Food and Agriculture Organization of the United Nations

UN environment programme

World Health Organization

World Organisation for Animal Health
Founded as OIE

Guidance to facilitate monitoring and evaluation for antimicrobial resistance national action plans

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Abbreviations

AMR	Antimicrobial resistance
AMU	Antimicrobial use
FAO	Food and Agriculture Organization of the United Nations
GAP-AMR	Global action plan on antimicrobial resistance
IPC	Infection prevention and control
M&E	Monitoring and evaluation
NAP	National action plan
ToR	Terms of reference
UNEP	United Nations Environment Programme
WASH	Water, sanitation and hygiene
WHO	World Health Organization
WOAH	World Organisation for Animal Health

Overview

Antimicrobial resistance (AMR)[1] is a global human, animal, plant and environment health threat that needs to be addressed by every country. The impacts of AMR are wide-ranging in terms of human health, animal health, food security and safety, environmental effects on ecosystems and biodiversity, and socioeconomic development. Just like the climate crisis, AMR poses a significant threat to the delivery of the 2030 Agenda for Sustainable Development. The response to the AMR crisis has been spearheaded through the global action plan on antimicrobial resistance (GAP-AMR), developed by the World Health Organization (WHO) in 2015, in close collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (WOAH), and formally endorsed by the three organizations' governing bodies and by the Political Declaration of the high-level meeting of the United Nations General Assembly on AMR in 2016. In 2022, the three organizations officially became the Quadripartite by welcoming the United Nations Environment Programme (UNEP) into the alliance "to accelerate coordination strategy on human, animal and ecosystem health".[2]

The aim of the GAP-AMR is to ensure the continuity of successful treatment with effective and safe medicines. Its strategic objectives include:

- improving the awareness and understanding of AMR;
- strengthening the knowledge and evidence base through surveillance and research;
- reducing the incidence of infection through effective sanitation, hygiene and infection prevention measures;
- optimizing the use of antimicrobial medicines in human and animal health; and
- developing the economic case for sustainable investment that takes account of the needs of all countries and increasing investment in new medicines, diagnostic tools, vaccines and other interventions.

With the adoption of the GAP-AMR, countries agreed to develop national action plans (NAPs) aligned with the GAP-AMR to mainstream AMR interventions nationally. Individually, the Quadripartite took action to advance AMR interventions in their respective sectors. FAO adopted a resolution on AMR recognizing that it poses an increasingly serious threat to public health and sustainable food production, and developed an AMR action plan to support the resolution's implementation.[3] For its part, WOAH developed a strategy on AMR aligned with the GAP-AMR,[4] acknowledging the importance of a One Health approach to AMR.[5] Similarly, more recently, UNEP's governing body, the United Nations Environment Assembly, recognized that AMR is a current and increasing threat and a challenge to global health, food security and the sustainable development of all countries, and welcomed the GAP-AMR and the NAPs developed in accordance with its five overarching strategic objectives.[6]

1 AMR occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial agents. As a result of drug resistance, antibiotics and other antimicrobial agents become ineffective, and infections become difficult or impossible to treat, increasing the risk of disease spread, severe illness and death. See Quadripartite launches a new platform to tackle antimicrobial resistance threat to human and animal health and ecosystems [website news release]. Rome/Nairobi/Geneva/Paris: World Health Organization; 18 November 2022 (https://www.who.int/news/item/18-11-2022-quadripartite-launches-a-new-platform-to-tackle-antimicrobial-resistance-threat-to-human-and-animal-health-and-ecosystems#:~:text=AMR%20occurs%20when%20bacteria%2C%20viruses,spread%2C%20severe%20illness%20and%20death, accessed 2 December 2022).

2 Antimicrobial resistance [website]. Rome: Food and Agriculture Organization of the United Nations; 2022 (https://www.fao.org/antimicrobial-resistance/quadripartite/who-we-are/en, accessed 2 December 2022).

3 Adopted Resolution 4/2015. Antimicrobial resistance. In: Report of the Conference of FAO, Thirty-ninth session, Rome, 6–13 June 2015 (https://www.fao.org/3/mo153e/mo153e.pdf, accessed 2 December 2022). Resolution 3/4. Environment and Health [UNEA Resolution UNEP/EA.3/Res.4]. In: U.

4 Strategy for antimicrobial resistance and the prudent use of antimicrobials. Preserving the efficacy of antimicrobials. World Organisation for Animal Health. (https://www.woah.org/app/uploads/2021/03/en-amr-strategy-final.pdf, accessed 7 February 2023).

5 Resolution No 26. Combating antimicrobial resistance and promoting the prudent use of antimicrobial agents in animals. 83GS/FR Paris, May 2015 (https://www.woah.org/app/uploads/2021/03/a-reso-amr-2015.pdf, accessed 7 February 2023).

6 Resolution 3/4. Environment and Health [UNEA Resolution UNEP/EA.3/Res.4]. In: United Nations Environment Assembly of the United Nations Environment Programme, Third session, Nairobi, 4–6 December 2017 (https://wedocs.unep.org/handle/20.500.11822/30795, accessed 2 December 2022).

