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PROGRAMME COMMITTEE

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Update on FAO's work on Antimicrobial Resistance (AMR)

Executive Summary

- This document is presented in response to a request by the 118th session of the Programme Committee (November 2015) and Council at its 153rd session for an update to be presented to the Programme Committee on ongoing and planned activities for the 2016-17 biennium, as well as on estimated resource requirements and availability in line with the approved Programme of Work and Budget.

Suggested action by the Programme Committee

The Programme Committee is invited to note progress in FAO's work on AMR and provide any guidance deemed appropriate.

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I. Introduction

1. Following the adoption of Resolution 4/2015 on Antimicrobial Resistance by the 39th FAO Conference in June 2015, the 118th Session of the Programme Committee (November 2015), in stressing the importance of FAO's work on AMR, requested the Secretariat to provide an update at its next session on ongoing and planned activities for the 2016/17 biennium, as well as estimated resource requirements and availability in line with the approved Programme of Work and Budget.
2. To support the implementation of Conference Resolution 4/2015 FAO drafted a 5-year Action Plan for FAO on AMR (Annex 1) and the 153rd session of Council received additional information provided in document CL 153/3 Information Note 4 "FAO's work on Antimicrobial Resistance"
3. The implementation of country and global oversight activities listed in the FAO Action Plan on AMR, including the required level of collaboration with international partners, will require voluntary contributions estimated at **USD 10 million, which translates to USD 2 million per year for five years.**¹
4. The Action Plan foresees four major focus areas related to public health, livestock, crops and aquatic resources and with impact on food security, nutrition, the environments and sustainable development. It advocates for a programme cutting across the Organization involving headquarters and decentralized offices and it has been fully embedded into the 2016-17 programme of work with clear milestones and expected results at global and country levels commensurate to the available resources.
5. Of particular relevance are the Strategic Programmes relating to international agreement and conventions (SP2), standards and safe food (SP4) and prevention and addressing threats (SP5).

II. FAO Action Plan - focus areas of work

6. With a focus on addressing the impact of AMR on the food and agriculture sectors FAO has defined four focus areas on which to target its efforts.
 - 1) Improve awareness and advocacy on AMR and related threats
 - 2) Develop capacity for surveillance and monitoring of AMR and antimicrobial use (AMU) in food and agriculture
 - 3) Strengthen governance related to AMU in food and agriculture
 - 4) Promote good practices in food and agricultural systems and the prudent use of antimicrobials

III. Cooperation with other agencies and activities

7. It is recognised that no one organization alone can address all aspects of AMR. FAO is unique in its breadth of mandate and competence to curtail its occurrence through its extensive representation (professional disciplines, development sectors, and geographical outreach). As the sole international organization combining health and nutrition, agricultural aspects, food and feed safety, and environmental issues in aquatic and terrestrial settings, FAO links with WHO and OIE seamlessly and has the added value of its upstream normative work, policy dialogue and in-country capacity development effort.
8. FAO has engaged in a tripartite partnership with WHO and OIE, establishing strong and effective collaboration on AMR, including relevant aspects of the Codex Alimentarius, WHO's International Health Regulations and OIE's efforts at strengthening and monitoring the performance of veterinary services.
9. Within the framework of a Tripartite agreement on AMR, FAO hosted in February 2016 the 22nd Tripartite Annual Executive Coordination Meeting, which agreed upon concrete steps in the way forward, as well as on necessary steps to bring AMR to the global attention. In this regard, the three agencies are supporting the preparation of a UNGA Declaration or Resolution on AMR for adoption in September 2016 by the United Nations General Assembly. A preparatory tripartite meeting was held in New York on 18 April 2016 to inform Permanent Representatives in New York on the General

¹ This amount does not include in-country depth implementation for which additional voluntary contributions and/or extra-budgetary funds shall be raised.

Assembly Resolution. Following last year's example, FAO will support in November 2016 a tripartite AMR Awareness Week.

10. The tripartite collaboration is further broken down and showcased at country level through joint implementation programmes. In this regard, a jointly produced manual for supporting countries to develop National AMR Action Plans is currently being tested in pilot countries. In addition, a number of regional workshops will be organized in 2016-17 in the framework of the tripartite collaboration.

