Research Unit, University of KwaZulu-Natal; Catriona Waddington, Global Practice Leader for Health, Mott MacDonald (HLSP); Jyoti Joshi (Head, South Asia) and Kim Faure (GARP-South Africa coordinator), Center for Disease Dynamics, Economics & Policy; Helle Aagaard, Policy Advisor, ReAct Sweden; Sujith J Chandy, Head ReAct Asia Pacific; Godelieve van Heteren, Independent consultant ; and Maryam Bigdeli, WHO Representative, Morocco.

# Abbreviations

| | |
|---|---|
| AMR | antimicrobial resistance |
| CASIC | County Antimicrobial Stewardship Interagency Committee |
| CIC | Coordination and Integration Committee |
| EFMHACA | Ethiopian Food, Medicines and Healthcare Administration & Control Authority |
| EU | European Union |
| FAO | Food and Agriculture Organization of the United Nations |
| GARP | Global Antibiotic Resistance Partnership |
| GHSA | Global Health Security Agenda |
| IHR | International Health Regulations |
| IPC | infection prevention and control |
| JEE | Joint External Evaluation |
| MOPH | Ministry of Public Health |
| NAP | national action plan |
| NASIC | National Antimicrobial Stewardship Interagency Committee |
| NHA | National Health Assembly |
| NSP | National Strategic Plan |
| OIE | World Organisation for Animal Health |
| RPM | Rational Pharmaceutical Management |
| TWG | technical working group |
| UNGA | United Nations General Assembly |
| USAID | United States Agency for International Development |
| USCDC | United States Centers for Disease Control and Prevention |

# Executive summary

With root causes in sectors ranging from health, food safety and agriculture to environment and trade, antimicrobial resistance (AMR) is one of the most complex public health threats the world has faced. No single government department or independent organization can tackle it alone. Containing and controlling AMR demands coordinated action across diverse sectors and disciplines, with a broad range of stakeholders.

This working paper was conceived to offer practical tips and suggestions on how to establish and sustain the multisectoral collaboration needed to develop and implement National Action Plans on AMR (NAPs). It is intended for anyone with responsibility for addressing AMR at country level. Drawing on both the published literature and the operational experience of four 'focal countries' (Ethiopia, Kenya, Philippines and Thailand), it summarizes lessons learned and the latest thinking on multisectoral working to achieve effective AMR action.

Multisectoral working for AMR requires, at a minimum, engagement from both the health and agriculture sectors. In almost all countries, the wide-ranging nature of activities required to address AMR will mean that many other sectors—including trade, pharmaceuticals, finance and the environment—must also get involved.

All countries will need to orchestrate deliberate coordination and collaboration within and between these sectors and stakeholders. This includes both horizontal collaboration across different government departments and nongovernment groups as well as vertical collaboration across levels and tiers of government, from local to national, including within individual sectors.

The experience in focal countries points to a number of tools and tactics that can be used to help establish and enhance sustainable multisectoral collaboration for AMR action. These can be grouped into four categories: political commitment, resources, governance mechanisms, and practical management (see Table 1).

In the long term, effective multisectoral collaboration requires governments to take ownership of the NAP implementation process, and ensure it is appropriately resourced and given sufficient visibility to keep it a national priority.

It is worth reiterating that progress will not happen unless there is someone in government at the right level, and with the right decision-making authority, to drive action on AMR. But, even if governments are fully committed, they will need help to implement their NAPs. Society-wide participation and uptake is critical; and governments will need to engage all stakeholders—including professional groups, the private sector and civil society—to fulfil the ambitions of their AMR plans.

**Table 1. Lessons learned from focal country experience on the tools and tactics needed to establish and sustain multisectoral collaboration for AMR action**

| Tools and tactics | Lessons learned from focal country experience |
|---|---|
| **Political commitment**  | • Political commitment and leadership are critical to drive the AMR agenda, mobilize resources, and achieve action.<br>• Progress will not happen without someone in government at the right level, with the right decision-making authority, to drive action on AMR.<br>• AMR data, champions and events can serve to raise AMR's profile and keep it on the political agenda.<br>• Legal instruments, including presidential orders and international agreements, can be leveraged to give AMR political visibility. |
| **Resources**  | • It takes time, money, technical assistance and dedicated human resources to coordinate across sectors and secure mutual trust, ownership and collaboration.<br>• Development partners have proven a strong source of support, especially in getting early AMR efforts off the ground.<br>• In the long term, governments must take the lead in resourcing NAPs and funding activities to combat AMR.<br>• In many countries, those responsible for AMR may require training and support to coordinate all relevant stakeholders effectively. |
| **Governance mechanisms**  | • Because AMR is a multisectoral issue, a NAP will necessarily be a 'plan of plans'; that is, a plan linked to many existing plans and programmes.<br>• There is no one-size-fits-all approach to AMR governance: countries must establish structures and mechanisms to suit their own situations.<br>• To be effective in tackling AMR, governance structures should enable both vertical and horizontal multisectoral collaboration.<br>• Whatever approach countries take to coordinating AMR, good communication and consultation is essential for successfully cascading action from governing bodies to implementing units. |
| **Practical management**  | • Clear institutional mandates, roles and deliverables strengthen the transparency and accountability of NAP implementation efforts.<br>• Coordination can be smoothed by anticipating potential problems and developing practical solutions in advance.<br>• Regular progress updates or technical briefings help keep politicians and collaborators informed, interested and engaged.<br>• AMR initiatives can build on existing programmes and activities by: using existing structures, such as One Health committees, for coordination; and linking to broader plans, such as Universal Health Coverage, to leverage AMR action.<br>• A simple monitoring framework and feedback mechanism can help track progress and keep collaborators on course. |

# 1. Introduction

Antimicrobial resistance (AMR) exists everywhere, and has the potential to impact anyone, of any age, in any country of the world. The impacts of leaving it unchecked are wide-ranging and extremely costly, not only in financial terms but also in terms of global health, food security, environmental wellbeing, and socio-economic development.

AMR is affected by a huge number of interdependent factors—spanning human and animal health, pharmaceuticals, food and agriculture, environment, trade and finance—making it one of the most complex public health challenges the world has faced.

Meeting that challenge is beyond the ability of any single organization or government. Containing and controlling AMR demands coordinated, international action across a broad range of sectors.[1] Within individual countries, governments will need to work with multiple stakeholders, across diverse sectors and disciplines, to tackle AMR. At the very minimum, that means multisectoral collaboration[2] across health and agriculture. More often, it also means coordinating action with departments of trade, finance and the environment, among others.

Deliberate coordination and collaboration between key stakeholder groups, such as government, civil society and the private sector, is also needed. This is true even within individual sectors: for example, within health, curative services and public health or primary health care services must work together to address AMR.

In the sections that follow, we draw on lessons learned in addressing AMR across different countries to summarize the latest thinking on multisectoral working to combat AMR. Reflecting on both the published literature and the operational experience of four 'focal countries'—Ethiopia, Kenya, Philippines and Thailand—we highlight some methods for establishing sustainable multisectoral collaboration to develop and implement National Action Plans on AMR (NAPs).

Each focal country is a low- or middle-income country (LMIC). Despite different contexts and different approaches, what they have in common is that they all began to systematically address AMR several years ago.

This working paper is the first to emerge from a stream of work by WHO, FAO and OIE to build a better global evidence base for implementing NAPs. As it stands, it draws predominantly on experiences in the health sector but will be updated with lessons from food and animal sectors as and when these become available.

[1] In 2015, the membership of FAO, OIE and WHO endorsed a Global Action Plan on Antimicrobial Resistance (GAP) that provides the framework for countries to combat AMR over the next decade in a concerted manner, using a One Health approach. For more information see: Global Action Plan on Antimicrobial Resistance. Geneva: World Health Organization; 2015 (http://www.who.int/antimicrobial-resistance/global-action-plan/en/, accessed 23 April 2018).

[2] In the context of addressing AMR, multisectoral collaboration (sometimes called 'intersectoral working') means how a country organizes its systems and processes to achieve effective action on AMR.