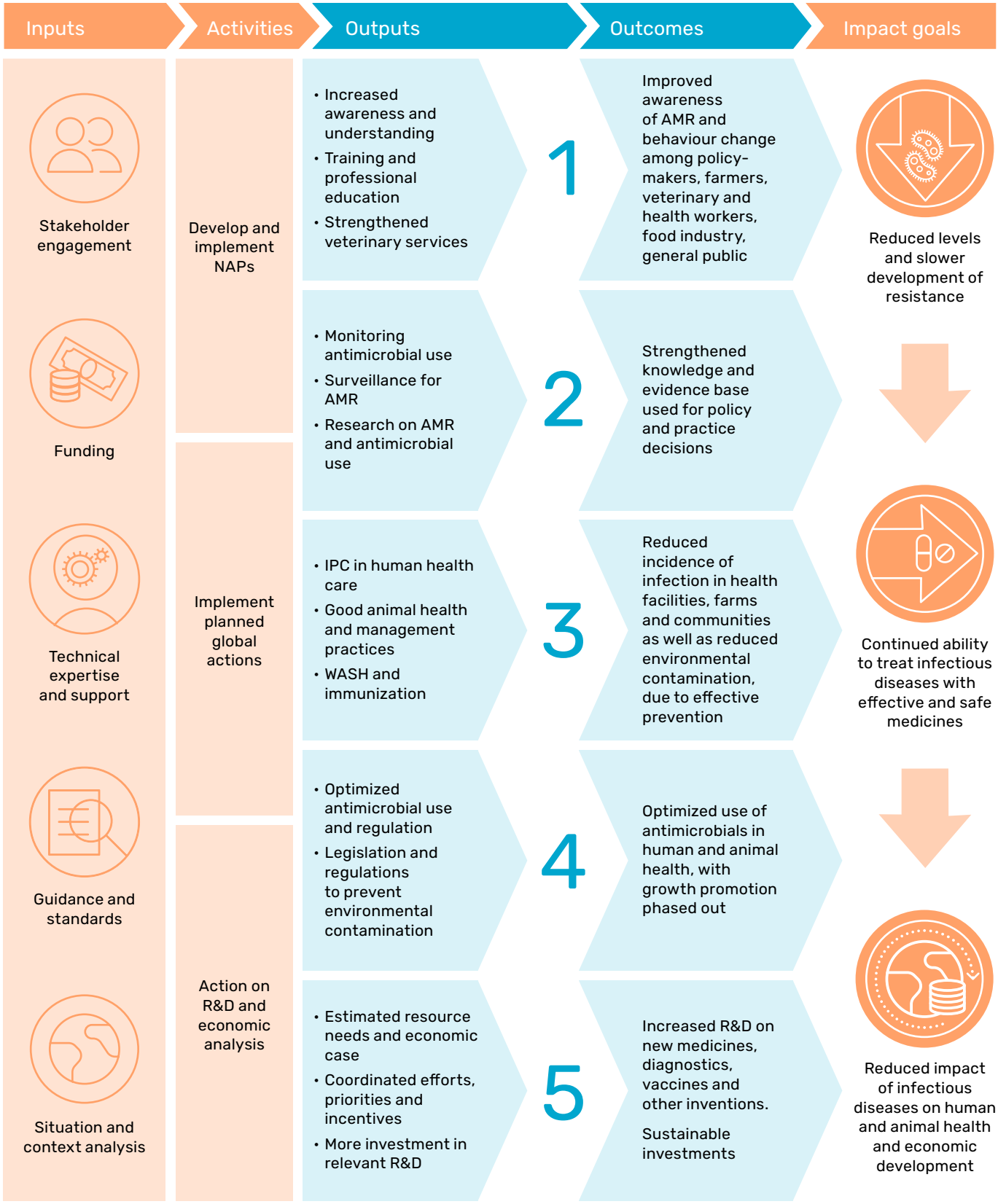
1. Monitoring and evaluation of the global action plan on antimicrobial resistance

In 2019, FAO, WHO and WOAH developed a monitoring and evaluation (M&E) framework for the GAP-AMR[7] to track progress towards the plan's five global objectives, designed with a One Health perspective and reflecting the cross-sectoral nature of AMR with indicators across human and animal health, plant and food production and the environment. The global M&E framework does not include indicators for monitoring the governance of the NAPs at the country level, but it is clear on the role of countries in monitoring and evaluating their NAPs. Countries are expected to develop an M&E plan for their NAP, tailored to their context and priorities. This includes developing indicators appropriate to the country's own circumstances, aligned with the proposed core indicators of the GAP-AMR M&E framework, as far as possible. Countries are encouraged to align their M&E plans and to develop specific targets for outputs, outcomes and goals that can be measured by these indicators. The country M&E plan should be pragmatic and focus on priority implementation areas where change is intended to happen.[7]

The results chain (Fig. 1) is a graphical description of the causal pathways between the inputs (resources), activities, outputs, outcomes and impact goals of the GAP-AMR. It depicts the relationship between programme activities and its intended effects.