11. The Codex Alimentarius Commission will discuss at its next session in June 2016 the necessary update of two documents related to AMR.² The Commission will also consider the need to request FAO, WHO and OIE to convene expert consultations to review any new scientific evidence related to the AMR in the food chain in support of any revision of Codex texts.

12. In addition, FAO has been an active member and permanent advisor in the Global Health Security Agenda (GHSA), a country-lead initiative with some 60 countries dedicated to address infectious disease threats. The Agenda has developed Action Packages on prevention, detection and response, including an Action Package exclusively dedicated to Antimicrobial Resistance.

13. FAO also participates in WHO's Advisory Group on Integrated Surveillance of AMR and has developed a laboratory mapping tool for AMR and a Progressive Management Pathway for reducing the risk of AMR.

IV. Resource mobilization efforts and pipeline

14. The FAO 5-year Action Plan is underpinned by a strong resource mobilization exercise, engaging the Strategic Programme Leaders, Assistant Directors-General of the Technical Cooperation and Programme Management (TC), the Agriculture and Consumer Protection (AG) and the Fisheries and Aquaculture (FI) departments. The active participation of regional, subregional and country offices facilitates the flow of information and output delivery between the FAO global action and work plan and the national and regional initiatives/priorities in this area.

15. An inter-departmental working group on AMR is being tasked to coordinate the implementation of the 5-year Action Plan on AMR. It is chaired by the Chief Veterinary Officer under the guidance of the Director, Animal Production and Protection Division (AGA) and the Assistant Director-General, Agriculture and Consumer Protection Department (AG) and composed of officers from relevant units both at headquarters and in the regions.

16. As of April 2016, FAO secured extrabudgetary resources for a total of USD 2.9 million, which includes funding from the United States Agency for International Development (USAID) to support work in AMR as part of USAID multi-year programme Emerging Pandemic Threats in Asia (USD 2 million) and funding from the United Kingdom and Northern Ireland (Fleming Fund) to support FAO's work on AMR in Cambodia, Ghana, Viet Nam, and Zimbabwe (USD 900,000). Discussions have been initiated with potential donor countries (Russian Federation, UK, and France) who expressed interest in further supporting FAO.

V. Implementation mechanisms

17. AMR-related activities span across FAO's Strategic Framework, with specific deliverables under SP2, SP4 and SP5. FAO's technical divisions and decentralized offices are taking the lead in coordinating activities within their areas of competence in crop production and protection, food and feed safety, terrestrial and aquatic animal production and health, with due attention to the cross-ministerial regulatory aspects and legislation. Implementation at the regional and national levels are jointly undertaken by FAO, relevant regional bodies, governments, and subject to funding availability.

18. Currently, at least five full-time equivalents of FAO professional staff time are involved in AMR-related work in the Working Group on AMR and under the Strategic Programmes. Efforts are being made to increase FAO's technical support staff, especially at country level pending voluntary contributions mobilized for the Action Plan.

² "Code of Practice to Minimise and Contain Antimicrobial Resistance" (CAC/RCP 61-2005) and "Guidelines on Risk Analysis of Foodborne Antimicrobial Resistance" (CAC/GL 71-2011).

VI. Estimated budget for delivery of FAO Action Plan on AMR

19. As noted above, the implementation of country and global oversight activities of the FAO Action Plan on AMR will require voluntary contributions estimated at USD 10 million, which translates to USD 2 million per year for five years.³ For the implementation of the 2016-17 activities a total of USD 4 million is estimated across the four priority areas as shown in Tables 1, 2 and 3.⁴

20. Budget requirements for the implementation of the FAO Action Plan at country level will depend on thorough baseline assessment and a participatory approach with the national public and private actors to better appreciate the level of awareness, capacities and gaps, or required interaction between sectors, and thorough reviews of existing regulations and legal framework. For low-income to mid-level countries a five-year strategy should be employed (as 2-year cycles are considered insufficient to obtain the necessary traction and impact desirable for sustainability) and a reasonable budget range is estimated between USD 3.6 and USD 4.9 million / five-year tailored plan.

VII. Next steps

21. FAO will focus its work during the 2016-17 biennium on raising awareness on the importance of the “One Health” approach in general and antimicrobial resistance in particular (fisheries, food safety, nutrition, ag policies) and on increasing contributions across the Strategic Programmes (SP2, SP4 and SP5).