# 2. What is multisectoral collaboration?

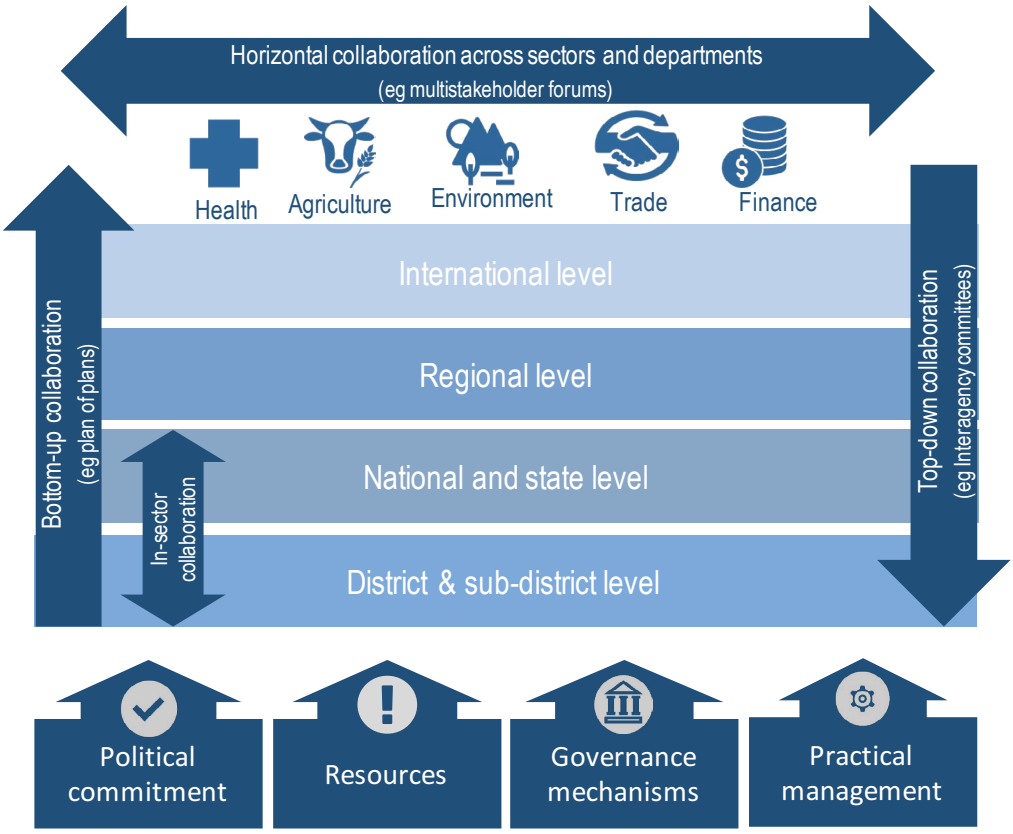
Multisectoral collaboration is the deliberate coordination of different stakeholder groups—such as government, civil society and the private sector—and sectors—such as health, agriculture, trade, education and the environment—to jointly achieve a goal.

In the context of addressing AMR, multisectoral collaboration means how a country organizes its systems and processes to achieve coordinated, effective action on AMR.

It includes horizontal collaboration across sectors, as well as vertical collaboration across levels (see Figure 1). Vertical collaboration—both from local to global levels across sectors, as well as from on-the-ground practitioners to central policymakers within individual sectors—can be achieved through both top-down and bottom-up approaches. Horizontal collaboration—across different government departments and nongovernment stakeholders—can be supported through diverse activities including knowledge-sharing platforms and multi-stakeholder forums.

In all cases, the experience in focal countries points to a number of tools and tactics that can be used to help establish and enhance sustainable multisectoral collaboration to achieve effective action on AMR. These can be grouped into four categories—political commitment, resources, governance mechanisms, and practical management—and the lessons that are emerging around each of these are described in Section 3 below.

**Figure 1: Multisectoral collaboration can be both horizontal across sectors as well as vertical across levels, and is enhanced by four groups of tools and tactics**



# 3. Emerging lessons

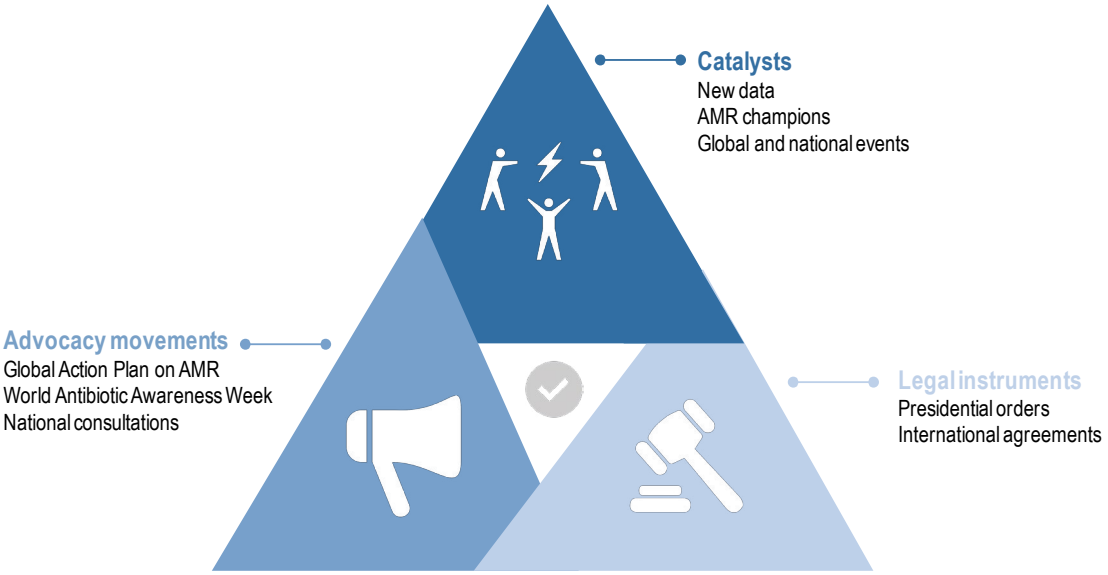
## 3.1 Political commitment and leadership: how to get it and how to use it

Political commitment and leadership are critical to drive the AMR agenda, mobilize and allocate resources appropriately, and get action. Both the literature and the operational experience show that countries with AMR leadership at a sufficiently senior level to wield decision-making authority have made progress and sustained the momentum over time.

In all four focal countries, the creation of high-level political commitment put AMR in the spotlight and enabled progress.

Some of the factors that have been found to foster political commitment and leadership include catalysts, legal instruments and global advocacy and awareness-raising movements (see Figure 2). The sections that follow summarize some of the different ways that the focal countries have harnessed these to drive the AMR agenda and deliver strong action.

**Figure 2. Different routes to achieving political commitment**




### 3.1.1 Catalysts

A catalyst is something that sparks action. In the context of multisectoral collaboration for AMR, a catalyst can be a specific event (good or bad), some new data, or an individual person—an 'AMR champion' with the respect and authority to work across sectors—that galvanizes the interest of high-level policymakers and triggers effective action to tackle AMR. In most cases, it is a combination of two or more of these.

The focal countries offer good examples of how AMR champions can use local data to convince decision makers to act. This includes using the data to bring stakeholders together, launch national events and build links to government

platforms and processes. While most of the events described below can be categorized as "good", a real-life example of a "bad" event was an outbreak of Carbapenemase Resistant *Klebsiella pneumonia* (KPC) in an acute care hospital that galvanized action.

#### Kenyan catalysts: working groups and information sharing

In Kenya, years of consistent research on AMR by different teams provided good data and recommendations for action. From the health sector, the Global Antibiotic Resistance Partnership, supported by the Center for Disease Dynamics, Economics & Policy, conducted the first situation analysis on AMR in Kenya in 2009 and got the Minister of Health to launch it two years later, in 2011. At the same time, the Ministry of Agriculture Livestock and Fisheries supported by the FAO, was also conducting research on AMR. However, the sectors were operating independently of each other. The biggest barrier to uptake of recommendations was communication since there was no clear leadership or linkage between the separate initiatives. To overcome this, in 2013, recommendations were made via the National Infection Prevention Advisory Committee for the establishment of a national AMR programme and a multisectoral advisory committee. Concerted, coordinated action on AMR was then spearheaded by the Chair of new National Antimicrobial Stewardship Advisory Committee (constituted in 2014), leading to the development of the AMR National Action Plan in 2017.