7 Monitoring and evaluation of the global action plan on antimicrobial resistance: framework and recommended indicators. Geneva: Food and Agriculture Organization of the United Nations, World Organisation for Animal Health and World Health Organization; 2019 (https://www.who.int/publications/i/item/monitoring-and-evaluation-of-the-global-action-plan-on-antimicrobial-resistance, accessed 2 December 2022).

Fig. 1. The GAP results chain: mapping the casual pathways connecting the inputs, activities and outputs with the outcomes and impact goals



NAPs- national action plans

Source: Monitoring and evaluation of the global action plan on antimicrobial resistance: framework and recommended indicators. Geneva: Food and Agriculture Organization of the United Nations, World Organisation for Animal Health and World Health Organization; 2019, p. 5.

2. The purpose of this guidance document

This country M&E guidance document was developed as a reference for countries to support the development and delivery of AMR NAPs. It provides assistance on how to establish an M&E plan for their AMR NAP, building on existing national reporting systems and recommended indicators from the GAP-AMR M&E framework.

The guidance emphasizes the need for effective governance for AMR NAP development, implementation and monitoring but does not suggest indicators for:
a) the GAP-AMR's fifth strategic objective (investment in research and development) as this was viewed as an aspirational outcome for many countries; and
b) indicators specific to HIV, tuberculosis or malaria control programmes, which are monitored and evaluated by those individual disease control programmes.

3. The intended users

This guidance document is intended for members of the AMR multisectoral coordination committee or working group, persons responsible for M&E in AMR NAPs and other key actors involved in NAP implementation. The guidance may also be useful for M&E experts and One Health coordination committee members at the national and subnational levels.

Key M&E terminology[8]

Inputs are financial, human or other resources required for the achievement of an output.

Activities are actions taken using the relevant inputs, such as finances, human resources and technical assistance, to achieve the outputs.

Outputs are products or services emanating from the implementation of activities.

Outcomes are short- to medium-term describable or measurable changes that are derived from the utilization of an initiative's outputs (products or services).

Impact goals are positive or negative, primary or secondary long-term effects produced by the development of interventions either directly or indirectly, intended or unintended.

8 Clear Horizon Consulting. Monitoring & evaluation framework for KNOWFOR. Bogor Barat: Center for International Forestry Research; 2014 (https://www.cifor.org/wp-content/uploads/dfid/Overarching%20KNOWFOR_ME%20Framework_FINAL.pdf, accessed 2 December 2022).

4. The meaning of monitoring and evaluation

What is monitoring?

Monitoring is the continuous process of collecting, analysing and documenting information for the purpose of tracking progress against the stated objectives of an intervention and commitments with the use and help of a set of indicators.[9] Monitoring data informs decision-makers and key stakeholders on how the intervention is progressing in terms of whether predefined targets are being met in a timely manner and the outputs are of good quality. It keeps interventions on-track, on-time and within budget.[10]

Countries agreed to develop NAPs on AMR consistent with the GAP-AMR, and to implement relevant policies and plans to prevent, control and monitor AMR by facilitating active engagement across human health, food production, animal health, plant health, food safety and the environment, through a One Health approach. The M&E plan should serve as the countries' blueprint for monitoring and evaluating the implementation of their NAPs.

Types of monitoring

Financial monitoring

Financial monitoring is concerned with tracking an intervention's use of funds, providing data for a cost–benefit analysis, a value for money analysis and other financial analyses.

Results-based monitoring

Results-based monitoring emphasizes the tracking of outputs and the emerging results following the consumption of the outputs.

What is evaluation?

Monitoring and evaluation are interdependent but are not the same. Monitoring is concerned with the tracking and recording of the actions and the achievement of results. In contrast, evaluation goes further. The Organisation for Economic Co-operation and Development defines evaluation as the objective and systematic assessment of an upcoming, ongoing or completed project, programme, policy or strategy, its design, implementation and results with a view to assessing whether intended objectives have been achieved. It uses the criteria of relevance, effectiveness, efficiency, coherence, impact and sustainability[11] to determine the level of achievement. The main purposes for conducting an evaluation are for accountability and learning.[12] The different types of evaluations are detailed in Annex 1.

9 The GEF evaluation policy 2019. Washington (DC): Global Environment Facility Independent Evaluation Office; 2019 (http://www.uneval.org/document/download/3739, accessed 2 December 2022).

10 The project management cycle [e-book]. Atlanta: PM4DEV; 2020 (https://www.pm4dev.com/resources/free-e-books/8-the-project-management-cycle/file.html, accessed 2 December 2022).

11 Molund S, Schill G. Looking back, moving forward: Sida evaluation manual. Stockholm: Swedish International Development Cooperation Agency; 2004 (https://www.oecd.org/derec/sweden/35141712.pdf, accessed 1 September 2022).

12 USAID evaluation policy. Washington (DC): United States Agency for International Development; 2011

Monitoring and evaluation indicators

Monitoring and evaluation take place through the use of indicators. Indicators are qualitative or quantitative variables that help to measure change brought about by the project or programme. Indicators measure different type of results:

- **process indicators** measure the implementation of activities and usage of the inputs;
- **output indicators** track the delivery of outputs;
- **outcome indicators** measure short- to medium-term intervention results; and
- **impact indicators** measure long-term effects. For the indicators to be suited for their purpose, they should be specific, measurable, achievable, relevant and time-bound (SMART).[13]

SMART

Specific: indicators should measure only the design elements, such as impact, output, outcome and activities, that they are intended to measure.