22. A creation of a multilateral trust fund mechanism for international organizations (WHO, FAO, OIE and other interested UN agencies) and other partners could be envisaged to address: (i) development of a database; (ii) training and compliance; (iii) production of educational material in good practices and shared responsibilities; (iv) inclusion of Codex, but managed by FAO or WHO.

23. FAO will also contribute within the tripartite agreement to support joint outreach activities to the private sector. In collaboration with OIE, FAO will extend work on a global database on the use of antibiotics in animals, to include information and statistics related to food and agriculture, production, exports, imports and destined use.

³ This amount does not include in-country depth implementation for which additional voluntary contributions and/or extra-budgetary funds shall be raised.

⁴ While the FAO AMR Action Plan supported by human resources funded by the Regular Programme, it requires additional and new funding to assure cross-sectoral work within FAO and support to in-country activities.

Table 1. Funding (2016 and 2017) requirements of the FAO Action Plan focus areas⁵

	FAO Action Plan – Focus Areas	2016	2017	TOTAL
1	Improve awareness and advocacy on AMR and related threats	240,000	240,000	480,000
2	Develop capacity for surveillance and monitoring of AMR and AMU in food and agriculture	440,000	440,000	880,000
3	Strengthen governance related to AMU in food and agriculture	320,000	320,000	640,000
4	Promote good practices in food and agricultural systems and the prudent use of antimicrobials	1,000,000	1,000,000	2,000,000
	Total	2,000,000	2,000,000	4,000,000

Table 2. Breakdown of funding requirements (2016-2017) by type of activities

	2016 - 2017	Personnel	Awareness	In-country assessments	Regional and national workshops	Backstopping	Equipment	Total
1	Improve awareness and advocacy on AMR and related threats	220,000	75,000	45,000	65,000	45,000	30,000	480,000
2	Develop capacity for surveillance and monitoring of AMR and AMU in food and agriculture	340,000	40,000	18,000	32,000	55,000	395,000	880,000
3	Strengthen governance related to AMU in food and agriculture	220,000	30,000	55,000	115,000	60,000	160,000	640,000
4	Promote good practices in food and agricultural systems and the prudent use of antimicrobials	750,000	255,000	165,000	350,000	250,000	230,000	2,000,000
	Total	1,530,000	400,000	283,000	562,000	410,000	815,000	4,000,000

Table 3. Breakdown of funding requirements (2016-2017) by Strategic Programmes (SP) according to the FAO Action Plan focus areas (2016-2017)

	Strategic Framework / biennium	SP2	SP4	SP5	Total
1	Improve awareness and advocacy on AMR and related threats	45,000	170,000	265,000	480,000
2	Develop capacity for surveillance and monitoring of AMR and AMU in food and agriculture	20,000	270,000	590,000	880,000
3	Strengthen governance related to AMU in food and agriculture	100,000	440,000	100,000	640,000
4	Promote good practices in food and agricultural systems and the prudent use of antimicrobials	120,000	580,000	1,300,000	2,000,000
	Total	285,000	1,460,000	2,255,000	4,000,000

⁵ While the FAO AMR Action Plan supported by human resources funded by the Regular Programme, it requires additional and new funding to assure cross-sectoral work within FAO and support to in-country activities.

Annex 1

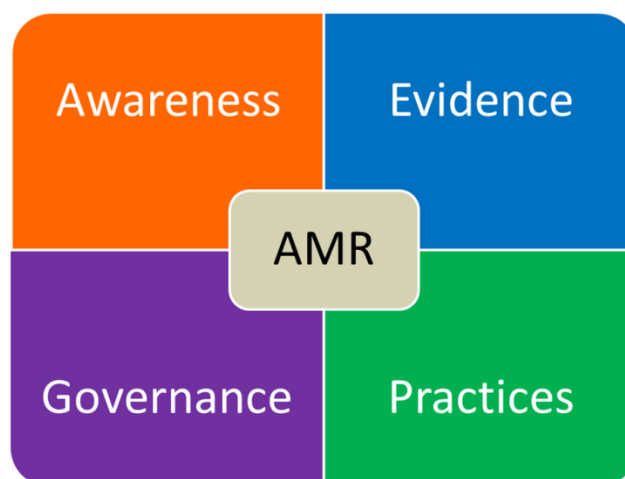
Antimicrobial resistance (AMR) is a natural phenomenon of adaptation of microorganisms in the presence of antimicrobial agents and is the consequence of any use of antimicrobial drugs, exacerbated by inappropriate use.