Consistent engagement and information sharing between stakeholders working in the AMR space using available government platforms was critical in engaging and sustaining government leadership and commitment.

#### Thai catalysts: using data to champion AMR and influence policy

In Thailand, before 2014, AMR was being championed by health professionals and technical experts from universities, the Ministry of Public Health (MOPH) and professional associations. Policy-level engagement around AMR did happen but it was sporadic and insufficient to ignite coordinated momentum on AMR.

However, the data generated globally and domestically provided valuable evidence of the extent and seriousness of the AMR problem highlighting the fact that one country alone cannot address this issue. Among these data, the estimates of the health and economic burden caused by AMR (generated by the academic community), together with the national data on growing trends of important resistant pathogens sent an alarming signal of the need for urgent action.

In 2014, the MOPH took the lead by hosting a multisectoral stakeholder consultation to enable multisectoral partners to gain a holistic view of the AMR situation and actions in Thailand. The results indicated that despite the fact that a number of actions and programmes to address AMR had been in place for many years, rates of AMR were continuing to increase due to the lack of a national plan and coordinated action to tackle AMR. This consultation was followed by a series of multisectoral meetings that finally led by to the appointment of an interagency body, the National AMR Coordination and Integration Committee (CIC) in 2015. The CIC drafted a national strategy on AMR using a One Health approach. In 2016, the Cabinet approved the National Strategic Plan on AMR and, in 2017, appointed the National Policy Committee on AMR, chaired by the Deputy Prime Minister.

### 3.1.2 Legal instruments

Both national and international legal instruments can be effective in moving the AMR agenda forward. In some cases, resolutions that are not legally binding can also serve to promote multisectoral collaboration that ultimately results in a legal basis for tackling AMR (see Box 1).

## Practical tips from country experience

- ✓ Identify and use champions and events to raise the profile of AMR and sustain its visibility on the political agenda.
- ✓ Use local data on AMR to illustrate likely local and national impacts and convince key decision makers of the need for action.
- ✓ Use government platforms to share and promote AMR action.
- ✓ Manage the risks of changes in leadership to ensure that AMR remains on the political agenda.
- ✓ Support nongovernment multistakeholder working groups and forums to share information and resources.

### BOX 1. A THAI RESOLUTION ON AMR

**In Thailand, before 2015, there was much AMR-related activity. However, different institutions set up their own governance mechanisms to address AMR challenges in response to their AMR-related mandates. As a result, there were more than 20 different committees, sub-committees and technical working groups related to AMR, but they lacked a platform for multisectoral engagement.**

**The Government appointed senior officials to the National AMR Coordination and Integration Committee (CIC). The CIC developed a draft resolution on AMR strategy for the National Health Assembly (NHA), which was discussed at provincial forums. The NHA, having the authority to convene and pass health-related resolutions, discussed and adopted the AMR resolution, thus ensuring legitimacy and ownership, whole-of-society participation and public awareness. This was followed up in 2016 by approval of the National Strategic Plan on AMR by the Government, closely followed by the creation of the National Policy Committee on AMR, chaired by the Deputy Prime Minister and including senior, dedicated officials from the human health, animal health and environment sectors.**

### The Philippine experience: using presidential orders to enable AMR action

In the Philippines, an administrative order signed by the President provided the legal basis for multisectoral collaboration and enables governance structures to enhance vertical and horizontal links across and within sectors. Administrative Order No 42 was signed in 2014, following concerted efforts by the Department of Health to analyze AMR surveillance data and engage the Secretary of Health and the President on the likely impact on national health security.

The order—a classic top-down approach to decision making—established the Inter Agency Committee on AMR, with clear mandates and terms of reference for the Departments of Health, Agriculture, Science and Technology, Interior

and Local Government, and Trade and Industry. The order served to cement commitment to the NAP and was a significant factor in getting AMR included as a component in food safety initiatives. However, continued progress will require sustained backing and resources.

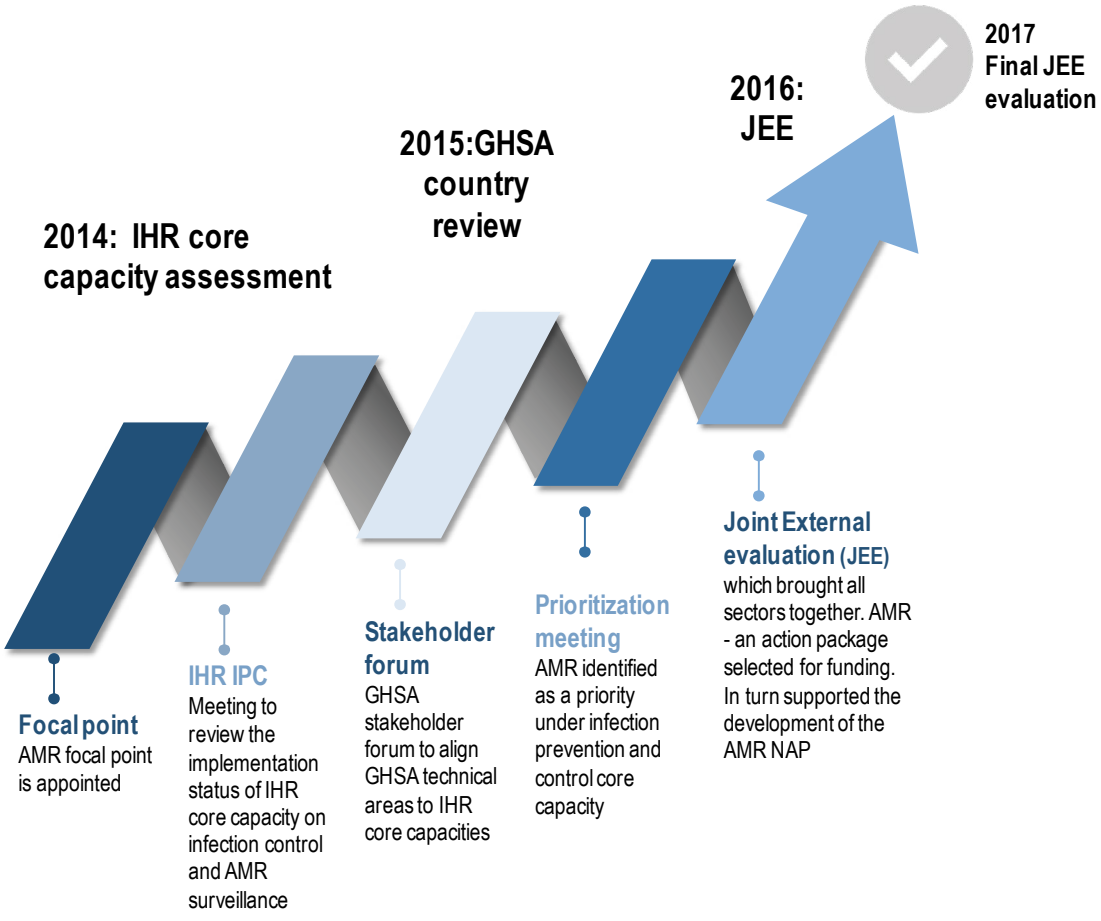
Developing national and local policies can be a way of securing budget and resources for implementation. There may be a need also to develop additional policies to reinforce the AMR plan itself in other sectors.

### The Kenyan experience: leveraging national health security reviews to prioritize AMR

Under the legally binding International Health Regulations (IHR 2005), WHO Member States are obliged to develop and maintain minimum capacities in specific technical areas including AMR. Through IHR 2005, countries undertake a voluntary Joint External Evaluation (JEE) to assess their capacity to prevent, detect and rapidly respond to public health risks. The JEE is a collaborative, multisectoral process that has proven to be a useful entry point for AMR action in many countries.

