



Stakeholder Consultation to Address Antibiotic Misuse in Food Systems and Contain Antimicrobial Resistance

Session Partner: Centre for Science and Environment

Background:

Antibiotics are increasingly becoming ineffective due to treat bacterial infections. Those considered last-resort options are also failing to treat patients in hospitals and intensive care units. This is because bacteria are becoming resistant to them. The phenomenon is commonly known as antimicrobial resistance (AMR), which is considered a silent pandemic with huge impact not just on health but also food security, livelihood and attainment of sustainable development goals. Low- and middle-income countries are expected to be heavily impacted. In 2019, about 1.3 million deaths globally were directed attributed to antibiotic resistant bacteria.ⁱ If no action is taken, AMR is expected to cause about 50 million deaths per year by 2050.ⁱⁱ About 2 million of those could be from India.ⁱⁱⁱ The World Bank estimates nearly 4% loss of annual gross domestic product in the global economy, if AMR is not checked by 2050.^{iv} This situation could push up to 28 million people, most of them in developing countries, into poverty by this time. SDG 1 (no poverty), 2 (zero hunger), 3 (good health and well-being), 6 (clean water and sanitation), 10 (reduced inequalities), and 12 (responsible consumption and production) are impacted/connected.^v

Recognising the multi-sectoral action needed to combat AMR, the World Health Organisation (WHO) in 2015, came up with the global action plan.^{vi} The Food and Agriculture Organisation (FAO) of United Nations adopted the plan in 2016, which was updated in 2021^{vii}. The same year, the United Nations General Assembly (UNGA) passed a resolution wherein countries across the world committed to address it in a concerted way. A high-level meeting is again planned on AMR at the 2024 UNGA.

Bacteria select for resistance in the presence of an antibiotic. This means antibiotic misuse/overuse is accelerates AMR. Just like in human-health, indiscriminate use happens in animals, where antibiotics are not only used for treating disease but also for non-therapeutic purposes such as to promote growth in chickens reared for meat and eggs. In dairy sector, the problem is more due to use of antibiotics that are considered critically important for humans. In crops, antibiotics like streptomycin (also used to treat tuberculosis in human-health) and tetracycline are misused as pesticides/fungicides. It is believed that antibiotic use is much higher in food systems than in human-health. Waste from these animal and crop farms is also a pathway of emergence and spread of AMR. For example, dairy/poultry waste carrying antibiotic metabolites, resistant bacteria, genes that can confer resistance if applied to crops as manure pose a risk that needs to be

addressed. Similarly, poultry waste used as fertiliser in fish ponds can transfer resistance. On the other hand, waste from non-food sectors such as antibiotic manufacturing effluents and human sewage can enter into food chain.

While part of antibiotic misuse can be attributed to commercial interests of big producers/ companies and lack of awareness among small producers/farmers, most of such misuse is also considered avoidable through measures which include awareness, vaccination, alternatives, biosecurity, appropriate housing and rearing conditions, better surveillance, infection prevention and control, timely and appropriate diagnosis, and treatment under trained expert. But considering the size, nature and structure of food production systems in India, there are big challenges that need to be addressed.

India released its multi-sectoral national action plan (NAP) in 2017 for five years.^{viii} The Delhi Declaration on AMR released alongside called for a coordinated multi-sectoral response from states for effective action against AMR.^{ix} Presently, India is finalising NAP version 2. Four states (Kerala, Madhya Pradesh, Delhi and Andhra Pradesh) developed their state action plans (SAP) and are implementing it. Few others have reached in advanced stages. Overall, there is some progress but a lot needs to be done. Apart from appropriate policy measures, on-the-ground action needs to be facilitated and supported. There also are some best practices, such as the National Dairy Development Board led use of ethnoveterinary medicines to treat various diseases in dairy cattle.

With rising economic, livelihood and food needs, it is expected that more animal food will be reared in big farms that are fuelled by excessive use of chemicals/antibiotics and carry a high risk of AMR and zoonoses from food and waste routes. To address this, there is a growing realisation to shift towards sustainable approaches requiring less antibiotics, which will also have co-benefits of less GHG emissions, greater resilience, livelihoods for more, food and nutrition security.

The objective of the session is to create stakeholder awareness by critically examining the practices and drivers of antibiotic use/misuse in dairy, poultry, and crop systems, along with exploring the pathways of AMR. Subsequently, assessing the policy and implementation measures in India, along with identifying related gaps, challenges, and best practices. Finally, proposing future steps toward sustainable, productive food systems with benefits extending beyond elimination of antibiotic misuse while emphasizing the need for coordinated multi-sectoral action.

ⁱ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02724-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02724-0/fulltext)

ⁱⁱ https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf

ⁱⁱⁱ <https://www.cseindia.org/one-health-action-to-prevent-and-contain-amr-in-indian-states-and-union-territories-11950>

^{iv} <https://www.worldbank.org/en/topic/health/publication/drug-resistant-infections-a-threat-to-our-economic-future>

^v <https://www.who.int/docs/default-source/documents/no-time-to-wait-securing-the-future-from-drug-resistant-infections-en.pdf>

^{vi} <https://www.who.int/publications/i/item/9789241509763>

^{vii} <https://www.fao.org/3/cb5545en/cb5545en.pdf>

^{viii} <https://ncdc.gov.in/WriteReadData/1892s/File645.pdf>

^{ix} https://cdn.who.int/media/docs/default-source/searo/india/antimicrobial-resistance/delhi-dec-amr.pdf?sfvrsn=fec618af_2