The availability and use of antimicrobial drugs in terrestrial and aquatic animals and in crop production are essential for their health and productivity so that their contributions to food security, food safety and animal welfare are enhanced. However, there is a growing global concern that AMR threatens to reverse these benefits. In humans, AMR also threatens to reverse decades of improvements in human healthcare. Resistance arising in one geographical location or species can easily spread to other geographical locations or spill-over into other species and thus impacting both developed and developing countries.

The FAO Action Plan on AMR (May 2016)

FAO has identified four main pillars of work on antimicrobial resistance, which serve as the focus areas for the FAO Action Plan. These four areas, however, are strongly interrelated and need to be addressed in parallel. In addition, the activities need to be implemented across the different sectors of food and agriculture systems and embrace a “One Health” approach. “One Health” recognizes that the health of humans, animals and ecosystems are interconnected. It involves applying a coordinated, collaborative, multidisciplinary and cross-sectorial approach. This approach is particularly relevant when it comes to addressing AMR, as it facilitates the multidimensional perspective needed to address aspects ranging from our understanding of the factors driving antimicrobial resistance to assessing its economic impact and finding viable solutions /interventions.

Figure 1: Four focus areas of the FAO Action Plan on AMR



The focus areas also frame FAO’s support to the implementation of the Global Action Plan on AMR⁶. Figure 2 outlines how FAO’s four focus areas will support the objectives of the Global Action Plan. Alignment and coordination of the various activities will be facilitated by strengthened tripartite collaboration.

⁶ WHO. 2015a. Global Action Plan on Antimicrobial Resistance. Available at http://apps.who.int/iris/bitstream/10665/193736/1/9789241509763_eng.pdf?ua=1

Figure 2: FAO focus areas of work as they relate to the five objectives of the Global Action Plan on AMR

WHO Global Action Plan Objective	FAO Action Plan focus Areas	
Objective 1: Information, education and communication	Awareness	Governance
Objective 2: Surveillance, monitoring, recordkeeping	Evidence	Governance
Objective 3: Reduction of infection	Practices	Governance
Objective 4: Legislation, optimization of use	Practices	Governance
Objective 5: Sustainable investment for alternatives and reduced use	Practices	Governance

FOCUS AREA 1 - IMPROVE AWARENESS ON ANTIMICROBIAL RESISTANCE AND RELATED THREATS

A minimum understanding of the issue and why it is relevant to all stakeholders along the food chain is considered to be a precursor for change and the commitment to take action. The relevance of AMR to food and agriculture, in terms of both its impact on the sector and the role of the sector in addressing the problem, is not always apparent. This focus area seeks to take immediate action to raise awareness of AMR by developing communication and advocacy products that target different sectors and that help countries to find appropriate culture-sensitive ways to disseminate key messages and understand the challenges and risks posed by AMR in their countries. Linking with focus area two, FAO fully recognizes the importance of evidence-based messaging and ensuring that it is relevant to the food and agriculture sectors. Recognizing that consideration of AMR and its impact needs to become an integral part of the food and agriculture policy environment, this focus area will also advocate for consideration of AMR at global and national levels and work in cooperation with other relevant organizations.

Output 1.1: Awareness on AMR is improved among food and agriculture stakeholders.

Key activities to achieve this output

Developing communication and advocacy products according to different target sectors and stakeholders reflecting FAO's position and approach.

Providing support to countries to adapt and disseminate communication and advocacy products taking into account the specific situation of the country/region and different audiences in the food and agriculture sector.

Providing support to countries to develop their own strategies and risk communication tools for increasing awareness on AMR in food and agriculture.

Output 1.2: Consideration of AMR is integrated into policy level discussions on food and agriculture.

Key activities to achieve this output

Advocating for the inclusion of AMR in high-level meetings (e.g. Committee on Food Security, UN General Assembly, FAO conferences, Committee on Food Security, etc.) and providing technical support to facilitate consideration of AMR in such high level policy making fora.

Organizing or participating in global, regional and national AMR public awareness events in partnership with other organizations (e.g. OIE, WHO, etc.).

Publishing and disseminating reports indicating progress in the implementation of the FAO action plan on AMR.