In Kenya, it was through the Global Health Security Agenda (GHSA; now replaced by the JEE) and IHR 2005 country review that AMR was prioritized as an important action area, and given high-level support within the Ministries of Health and Agriculture. Both ministries were already committed to implementing the IHR 2005 in full so when, during the JEE process in 2016- 2017, AMR was raised as a priority under the IHR core capacity of infection prevention and control, the AMR agenda gained significant visibility and support (see Figure 3). Consequently, AMR was one of the action packages selected for funding, which, in turn, supported the development of the AMR-NAP.

**Figure 3. How Kenya used health security review processes to raise the visibility of AMR.**



### Practical tips from country experience

- ✓ Look for formal mechanisms that will enable sustainable activity over the long term e.g. health security planning and coordination mechanisms.
- ✓ Identify and use opportunities that support a participatory approach to planning AMR action to legitimize the process and secure buy-in and support.
- ✓ Leverage political commitment to international agreements such as IHR 2005 to prioritize AMR action and mobilize resources.
- ✓ Support nongovernment multistakeholder working groups and forums to share information and resources.

### 3.1.3 Global and national events, forums and platforms

Global advocacy and awareness-raising events, forums and platforms can serve as vehicles for strengthening political support at the national level.

In Thailand, the MOPH laid the groundwork for national action in May 2014, when it announced a new policy on global health issues and identified AMR as one of eight global health priority areas. In October 2014, a consultative meeting with multisectoral AMR stakeholders resulted in the publication of the Landscape Report on AMR Situations and Actions in Thailand that enabled AMR stakeholders to develop a shared vision and better understanding of all AMR actors and actions.

As it had a strong evidence base and ongoing strategic action, Thailand was well-placed to engage at both the regional and global level. Active engagement in major global events such as the adoption of the Global Health Security Agenda (GHSA) in Feb 2014; the Thai Government hosting of the AMR side event at the GHSA regional conference in May 2015; and adoption of WHA Resolution 67.25 calling for the development of the Global Action Plan, enabled a positive feedback loop that motivated continued action on AMR at home, resulting in approval for Thailand's National Strategic Plan on AMR 2017–2021.

The recognition that government cannot tackle AMR alone was critical to Thailand's success. The participatory process adopted (by the National Health Assembly) to develop the NSP-AMR engaged a broad group of stakeholders that raised awareness and secured multisectoral commitment to implement the plan.

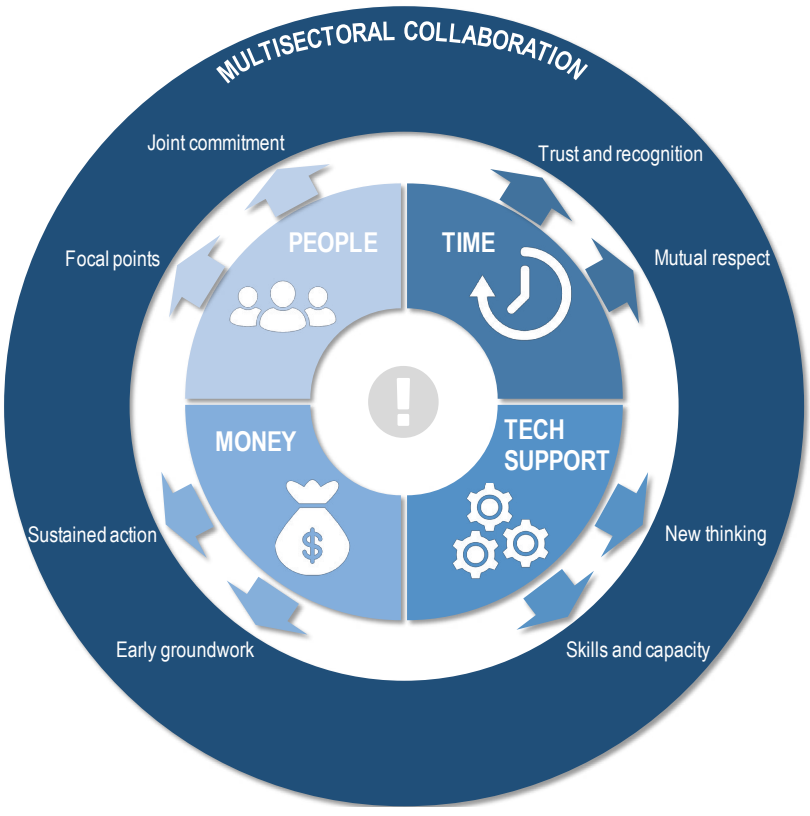
### Practical tips from country experience

- ✓ Use global advocacy events such as World Health Day on AMR, or World Antibiotic Awareness Week to raise awareness and momentum.
- ✓ Support participation in global forums and on global platforms to secure political buy-in that can drive action at the national level.
- ✓ Use existing structures for coordination (for example, there may already be a One Health committee or a JEE mechanism in place).
- ✓ Adopt a participatory approach that engages nongovernment stakeholders to develop a shared vision and commitment to tackle AMR.

## 3.2 Resources: collaboration takes time and money

The process of establishing and maintaining sustainable multisectoral collaboration requires resources to build trust and respect, strengthen skills and capacity and secure joint commitment and sustained action. Participation by sectors will be dependent on the relevance of AMR to a given sector and a clear understanding of how addressing AMR will contribute to achieving the strategic aims and priorities of that sector (see Figure 4).

**Figure 4. Creating the conditions needed to foster multisectoral collaboration takes time, money, people power and technical assistance.**



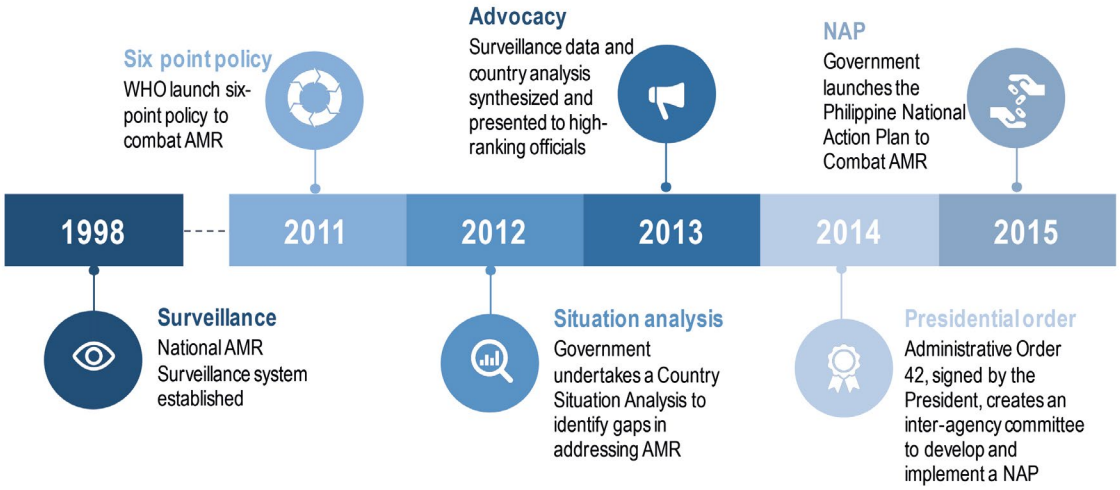
### 3.2.1 Time

Building trust and mutual respect across sectors is time-consuming but essential for sustainability and ownership. Each focal country indicated that it took more time than anticipated to establish the multisectoral mechanisms needed to support NAP development. The Philippines, Ethiopia and Thailand, spent 5, 6 and 11 years respectively from the point of initiating AMR collaboration and interventions to achieving endorsement of their multisectoral NAP.

In Kenya, the process was triggered by the 2009 situation analysis undertaken by GARP. Early efforts and recommendations were targeted at the central government. Then a new constitution in 2010 changed the system of government from a centralized system to a decentralized, federal one. This change affected communication channels and greatly increased the number of levels and players involved in decision making. Instead of a central government with eight provinces, there was now a national government and 47 county governments. The increase in consultation points required to make decisions prolonged the process of engagement and consensus building for AMR in Kenya, but it ultimately facilitated ownership of the process.