Measurable: either quantitatively or qualitatively, indicators should be counted, observed, analysed, tested and challenged.

Achievable: indicator data should be collected at reasonable cost.

Relevant: indicators should collect information that meets managers' information needs to make decisions.

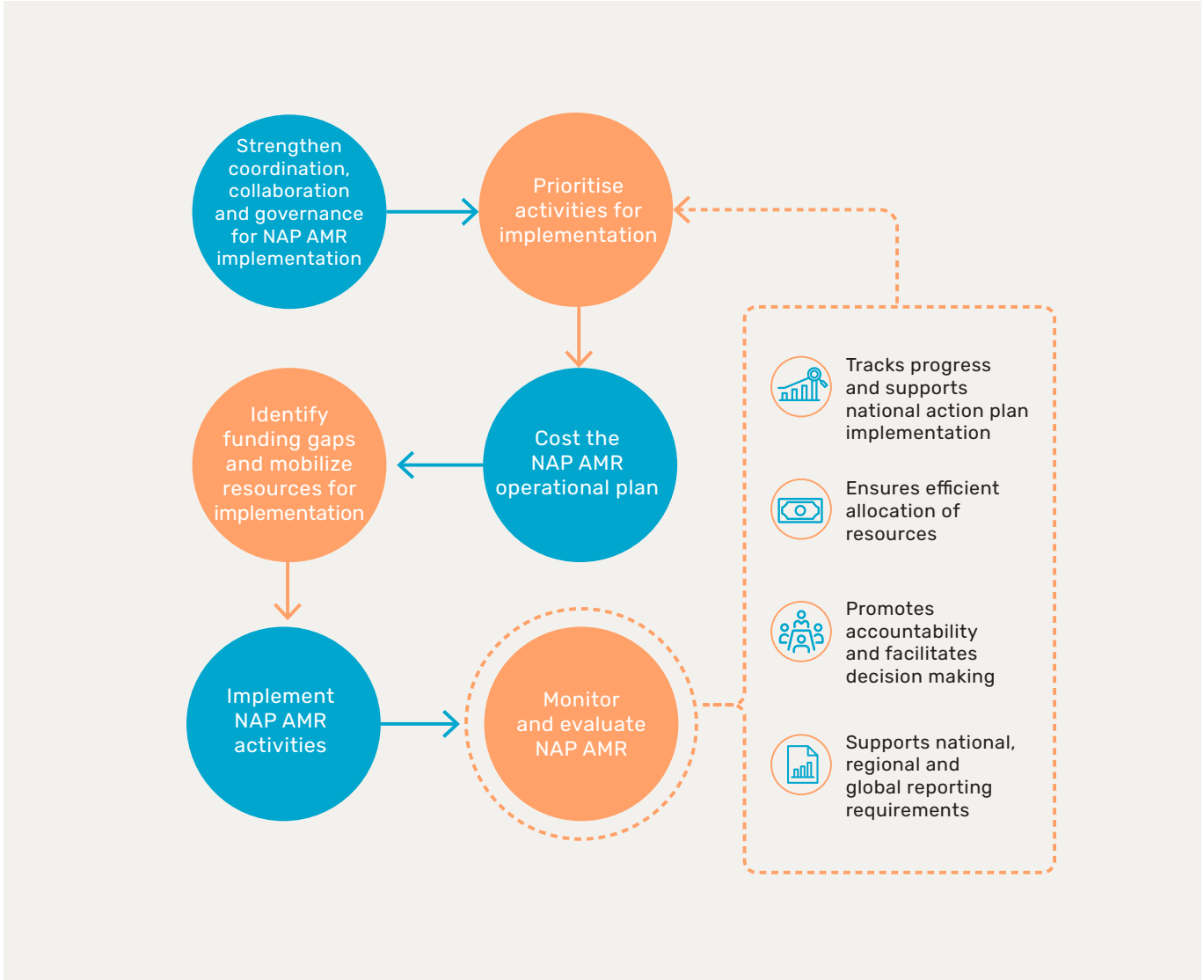
Time-bound: indicators should be attached to the time frame of measurement.

13 The GEF monitoring and evaluation policy. Washington (DC): Global Environment Facility Independent Evaluation Office; 2019 (http://www.uneval.org/document/detail/960, accessed 2 December 2022).

5. The importance of national action plan monitoring and evaluation

A well-established system to monitor and evaluate the NAP is important to track progress, prioritize actions, allocate resources appropriately, and capture lessons to correct the course of action towards the country's efforts to tackle AMR. The M&E plan should be an integral part of the NAP, and its development and implementation should be considered as key components of the NAP life cycle. Fig 2 captures the process of NAP implementation and the importance of M&E for NAP.[14]

Fig. 2. Steps of NAP implementation and the importance of M&E



Source: FAO, UNEP, WHO and WOAH

14 WHO implementation handbook for national action plans on antimicrobial resistance: guidance for the human health sector. Geneva: World Health Organization; 2022 (https://www.who.int/publications/i/item/9789240041981, accessed 1 September 2022).