FOCUS AREA 2 - DEVELOP CAPACITY FOR SURVEILLANCE AND MONITORING OF ANTIMICROBIAL RESISTANCE AND ANTIMICROBIAL USE IN FOOD AND AGRICULTURE

Understanding the extent of antimicrobial use and AMR in the food and agriculture sector is a basis for driving action and is also critical to measuring the impact of actions and progress made in addressing this problem. Acknowledging that it can be challenging for countries to take action based on data from other parts of the world, this focus area aims to support local data generation in support of local action and in progressively building local capacity to generate more extensive data. This work will also be implemented in close collaboration with OIE and WHO to support integrated systems of surveillance and monitoring and to promote data sharing across sectors at local and global levels. This focus area will also aim to make information on AMR that is particularly relevant to the food and agriculture sectors widely available.

Output 2.1: Knowledge on AMR and antimicrobial use in the food and agriculture sector is improved.

Key activities to achieve this output

Developing training materials (including e-learning modules) on antimicrobial use, AMR and related surveillance and monitoring.

Promoting and contributing to research or studies that aim to improve the existing knowledge on antimicrobial use and AMR in the food and agriculture sector including transfer to/from humans and the agriculture and food production environment.

Supporting the inclusion of antimicrobial use and AMR as core components of professional education, post-graduate training, certification and continuing education in the food and agricultural sector.

Output 2.2: Laboratory capacity on AMR and antimicrobial residue monitoring is improved.

Key activities to achieve this output

Developing a laboratory mapping tool to assess existing capacities for monitoring AMR and detecting antimicrobial residues.

Providing support to strengthen national laboratory capacities to monitor AMR and detect antimicrobial residues in food products and the environment.

Designating FAO reference laboratories on AMR and antimicrobial residues.

Output 2.3: Country-specific integrated surveillance/monitoring systems for antimicrobial use and AMR are developed.

Key activities to achieve this output

Supporting the revision, adaptation and uptake of guidelines for integrated (food, agriculture and environment) AMR monitoring and surveillance programmes.

Providing assistance to countries in preparing and implementing national plans to improve integrated surveillance and monitoring of antimicrobial use and AMR.

Conducting country-level assessments of existing systems for surveillance and monitoring of antimicrobial use and AMR in the food and agriculture sector to identify need and gaps.

Providing support to OIE in developing and maintaining a global database on the use of antimicrobials in animals and building upon the OIE database on veterinary medicines to include production, distribution, commerce, and statistics for food and agriculture production, including commercial sector data and marketing as well as information/data obtained through consultation with farmers and producers.

Providing assistance to countries in collecting information on the use of antimicrobials in food and agriculture to support the development of systems for monitoring antimicrobial use and link these findings to antimicrobial resistance.

Providing assistance to countries in the collection of information on the occurrence of antimicrobials in the environment (water, soil, etc.) and the assessment of that data in terms of its potential impact on the development and spread of AMR.

FOCUS AREA 3 - STRENGTHEN GOVERNANCE RELATED TO ANTIMICROBIAL USE AND ANTIMICROBIAL RESISTANCE IN FOOD AND AGRICULTURE

The capacity and resources of many countries to take action to address AMR is dependent on political commitment, appropriate policy and a relevant regulatory or legislative framework within which to operate. This area of work aims to support countries in that endeavour. As well as supporting national level work, this focus area also encapsulates FAO support to setting international standards relevant to AMR and the development of the evidence and scientific basis on which to base such standards. The latter areas will also link strongly to focus area 2. Recognizing the different types of information needed to facilitate political commitment and the development of evidence-based policies, this focus area will also concentrate on providing information on alternatives to antimicrobial use and the economic aspects of the AMR problem and the measures needed to address it.

Output 3.1: Information provided in support of improved policy and decision-making.

Key activities to achieve this output

Developing studies on regulatory approaches to antimicrobial use in food and agriculture.

Providing assistance to countries in the development of policies to phase out the use of antimicrobials as growth promoters.

Producing case studies on the use of antimicrobials and the economic impact of a reduction in the use of antimicrobials as growth promoters when using possible alternatives.

Developing a publicly accessible repository of scientific and technical information on AMR, antimicrobial use and other related data relevant to the food and agriculture sector.

Supporting the standard setting work of the Codex Alimentarius on AMR by providing the necessary scientific advice, in collaboration with WHO and OIE as appropriate.