In the Philippines, while the national surveillance programme started to get some AMR data in 1998, the process of working towards an AMR national action plan started in 2011 and took five years (see Figure 5).

**Figure 5: The Philippines: process of working towards an AMR national action plan started in 2011 and took five years**




## Practical tips from country experience

- ✓ Allow for plenty of time to build trust and consensus across multiple stakeholder groups.
- ✓ Get all key stakeholders on board from the beginning. Identify the critical stakeholders e.g. agriculture, health, who must be continuously involved. Gradually get other sectors to join as work progresses.
- ✓ Plan, and be prepared, for potential changes in government that can impact the establishment of multisectoral collaboration for AMR.

### 3.2.2 Financial support and technical assistance

In all of the focal countries, early efforts to address AMR were supported by development partners. Their role was key in laying the groundwork for AMR action and in supporting activities that had not been anticipated or included in government planning and budget cycles.

In Thailand, strong support from domestic and international partners was critical to getting AMR action off the ground. AMR had very little budget at the beginning—it was simply not part of anyone's work plan. The Thai Health Promotion Foundation, the National Health Commission Office and WHO Thailand funded some of the initial work and meetings of the Food and Drug Administration to engage AMR stakeholders.

In Ethiopia, the Rational Pharmaceutical Management Plus programme worked with other USAID-funded partners to convene a 'call to action' workshop in 2006 involving stakeholders from diverse disciplines. The workshop focused on the threat AMR posed to infectious diseases such as HIV/AIDS, tuberculosis, malaria, acute respiratory infections and diarrhoeal diseases. It was coordinated by the Ethiopian Food, Medicine and Healthcare Administration and Control Authority (EFMHACA) and galvanized the support needed to include AMR within the HIV programme. That kickstarted a long process of multistakeholder collaboration that eventually led to the National AMR committee being established and a National Strategy for AMR being developed in 2011 (later revised in 2015).

In Kenya and the Philippines, development partner support played a similarly important part in supporting multisectoral collaboration and getting AMR action started.

Addressing AMR requires specific skills and capacities such as antimicrobial susceptibility testing; surveillance of resistance; surveillance of consumption and use of medicines, etc. In addition, there are areas and skills such as medicines management and infection prevention and control that are not specific to AMR but highly relevant to addressing the problem. Development partners, multilateral agencies, NGOs and other civil society partners are often key in supporting these activities with technical assistance and may be prepared to scale up investment if convinced of additional benefits relating to AMR.

Of course, whatever role development partners have in providing technical or financial support, in the long run it is governments that need to take the lead in resourcing NAP implementation and funding activities to combat AMR.

#### Practical tips from country experience

- ✓ **Try to develop a clear and budgeted work plan that can be resourced through existing government channels.**
- ✓ **Look for opportunities to leverage funds from development partners and donors with an interest in, or mandate for, tackling AMR.**

### 3.2.3 Human resources

Anecdotal evidence from the focal countries suggests that effective coordination is a time-intensive activity that requires a specific person to "do the running around" to get the right people to the right place at the right time. Experience shows that dedicated AMR focal points also need a range of other skills to do their job effectively, including:

- the ability to communicate simply and clearly the immense but often invisible burden of AMR at national, regional and local levels;
- the ability to effectively engage diverse stakeholders and communicate shared benefits; and
- the knowledge and skill to establish structures to facilitate coordination, as and when needed.

Ideally, countries will have a designated person from a key department acting as the national AMR focal point who works and liaises with AMR focal points in the relevant ministries. Focal points may need training and support to ensure they have sufficient capacity and expertise to coordinate across sectors effectively.

In Thailand, close collaboration between designated focal points from multiple sectors e.g. human health, animal health, agriculture, academia and civil society has been critical in moving the AMR agenda to implementation. Collaborating under the umbrella of the National Policy Committee on AMR, these focal points shared experience and expertise, enhancing their joint capacity for sustainable multisectoral collaboration. The first National Forum on AMR in early 2018 is one concrete result to emerge from their efforts.

In practice, securing dedicated human resources within government departments can be very difficult. In many cases, AMR focal points also have other roles and responsibilities that affect the amount of time available for AMR. In some cases, where there is no focal point within government, support has come from development partners, public health institutes, NGOs or academic bodies. But, in the long term, for AMR plans to work, the government must take ownership of the implementation process and commit sufficient resources for coordination across sectors.

While many countries made a tremendous effort to develop their national action plans by May 2017, many still have work to do to get governance and monitoring structures in place, and agree priorities for early action, all of which will require some human resources.

In all cases, it must be acknowledged that those given responsibility for AMR may be unaware of the full extent of the AMR footprint across human, animal and plant domains. This requires thinking about whether there is a need to increase understanding to build individuals' capacities to identify and reach all relevant stakeholders.

### Practical tips from country experience

- ✓ **Dedicate human resources for coordination.**
- ✓ **Give focal points the training and support they need to ensure they have the understanding, skills and time they need to do their job effectively.**
- ✓ **Look to nongovernment partners for support, but do not rely on them in the long term.**

## 3.3 Governance mechanisms: no one-size-fits-all approach

A formal, resourced administrative structure at a level above the implementing ministries is generally required for strategic direction and oversight but in practice, there is no one-size-fits-all approach to AMR governance. Each country will need to establish structures and mechanisms that suit their own situation.

To be effective in tackling AMR, the governance structure will need to deliver both vertical and horizontal collaboration: horizontal, between sectors; and vertical, between different levels within a sector (for example, between people on

the ground and people in central government. It is also important to recognize that horizontal collaboration means including minor, as well as major, sector stakeholders.

Whatever approach countries take to coordinating AMR, good communication and consultation is essential for successfully cascading action from governing bodies to implementing units.

### 3.3.1 The tiered approach

In a tiered approach, different levels have different functions. At the top lies a high-level, multisectoral, decision-making body that sets strategic direction and allocates resources. There should also be coordination at an operational level where those implementing interventions come together to ensure coherence. Active at the operational level will be discrete units within ministries, civil society and private sector partners that are responsible for implementing the activities listed in the NAP. Experience at the country level indicates that it is best to keep the top level relatively small, to prevent it from becoming unwieldy and unworkable. One option for keeping the top-level body lean and efficient is to ensure that its members are very well connected, so that they can effectively represent multiple different stakeholder groups.

AMR is not alone in needing high-level multisectoral coordination and it may well be that, in any given country, there are other issues that will require multisectoral oversight from a similar group of people. Some countries may find it more efficient and sustainable to have AMR as a standing agenda item for for regular discussion in a multisectoral coordination meeting rather than a specific dedicated committee.

In many cases, the implementation of AMR activities will be done by working groups, incorporating government and partner organizations, that focus on specific issues and are set clear tasks and deliverables. Experience suggests that it is better to set up technical working groups only as the need for them arises. We know that in South Africa the integration of animal and human AMR surveillance was identified as a priority in 2016 and a technical working group for surveillance was set up specifically for the task. Up to very recently (early 2018), this was the country's only working group.

#### The Kenyan experience: from ministerial committees to working groups

Kenya offers one example of a tiered approach to AMR coordination (see Figure 6). At the top level is the National Antimicrobial Stewardship Interagency Committee (NASIC), established by the lead ministries (the Ministry of Health and the Ministry of Agriculture, Livestock and Fisheries), and governed through a Steering Committee and a Technical Committee. The Steering Committee is responsible for directing policy, mobilizing resources, and approving budgets and work plans. The Technical Committee oversees the implementation of the National Policy for AMR and ensures close coordination with stakeholders.