An M&E plan is important and useful to:

1. track the progress and performance of NAP implementation to address AMR;
2. fulfil national, regional and global monitoring requirements, both specific to AMR and for other reporting needs, such as the Sustainable Development Goals;
3. ensure reporting, transparency and accountability to stakeholders: monitoring information should be widely circulated and available to stakeholders, giving them more insights on the initiative, and a sound monitoring system ensures that no one is left in the dark while transparency leads to better accountability;
4. inform decision-making in NAP implementation and programming: M&E data identify and capture success factors that form the basis for learning and decision-making, and they also reveal mistakes and offer paths for learning and making improvements;
5. adapt and revise the operational plan as necessary: M&E provides a means to learn from experiences and then to appropriately adapt policies and practices;
6. build strong data systems: data are the most essential component of any monitoring system, and an M&E system is not functional until data (qualitative/quantitative) are collected, analysed, reported and used by diverse key stakeholders;
7. identify problems early: a well-designed and implemented NAP M&E system collects data that reveal early on when some activities are off track and when remedial measures are needed to correct the situation; and
8. ensure the efficient use of resources: aside from tracking the results performance, M&E tracks the use of resources, improves accountability, helps avoid making wasteful expenditures and supports leveraging resources for NAPs.

6. Considerations for countries before developing a monitoring and evaluation plan

When developing an M&E plan, countries are advised to follow these principles:

- **A crucial part of the programme cycle**: Ideally during the NAP design phase, countries are expected to develop an M&E plan as part of their NAP, tailored to their context and priorities.
- **Multisectoral in nature**: A One Health approach should be used and aligned with the multisectoral NAPs. All NAP collaborators should be engaged and have clear roles and responsibilities in the M&E plan.
- **Avoidance of overburdening systems and capacities**: As much as possible, the workload required to collect data for key indicators at the local and national levels should be optimized. Data collection processes should be kept simple, feasible and sustainable. National stakeholders from various sectors should work together to identify existing routine information systems that collect relevant indicators or proxy indicators that could be employed. The short-term priority is to identify key output measures without losing focus on planning and implementing key outcome measures.
- **Resources for the M&E function:** The inclusion or consideration of financial costs and staff capacity needs in the development of the national AMR M&E system should be ensured. This could include establishing a technical working group for M&E within the AMR multisectoral coordination committee, earmarking skilled focal persons by the collaborating sectors and employing M&E experts where feasible.
- **Institutionalization of AMR M&E**: It is important to gradually develop sustainable institutional structures for AMR M&E to ensure the long-term capacity to keep AMR in check. This should include creating effective mechanisms for data generation and sharing among all key One Health stakeholders, using M&E data for decision-making and linking the NAP M&E system to sectoral performance measurement systems.

7. Components of an M&E plan

An M&E plan should describe how to monitor and evaluate one's programme or plan, and how the evaluation results are to be used. It should include all the steps, elements and activities that should happen throughout the programme cycle. These are, inter alia:

- proposed M&E timelines
- M&E questions
- M&E methodologies
- implementation strategy
- expected results
- roles and responsibilities of stakeholders/actors
- data flow
- data collection tools
- data management: data analysis, storage and retrieval, data sharing
- reporting of M&E findings
- resource and capacity requirements.

The components of an M&E plan and a generic example are available for consideration in Annexes 2 and 3.

8. Practical considerations

Plans should be tailored to the country context and priorities: Countries will need to monitor their progress in developing and implementing their NAPs and, over a longer time period, evaluate the extent to which they are making an impact on addressing AMR at the national level. As such, the M&E plan should be pragmatic and include indicators appropriate to the country's own circumstances, after considering the recommended core indicators of the GAP-AMR M&E framework as much as possible. Wherever feasible, countries are also encouraged to develop specific national policy goals or targets for outcomes and goals that can be measured by these indicators.

Quadripartite tip

Assessing readiness: Before developing a national M&E framework, countries are highly recommended to have a prioritized list of outputs for implementation and monitoring. The purpose of priority-setting is to select outputs for addressing aspects of AMR, given the context and resources available. This would also make the development and use of the M&E plan more manageable and sustainable.

Country M&E plans should outline how monitoring will take place: The plan should include responsibilities for collecting and analysing data in each sector, the frequency of monitoring, and the manner in which reports will be reviewed and evaluated. The plan should also propose actions to formalize the management of the M&E function. Collaborating One Health partners/ sectors should consider how to institutionalize M&E to ensure continuous generation, analysis and sharing of data for an effective national response to AMR. Country-level data collection may be stand-alone, extracted from existing systems or added into existing systems and then consolidated. Conducting an inventory of existing information systems for the various sectors that could contribute relevant AMR indicator data would be beneficial.

Countries are at different stages of implementation and capacity: It is recognized that countries are at different stages of NAP implementation and have varying technical capacities, resource availability and infrastructure. Also recognized is that not all countries will be able to collect data and report on the recommended outcome and output indicators listed in the GAP-AMR M&E framework, but countries are encouraged to work towards this aim over time. The Quadripartite (FAO, UNEP, WHO and WOAH) will be on hand to advise countries on foundational-level M&E activities that can be initiated in such circumstances.