Output 3.2: Development and revision of regulatory frameworks supported, in line with internationally agreed principles and standards.

Key activities to achieve this output

Providing support to countries and regional organizations to revise and/or develop legislation that meets international guidelines/standards (e.g. Codex), and to strengthen national and regional regulatory capacity on AMR-related areas.

Collecting, reviewing and analysing information on the implementation of existing Codex standards/guidelines related to antimicrobial use and AMR to support timely revision of international standards.

Output 3.3: Enhanced implementation of an integrated “One Health” approach to addressing AMR.

Key activities to achieve this output

Developing a Progressive Management Pathway ⁷on AMR in the food and agriculture sector and provision of support to countries in its implementation.

Facilitating the inclusion of AMR and its relevance to food and agriculture in “One Health” platforms and fora.

Organizing, in collaboration with WHO and OIE, an international “One Health” meeting to advise on integrated antimicrobial use policies to strengthen governance relevant to addressing AMR.

FOCUS AREA 4 - PROMOTE GOOD PRACTICES IN FOOD AND AGRICULTURE SYSTEMS AND THE PRUDENT USE OF ANTIMICROBIALS

The success of the first three focus areas will only be complete if it ultimately drives change and leads to the development and implementation of practices that will positively contribute to addressing AMR. However, there are a range of factors that need to be considered in effecting change, not least of which are economic aspects and the availability of viable alternatives. Such changes also need to be implemented in the context of efficient and inclusive food and agriculture systems to ensure that FAO’s objectives for hunger reduction are also supported. This focus area will centre on developing and supporting the practical measures to be taken in the food and agriculture sector to minimize the need for antimicrobials (e.g. improved biosecurity to reduce infections), reduce the use of antimicrobials (e.g. focus on good practices in therapeutic use and identifying alternatives to antimicrobials) and minimize or prevent the spread of antimicrobial resistance (e.g. good hygiene practices). While it will build on the outputs of the other focus areas, efforts need to begin immediately to convert existing knowledge into improved practices.

Output 4.1: International standards and guidelines relevant to addressing AMR and applying good practices are adopted at country level

Key activities to achieve this output

Supporting the development of country level capacities for the practical implementation of international standards and guidelines related to AMR and use of antimicrobials (e.g. Codex standards related to AMR and antimicrobial use, the relevant sections of the FAO Code of Conduct for Responsible Fisheries, the Code of Conduct on Pesticide Management etc.)

⁷ The progressive management pathway (PMP) could be defined as a step-wise approach or tool that assist countries understand their current situation in relation to understanding of/available data on AMR/AMU, their manufacture or import, production sectors (aquatic and terrestrial animals, crop agriculture), surveillance systems, vocational and professional education, good manufacturing practices.

Monitoring the adoption and use of relevant Codex standards and guidelines and other international standards/guidelines when feasible.

Supporting the inclusion of considerations on AMR in the development of voluntary guidelines for sustainable agricultural production.

Output 4.2: Awareness and knowledge on approaches to prudent and responsible use of antimicrobials in the food and agriculture sector is improved.

Key activities to achieve this output

Developing and supporting the utilization of education and training materials on responsible use of antimicrobials, the importance of preventing infections in animals, biosecurity, good agricultural practices, and other measures to control spread of resistant microorganisms throughout the full food chain and the environment.

Developing and communicating recommendations (in collaboration with OIE) to improve animal health and welfare and thereby reduce the need for antimicrobials (including, for example, application of effective vaccines, use of good hygiene practices and good husbandry practices and compliance with good-farming practices).

Developing guidance and supporting countries to improve national capacity in applying risk-based approaches to address AMR, based on the Codex recommendations.

Providing countries with a comprehensive set of tools to encourage and facilitate the responsible and prudent use of antimicrobials in food and agriculture.

Output 4.3: Biosecurity, good practices and other measures to support prudent use of antimicrobials throughout the food chain are improved at country level.

Key activities to achieve this output

Reviewing and evaluating alternative options to the use of antimicrobials in primary production, including social and economic considerations and developing guidance on their use.

Providing assistance to countries to implement recommendations to more effectively manage the overall use of antibiotics in livestock production and aquaculture, and non-specific applications to treat sick animals.

Developing capacities to apply good hygiene and biosecurity practices throughout the food chain (from production to consumption) in order to reduce microbial contamination of food and the environment and minimize the spread of AMR.