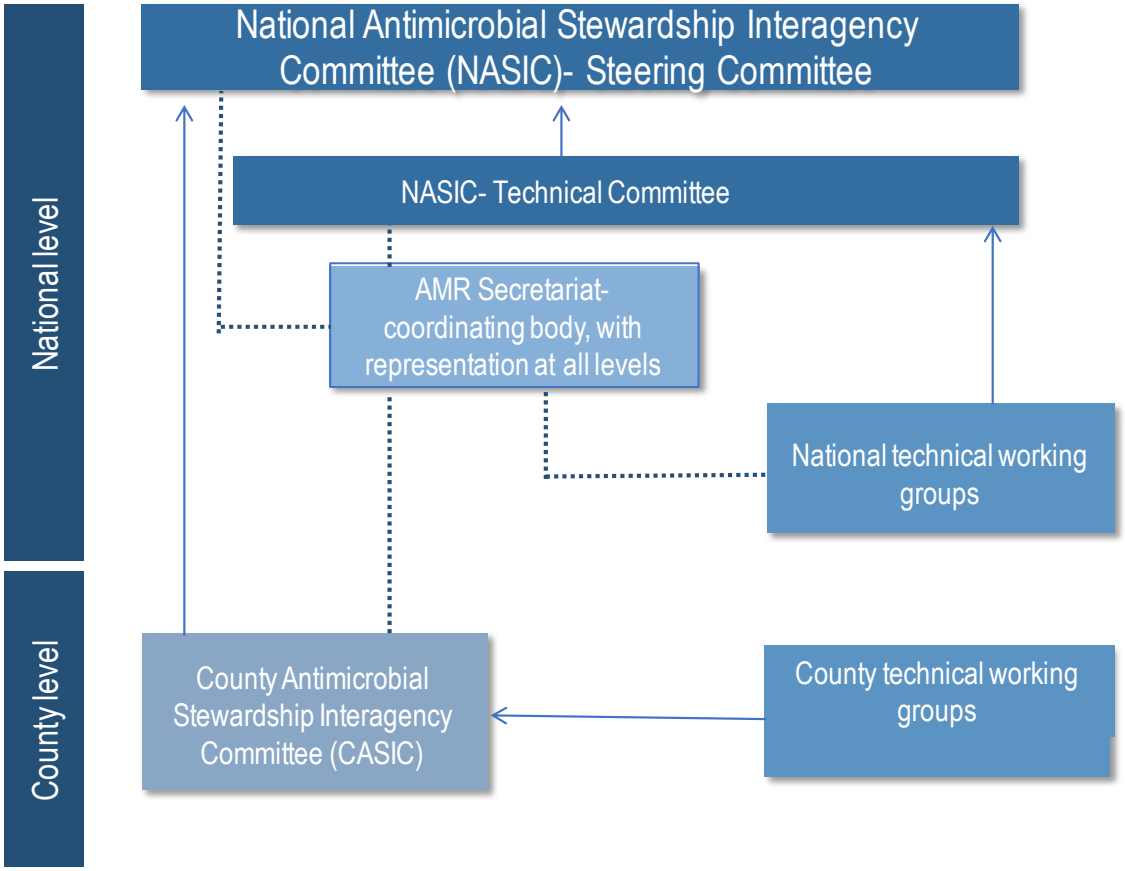
The NASIC is supported by a multisectoral AMR Secretariat (hosted at the MoH), which is responsible for organizing meetings, taking minutes, and preparing, sharing, storing and archiving documents (such as background papers, reports and advisory notes to ministers). The AMR Secretariat is made up of representatives from all relevant sectors—notably human health, animal health, food production and environment—and is led by the national AMR focal point. As it stands at the moment, sector representatives are not dedicated full time to AMR and have other responsibilities.

The Intergovernmental Relations Act of 2012—which established several structures to facilitate more inter-governmental cooperation and consultation in the new devolved government—is also used by both the NASIC and county governments to agree on NAP implementation.

At the county level, a County Antimicrobial Stewardship Interagency Committee (CASIC) mirrors NASIC roles and responsibilities for approving budgets and work plans, mobilizing resources and overseeing NAP implementation within individual counties.

Both NASIC and CASIC establish technical working groups (TWGs) to carry out AMR activities. These groups are partnerships of organizations working together to address specific issues: they have clear terms of reference and their membership varies according to the task at hand.

**Figure 6: Kenya's tiered structure for coordinating AMR action**




Unbroken arrow = reporting line: ; Dotted line = supporting function

## Practical tips from country experience

- ✓ Identify a governance structure that suits your own country context and set up ("form follows function").
- ✓ Make sure your governance structure can support both horizontal and vertical collaboration.
- ✓ Give technical working groups clear terms of reference and secure operational budgets.

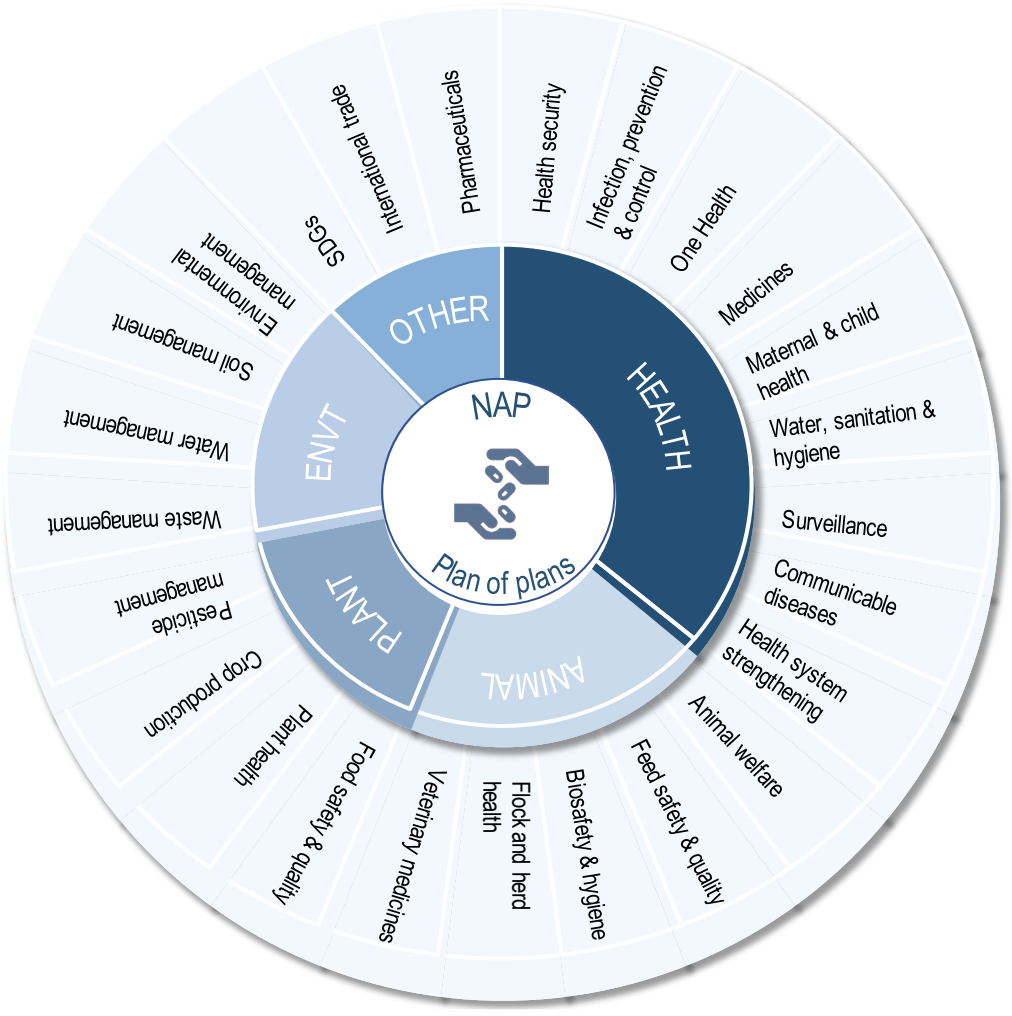
### 3.3.2 Mainstreaming AMR

To mainstream AMR means to build on existing programmes and activities and leverage existing opportunities to address AMR and by so doing, optimize resources, rather than setting up a whole new initiative.