Quadripartite tip

Monitoring outputs: Given that the national M&E systems for NAPs are at an early stage of development, with limited data available at the country level, it may be more realistic to focus on monitoring outputs in the short term while the capacities and systems to measure outcomes and impact are developed. Some form of baseline data is important, which may come from special studies, modelling or extrapolation from similar contexts while seeking to obtain actual data.

9. Step-by-step process for developing a national M&E plan

Countries are encouraged to establish a national M&E plan by considering the following eight-step process:

1. **Decide on the M&E audience:** The NAPs are tailored to the GAP-AMR. The audience for the M&E plan should therefore reflect country responsibilities to the GAP-AMR and affiliations with the Quadripartite organizations. National competent authorities and One Health multisectoral collaborators and stakeholders, among others, are also important audiences to consider.
2. **Define M&E questions:**
   a. Monitoring questions should be defined to assess the implementation processes and their performance towards the delivery of NAP results (process evaluation).
   b. Evaluation questions should be defined to help measure the results at the mid-term, end-term and impact levels.
3. **Identify indicators and data sources:** Based on the NAP priorities to be monitored, it is essential to collect and review baseline data, set targets, identify the data needs, data sources and validity of data for monitoring. In this regard, the GAP-AMR M&E framework, its recommended list of indicators and associated reference sheets as well as the results chain should be reviewed, as should the existing national reporting systems and indicators from other related global assessment tools in all relevant sectors and technical areas.
4. **Decide on the roles, responsibilities and governance mechanisms:** Establishing an intersectoral M&E subgroup can be considered, or assigning an M&E coordinator with clear terms of reference (ToR) within the multisectoral coordination mechanisms. Doing so will ensure accountability and the effective coordination of NAP M&E. Clearly allocating the roles and responsibilities of the various actors within the multisectoral coordination mechanism is essential to guarantee participation in and contribution to data generation, reporting and relevant actions as necessary. Developing ToRs for the different actors and the governance mechanism is necessary. A sample ToR is included in Annex 4.
5. **Decide on data collection, analysis and reporting timelines:** Timelines for data collection, analysis and reporting should be developed and agreed upon. This includes taking into account reporting requirements and data needs at different levels (national, regional and global).
6. **Develop a comprehensive M&E plan:** Consideration should be given to developing an M&E framework that presents and summarizes what is to be measured against the results, baselines, data sources, periodicity of data collection, reporting points, responsibilities, etc.
7. **Earmark resources to implement the M&E plan:** The cost of the M&E plan should be estimated and a common investment framework developed as the basis for domestic and partner investments; the staff, data systems and financing required in the various sectors should be identified to establish a sustainable process to collect, analyse and report the AMR data. The cost of the M&E plan should be part of the overall costing of the NAP.
8. **Factor in periodic reviews of the M&E plan:** The M&E plan should be a living document. Its effectiveness should be reviewed from time to time to capture lessons learned and make adjustments as necessary. This should include assessing how well the different elements are functioning (e.g. availability of resources, delivery on roles and responsibilities, effectiveness of available tools).

Fig. 3. Step by step process for developing an M&E plan for AMR NAPs

1

Decide on the M&E audience

Consider key national competent authorities, One Health multisectoral collaborators and stakeholders, among others.

2

Define the M&E questions

Monitoring questions should help assess the NAP implementation processes and track progress and evaluation questions should help with the measurement of results.

3

Identify indicators and data sources

Based on the priorities to be monitored- develop indicators, their data needs, data sources, and data validation process for monitoring.

4

Decide on the roles, responsibilities and governance mechanisms

Allocation of roles and responsibilities of various actors in the multisectoral coordination mechanism is essential for active participation, ensuring accountability, contribution to data generation, reporting and relevant actions.

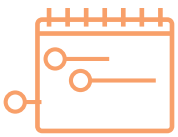
5

Decide on data collection, analyses and reporting timelines

Develop and agree on timelines for data collection, analysis and reporting.

6

Develop a comprehensive M&E plan



Consider developing an M&E plan to lay out what indicators need to be measured, baselines, data sources, periodicity of data collection, staff responsibility, reporting points etc.

7

Earmark resources to implement the M&E plan

Cost the M&E plan, identify the staff, data systems and financing required in the various sectors to establish a sustainable process to collect, analyse and report on AMR data.

8

Factor in periodic reviews of the M&E plan

The M&E plan should be a living document. Its effectiveness should be reviewed periodically to capture lessons learned and make revisions as necessary.