Because AMR is a multisectoral issue, the plans needed to address it are necessarily linked to many other national plans and programmes, including those for infection prevention and control, surveillance, and medicines (see Figure 7). In a mainstreamed approach, the overall AMR plan is anchored in various strategic plans across different sectors in human, animal and plant health. This, in effect, makes the NAP a 'plan of plans' as, for example, the approach used in Thailand. A word of caution however: while involving all sectors relevant to AMR is important, equally important is the need for those sectors to understand WHY they are involved and that there will be transaction costs accruing to their participation. The focal countries have demonstrated that the reality in many countries is that the human health sector will be better placed to make progress and that, initially, it will be more effective to be selective about who is involved. This has meant that in many countries, to begin with, representation on AMR committee will come from sectors such as health, agriculture, veterinary services, and food safety.

Of course, implementing the plan of plans still requires clear structures and systems that can deliver both vertical and horizontal coordination and collaboration across sectors.

**Figure 7: With links to many different national plans and strategies, NAPs are often a 'plan of plans'**



### Practical tips from country experience

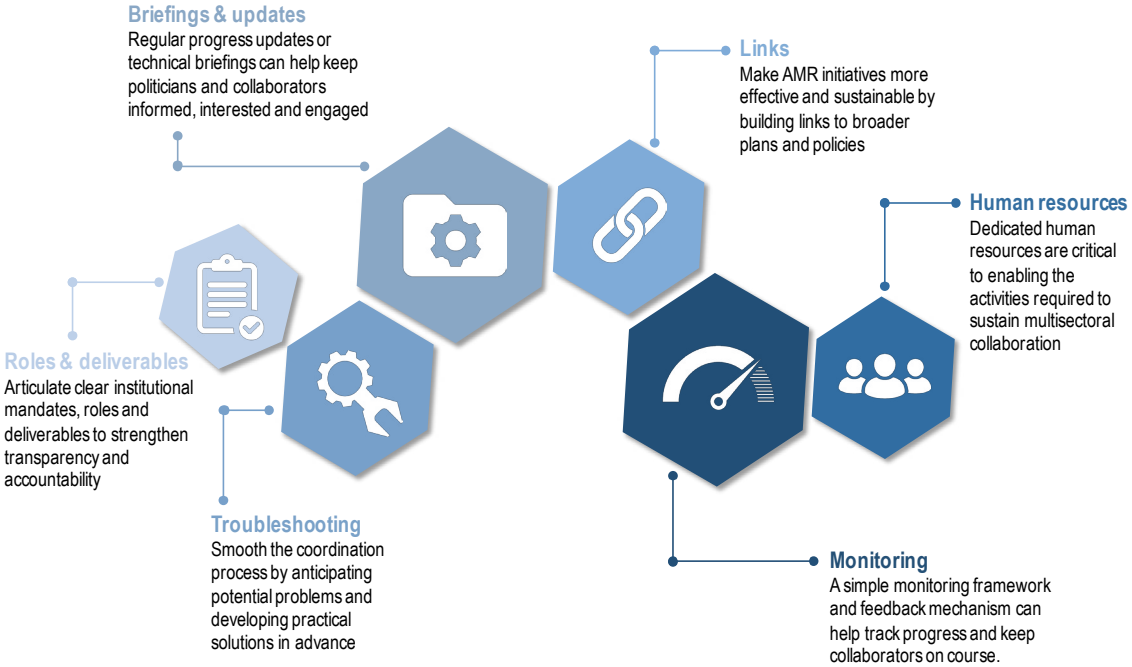
- ✓ Understand that AMR initiatives can build on existing programmes and activities.
- ✓ Leverage existing policies and plans to mainstream AMR and optimize resources.
- ✓ Establish a clear system or structure for coordinating AMR action across all relevant national plans.

## 3.4 Practical management: how to keep collaboration going

Multisectoral working is challenging. While goals and deliverables may be shared across sectors, the activities needed to achieve those are very often carried out in parallel, within vertical programmes of individual sectors.

All four of the focal countries have already spent several years supporting multisectoral collaboration to address AMR. Their collective experience points to several factors (beyond those articulated above, such as dedicated human resources) that can help smooth and sustain the coordination process over time (see Figure 8).

**Figure 8. Factors that can serve to smooth and sustain multisectoral collaboration over time**



Lessons learned under each of these are summarized below.

### Roles and deliverables

AMR focal points can increase understanding of sector roles in AMR, and boost transparency and accountability in the development and implementation of NAPs by articulating clear institutional mandates, roles and deliverables. Not all sectors have the same level of AMR activity and clear roles and responsibilities need to be outlined in advance. It is important that sector representatives understand why AMR is important to their work and to their goals and priorities (i.e. their core business) and what they should be doing to address it.

### Troubleshooting

Coordination will be much smoother if potential problems can be anticipated, and practical solutions developed in advance. For example, leadership—deciding who leads what—can often throw up problems. One possible solution is to agree on a rotating chair that enables multiple ministries to share leadership roles, enhancing mutual respect and ownership.

### Technical briefings and progress updates

Sustaining political interest and support in AMR is a challenge, but providing regular progress updates or technical briefings on emerging threats can help keep politicians interested and engaged. Indeed, some countries have suggested that regular updates and briefings are useful even in early stages of AMR action, during plan development for example. They are particularly useful for navigating political and personnel changes, which can impact coordinating structures and slow down implementation.

### Links to existing plans and policies

AMR initiatives can and should build links with broader plans and policies and leverage opportunities for action within existing programmes and projects. This includes looking for, and making use of, coordination mechanisms where these exist already, for example, One Health committees or mechanisms for Joint External Evaluation.

It also includes identifying entry points within broader national and international priorities and agreements. For example, addressing AMR is a core component of Universal Health Coverage strategies and most of the actions required to deal with AMR are also critical for health system strengthening. Establishing links to other plans—such as National Action Plans for Health Security, One Health Policies and plans for biosecurity, surveillance and waste management—is important for putting AMR plans into practice and ensuring coherence.

Many of the Sustainable Development Goals (SDGs) cannot be achieved without tackling AMR. AMR focal points should look to strengthen links to SDG documents, and investigate options for leveraging relevant SDG programmes for AMR action. This will facilitate broader engagement, government and stakeholder buy in, better collaboration across sectors and sustainability.

### Monitoring framework

Developing a simple monitoring framework and feedback mechanism can help track progress in implementing key activities. The results are useful in sustaining political interest, as outlined above. They can also keep collaborators motivated and engaged, by identifying and promoting good practices and giving contributors recognition and credit. Where possible, AMR results should be incorporated into countries' monitoring systems for health and agriculture.

### Human resources

As outlined above, in Section 3.2.3, allocating dedicated human resources is critical to enabling the wide range of activities required to communicate and coordinate activities across sectors and stakeholders, and sustain multisectoral collaboration.

Finally, where there is a strong country presence, tripartite agencies can play a catalytic role, both in encouraging high level attention to the issue and supporting intersectoral collaboration by assisting government agencies with coordination and collaboration across sectors.

## Practical tips from country experience

- ✓ Set clear roles and deliverables for developing and implementing the NAP.
- ✓ Identify potential problems in advance, and prepare effective solutions.
- ✓ Establish a mechanism for carrying out AMR technical briefings when there are changes in leadership.
- ✓ Identify and strengthen links with broader plans and policies, such as the Joint External Evaluation (JEE) or the Sustainable Development Goals.
- ✓ Develop a simple monitoring framework and feedback mechanism to track progress.

# 4. Conclusion

AMR is a multisectoral problem: it's root causes span multiple sectors; and so too do its impacts. Tackling the problem requires a multisectoral approach built on collaboration and coordination across all relevant sectors. However, as outlined throughout this paper, there is a practical balance to be struck between getting all sectors on board from the start and actually making progress versus not losing momentum in those sectors that are ready to move ahead. Due to differences in capacity and resources between sectors, the level of engagement will vary across sectors but this should not hinder progress.

In the long term, enabling such multisectoral working requires governments to take ownership of the process and ensure it is sufficiently resourced. Government-driven processes may be slow and time consuming but they deliver clear benefits in the shape of formal structures, processes and networks with links to all levels, from local to national. They can create a clear centre of authority with defined mandates for all participating departments, organizations and other stakeholders to follow recommendations and implement relevant activities. This, in turn, enables the right type and level of resources (both human, technical and financial) to be identified and allocated.