Source: FAO, UNEP, WHO and WOAH

10. Conclusion and next steps

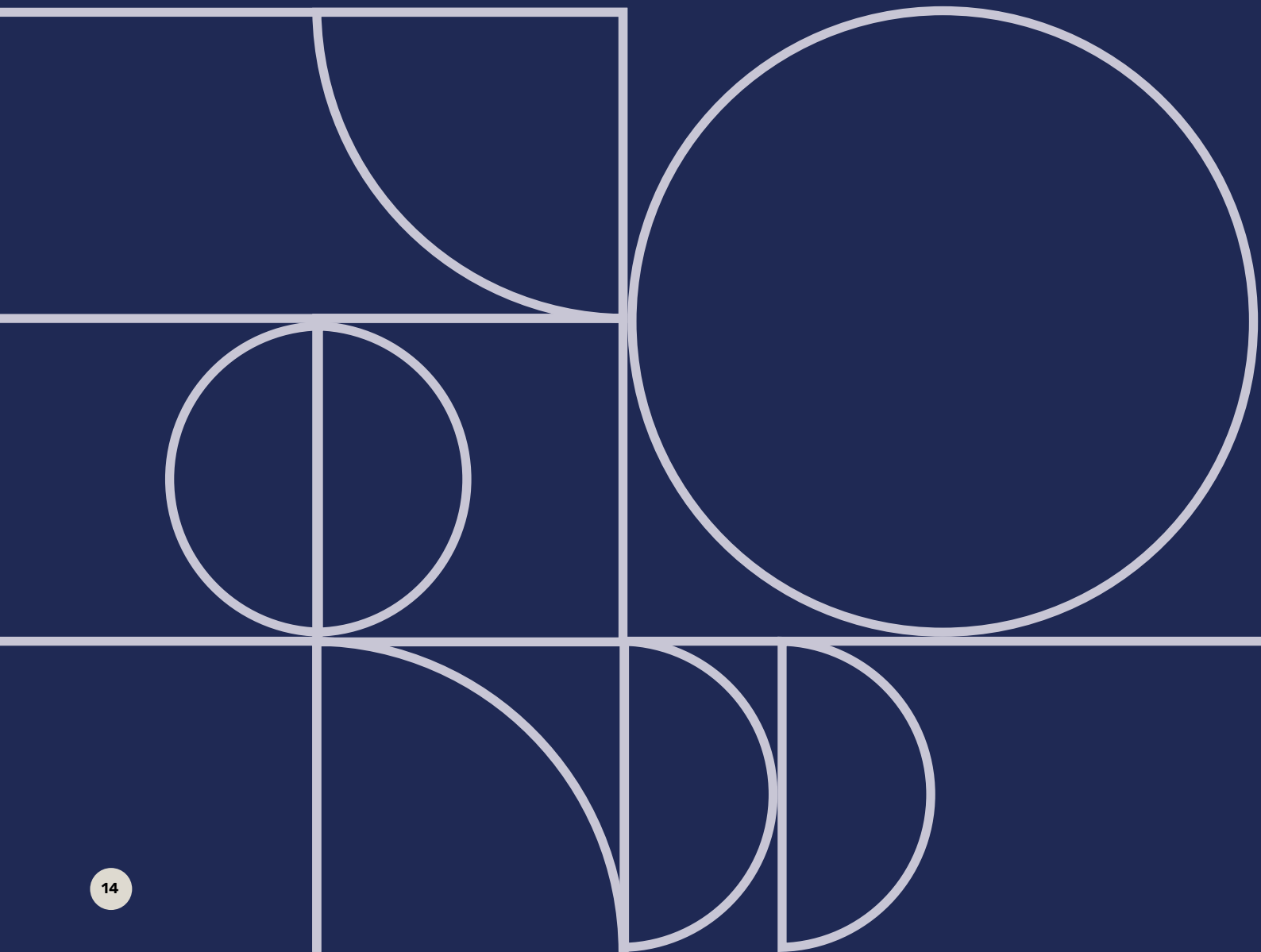
Establishing and resourcing a national M&E system is important to track progress against the activities and outputs detailed in the NAP, which should be reviewed regularly (annually or biennially) to identify and address barriers to, and the capacity for, NAP implementation.[14] Countries are encouraged to develop a prioritized and costed implementation plan to accompany the NAP so that a corresponding monitoring framework can be developed. The plans should include a situation analysis, providing baseline information on their key aspects.

The Quadripartite will:

- continue to monitor the implementation of the GAP-AMR through the global M&E framework and NAPs using TrACSS, to foster a One Health response to AMR;[15]
- continue to strengthen respective sector-specific data collection platforms to help countries collect, analyse, use and present data;
- test its guidance to countries to develop M&E plans by piloting the proposed approach in select countries;
- provide e-learning modules to help countries strengthen NAP M&E; and
- develop a community of practice to foster cross-sectoral collaboration, share experiences and lessons learned, and create an environment of sharing among countries.

15 Global database for tracking antimicrobial resistance (AMR): country self-assessment survey (TrACSS) [online database]. Geneva: World Health Organization; 2022 (http://www.amrcountryprogress.org, accessed 2 December 2022).

Annexes



Annex 1. Evaluations

Types of evaluations[16]

Five main types of evaluations are applied to programmes depending on the stage of implementation:

Formative evaluation (ex-ante evaluation)

The formative evaluation is conducted during programme identification and development. It is mainly concerned with ensuring that relevant needs are identified and addressed in the most feasible manner. It may also be used to ensure the programme remains relevant throughout the course of implementation.

Process evaluation

The process evaluation assesses the means of delivering the programme, including alternative delivery procedures. It is concerned with the planning and implementation of activities and the delivery of outputs and short-term outcomes.