Even though governments should take the lead in implementing NAPs, they cannot do it alone. Society-wide participation and uptake is critical; and governments will need to engage all stakeholders—including professional groups, the private sector and civil society—to fulfil the ambitions of their AMR plans, particularly where stakeholders are active in service delivery.

# Bibliography


Antimicrobial resistance in the Asia Pacific region: a development agenda. Manila: World Health Organization. Regional Office for the Western Pacific; 2017. **http://iris.wpro.who.int/bitstream/handle/10665.1/13570/9789290618126-eng.pdf?ua=1&ua=1**, accessed 20 March 2018.

Collingon P, Athukorala PC, Senanayake S, Khan F. Antimicrobial Resistance: The Major Contribution of Poor Governance and Corruption to This Growing Problem. PLoS One. March 18 2015. doi: 10.1371/journal.pone.0116746.

DACA. Antimicrobials use, resistance and containment baseline survey syntheses of findings. Addis Ababa,: Drug Administration and Control Authority of Ethiopia; 2009 (**https://www.researchgate.net/publication/282822382**, accessed 31 January 2018).

Department of Health. The Philippine Action Plan to Combat Antimicrobial Resistance: One Health Approach. Manila: Government of the Republic of the Philippines; 2016 (**http://www.pha.org.ph/images/announcements/151201_Action_Plan.pdf**, accessed 31 January 2018).

Government of South Australia and WHO. Progressing the Sustainable Development Goals through Health in All Policies: Case studies from around the world. Adelaide: Government of South Australia; 2017. (**http://www.who.int/social_determinants/publications/Hiap-case-studies-2017/en/**, accessed 31 January 2018).

Greer SL, Wismar M, Figueras J, editors. Strengthening Health System Governance: Better policies, stronger performance. European Observatory on Health Systems and Policies Series 2016. New York: Open University Press; 2016 (**http://www.euro.who.int/__data/assets/pdf_file/0004/307939/Strengthening-health-system-governance-better-policies-stronger-performance.pdf?ua=1**, accessed 31 January 2018).

GSO 2012 Colloquium Series on Non-Communicable Diseases. Lessons learned from a collaborative multi-stakeholder and multi-sectoral approach: Final report. Geneva: Global Social Observatory; 2012 (**http://gsogeneva.ch/wp-content/uploads/Colloquium-Series-Final-Report-Dec-12.pdf**, accessed 31 January 2018).

Joint external evaluation tool: International Health Regulations (2005). Geneva: World Health Organization; 2016. (**http://apps.who.int/iris/handle/10665/204368**, accessed 31 January 2018).

Joshi MP, Chintu C, Mpundu M, Kibuule D, Hazemba O, Andualem T et al. Multidisciplinary and multisectoral coalitions as catalysts for action against antimicrobial resistance: Implementation experiences at national and regional levels. Global Public Health; 20 March 2018. doi: 10.1080/17441692.2018.1449230.

Jasovský D, Littmann J, Zorzet A, Cars O. Antimicrobial Resistance - A Threat to the World's Sustainable Development. ReAct Europe, Uppsala University, Sweden: Development Dialogue paper no.16, April 2016. **https://www.reactgroup.org/wp-content/uploads/2016/10/development-dialogue-paper-sdg-fullref.pdf**, accessed 20 March 2018.

Kimani T, Ngigi M, Schelling E, Randolph T. One Health stakeholder and institutional analysis in Kenya. Infection Ecology and Epidemiology. 2016; 6: 31191. doi: 10.3402/iee.v6.31191.

Ministry of Public Health, Ministry of Agriculture and Cooperatives. National strategic plan on antimicrobial resistance 2017–2021 Thailand: At a glance. Bangkok: Government of Thailand; 2017 (**http://www.fda.moph.go.th/sites/drug/Shared%20Documents/AMR/05.pdf**, accessed 31 January 2018).

National Action Plan on Prevention and Containment of Antimicrobial Resistance, 2017–2022. Nairobi: Government of Kenya; 2017 (**http://www.health.go.ke/wp-content/uploads/2018/02/Kenya-NAP-6th-Nov-2017-3.pdf**, accessed 31 January 2018).

NHA 8/Resolution 5. Crisis of antibacterial resistance and integrated problem solving. In: Eighth National Health Assembly, Agenda item 2.1, 23 December 2015. Bangkok: Government of Thailand; 2015 (**https://en.nationalhealth.or.th/wp-content/uploads/2017/09/8_3antibiotic-resolution_Final.pdf**, accessed 23 April 2018).

National Policy on Prevention and Containment of Antimicrobial Resistance. Nairobi: Government of Kenya; 2017 (**http://www.health.go.ke/wp-content/uploads/2017/04/Kenya-AMR-Containment-Policy-_Final_April.pdf**, accessed 31 January 2018).

One Health [website]. Atlanta: Centers for Disease Control and Prevention; 2018 (**https://www.cdc.gov/onehealth/**, accessed 31 January 2018).

Participatory Governance and the Millennium Development Goals (MDGs). New York: United Nations; 2008. (**https://publicadministration.un.org/publications/content/PDFs/E-Library Archives/2008 Participatory Governance and MDGs.pdf**, accessed 31 January 2018).

Philippines–WHO Country Cooperation Strategy 2017–2022. Manila: World Health Organization. Regional Office for the Western Pacific; 2017 (**http://www.wpro.who.int/country_support/publications/ccs-2017-phl/en/**, accessed 31 January 2018).

Rasanathan K, Posayanonda T, Birmingham M, Tangcharoensathien V. Innovation and participation for healthy public policy: the first National Health Assembly in Thailand. Health Expect. 2012;15:87–96. doi:10.1111/j.1369-7625.2010.00656.x.

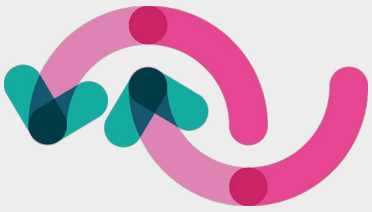
Republic of the Philippines. Administrative Order No. 42. Creating an Inter-Agency Committee for the Formulation and Implementation of a National Action Plan to Combat Antimicrobial Resistance in the Philippines. Manila: Government of the Republic of the Philippines; 2014 (**http://www.officialgazette.gov.ph/2014/04/10/administrative-order-no-42-s-2014/**, accessed 31 January 2018).

Resolution WHA 68.7. Agenda item 15.1. Global action plan on antimicrobial resistance. In: Sixty-eighth World Health Assembly, Geneva, 26 May 2015. Geneva: World Health Organization; 2015. (**http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_R7-en.pdf**, accessed 31 January 2018).

Systems for Improved Access to Pharmaceuticals and Services (SIAPS). Building Coalitions for Containing Antimicrobial Resistance: A Guide. Arlington, VA: USAID; 2017 (**http://siapsprogram.org/publication/building-coalitions-for-containing-antimicrobial-resistance-a-guide/**, accessed 31 January 2018).

SNV. The Power of Multi-sectoral Governance to Address Malnutrition: Insights from Sustainable Nutrition for All in Uganda and Zambia. Sustainable Nutrition for All Technical Brief No. 1. The Hague: Netherlands Development Organization; 2017 (**http://www.snv.org/public/cms/sites/default/files/explore/download/sn4a_technical_paper_no_1_-_governance.pdf**, accessed 31 January 2018).

Sumpradit N, Wongkongkathep S, Poonpolsup S, Janejai N, Paveenkittiporn W, Boonyarit P et al. New chapter in tackling antimicrobial resistance in Thailand. BMJ. 2017;358:3415. doi: 10.1136/bmj.j2423, accessed 31 January 2018).



World Health Organization

For more information contact:
World Health Organization
Antimicrobial Resistance Secretariat
Avenue Appia 20
1211 Geneva 27
Switzerland
E-mail: whoamrsecretariat@who.int
Web site: http://www.who.int/antimicrobial-resistance/en/