Mid-term evaluation

The mid-term evaluation is usually conducted midstream in the implementation of a programme to assess whether the utilization of inputs and the delivery of targeted outputs and results are on course. It may recommend changes to improve delivery.

End-term evaluation

The end-term evaluation is usually conducted at the end of a programme, project or development intervention. It is concerned with determining whether planned results have been achieved.

Impact evaluation (ex-post evaluation)

The impact evaluation is conducted after the closure of an intervention to assess whether sustainable outcomes and impacts were achieved and to draw lessons for future programming.

Comparing an evaluation to a review

Both a review and an evaluation are assessments of an intervention. However, a review differs from an evaluation in terms of scope. The review is narrower, shallower and less ambitious but useful when quick information is required by key stakeholders to judge the performance of an intervention and provide direction.

Evaluability assessment

The evaluability assessment is a study of the feasibility and usefulness of conducting an evaluation. It is a pre-evaluation assessment mainly intended to determine whether a programme or intervention is evaluable and to help focus the evaluation. It involves reviewing the goals and objectives of the intervention, the availability of data resources, the theory of change, and the stakeholders and their information needs, among others.[17]

16 Molund S, Schill G. Looking back, moving forward: Sida evaluation manual. Stockholm: Swedish International Development Cooperation Agency; 2004 (https://www.oecd.org/derec/sweden/35141712.pdf, accessed 2 December 2022).

17 Morra Imas LG, Rist RC. The road to results: designing and conducting effective development evaluations. Washington (DC): International Bank for Reconstruction and Development/The World Bank; 2009.

Annex 2. Components of an M&E plan

The success of the NAP M&E depends on effective multisectoral coordination and harmonization of programming, the sharing of information and experiences, as well as the discovery of solutions to the emerging challenges. No standard presentation of an M&E plan exists, but countries might consider the following components:

1. **Introduction:** This section provides background information, including the programme description and the objectives of preparing the M&E plan, and identifies the intended users of the plan.
2. P**rocess/development:** Describing how the M&E plan was developed is important, as is getting input for the NAP M&E plan from multisectoral groups, which enhances the ownership of the plan.
3. **Frameworks:** This section of the M&E plan presents the logical framework (log frame), usually in a matrix format, with results statements, indicators, means of verification and assumptions columns. Rows contain impact goal statements, outcomes, outputs and activities.
4. **Roles and responsibilities:** This section of the M&E plan identifies and defines the roles and responsibilities of various stakeholder groups involved in data production, data collection, data analysis and data use.
5. **Data flow:** This section of the M&E plan illustrates diagrammatically how data will flow from the point of collection, analysis and reporting to the intended end users.
6. **Data management:** A computer-based data management system is important to ensure the good storage, retrieval and use of information. This section of the M&E plan describes which computer management systems will be used.
7. **Quality assurance:** The M&E plan should detail the process and procedures put in place to ensure that the data collected, stored and analysed are of high quality. It goes without saying that poor-quality data will lead to ill-informed decisions. Many actions can be undertaken to ensure high-quality data targeting data collection processes, data analyses, data storage and data retrieval.

Annex 3.
M&E framework template generic example

	Indicator	**Definition** How calculated?	**Baseline** Current value?	**Target** Target value?	**Data** source How measured?	**Frequency** How often?	**Responsible** Measured by whom?	**Reporting** Where/how reported?
Impact goals	From NAP							
Outcomes	From NAP							
Outputs	From NAP							
	From NAP							
	etc.							

Annex 4. Sample terms of reference for an M&E coordinator/subgroup

Introduction

A governance mechanism is essential to coordinate national efforts to combat antimicrobial resistance (AMR). The governance mechanism should comprise a national multisectoral coordination committee or group, which will establish supporting technical working groups as needed. To effectively monitor the national action plan (NAP) on AMR, it is important to establish an intersectoral M&E subgroup or assign an M&E coordinator with clear terms of reference within the national AMR multisectoral coordination committee or group to be accountable for monitoring progress in NAP implementation and coordinating the collection, analysis and reporting of data.

Purpose

The purpose of the intersectoral M&E subgroup or M&E coordinator is to provide oversight of the planning, development and coordination of monitoring, evaluation and reporting activities.

Scope

The intersectoral M&E subgroup or M&E coordinator will serve as the main coordinator of the national M&E strategy's effective implementation. The coordination group and coordinator should be given sufficient authority to ensure that their recommendations and plans are implemented and should report to the chair of the national multisectoral coordination committee or group or to leadership within the relevant ministries.

Roles and responsibilities

The roles and responsibilities include:

- conducting an inventory of existing information systems and data sources;
- leading the development of the monitoring framework with indicators and targets;
- leading the development of an M&E staffing and resource plan, and identifying resources through sector-specific budgets or programmes;
- supporting the relevant sectors in strengthening their existing monitoring and reporting systems so the results indicators can be adequately monitored;
- supporting the strengthening of analytical capacity within the M&E subgroup members or sector-specific teams; and
- developing reports on a regular basis and reporting back to the multisectoral coordination committee or group and national government leadership on NAP implementation progress and on the impact on AMR in the country.

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