



UK-India Tackling AMR in the Environment from Antimicrobial Manufacturing Waste - Partnership Workshop

**Announcement of Opportunity for Partnership Workshop – Call for Participants
15 - 17 May, New Delhi, India**

**The deadline for applications is 16:00 (BST) 14 April 2019.
Invited participants will be notified on 16 April 2019.**

1. Summary

The Natural Environment Research Council (NERC), on behalf of UK Research and Innovation (UKRI) and the Department of Biotechnology (DBT), Ministry of Science and Technology, India, are pleased to pre-announce a joint call for collaborative research proposals focussing on AMR in the environment from antimicrobial manufacturing waste.

NERC is now is inviting expressions of interest from UK researchers to attend a partnership workshop to provide opportunities for face-to-face networking and for new collaborations to develop.

The workshop will be held in New Delhi, India on 15-17 May 2019 (the details of the venue will be circulated in due course). The aims of the partnership workshop will be:

1. To understand the key challenges around AMR in the environment from antimicrobial manufacturing waste, and the relevant research landscapes in the UK and India.
2. For the Funders to present an overview of the call aims and objectives and for participants to discuss and understand the scope.
3. To facilitate partnerships between the relevant UK and Indian research and innovation communities, and for researchers and industry representatives to network and begin to develop ideas to address the aims of the call.

It is expected that approximately 20 UK participants will be invited to attend and UKRI will try to ensure a balance of different disciplines/expertise and the number of attendees from the same institution. Attendance at the workshop does not automatically enable project bids to be submitted or guarantee funding. Conversely, absence does not preclude bidding into the call.

2. Background

Antimicrobial resistance (AMR) is a global public health challenge, with antibacterial resistance (ABR) viewed as posing one of the most serious health threats. The role of the environment in the spread of antibiotic-resistant bacteria is increasingly gaining attention. A growing number of published studies indicate high levels of antibiotics, antibiotic-resistant bacteria and antibiotic resistance genes in various environments around the world originating particularly from sewage, agriculture and pharmaceutical manufacturing effluent. This

accumulation creates the conditions for the proliferation and transmission of resistant bacteria from the environment directly to humans as well as through selection and horizontal gene transfer from commensal to pathogenic bacteria¹.

The role of pharmaceutical manufacturing pollution is particularly pertinent in India. Whilst it is unclear how significantly manufacturing waste might contaminate the environment, there is potential for high-level contamination because of the large quantity of antimicrobial waste generated during the production process. Recent studies have shown that wastewater effluents from antibiotic manufacturing units contain a substantial amount of antibiotics, leading to contamination of rivers and lakes², and the manufacturing process can also potentially contaminate environments through vaporisation or other solid waste disposal methods³. India has some of the highest environmental concentrations of antibiotics reported anywhere in the world, which is exacerbated by a high population density, low connectivity to wastewater treatment infrastructure and high use of antibiotics.

Current global discharge standards for pharmaceutical industry waste do not include antibiotic residues and consensus around safe limits for antibiotic discharge has yet to emerge. Industry groups are taking voluntary action to reduce the environmental impact from antimicrobial manufacturing, however, significant knowledge gaps remain around the scale of contamination and the risk presented to the environment and humans to determine appropriate discharge targets.

3. Aims of the Programme

The programme is a partnership between UKRI in the UK and Department of Biotechnology (DBT), Ministry of Science and Technology in India. UKRI has £3.8m (FEC) allocated to the programme and DBT has matched funding in terms of research effort.

Recent AMR scoping activity between DBT and UKRI identified the following knowledge gaps, which this programme will potentially refine and seek to address:

- Understanding of the extent of environmental antimicrobial pollution from pharmaceutical manufacturing waste (wastewater, solid waste and air) and its pathways through environmental systems in various parts of India.
- Development and validation of globally relevant standardised methods and tools for detection of active antimicrobial residues in industrial effluents and receiving environments, that are cost-effective and easy-to-use.
- Determining the health risks presented by antimicrobial manufacturing waste, through examining antibiotic-resistance in humans and livestock in urban centres with large pharmaceutical industries, their interactions with the environment (particularly use of water systems, including wastewater channels) and antibiotic use.

4. Objectives of the workshop

The workshop has three primary objectives:

¹ <http://researchbriefings.files.parliament.uk/documents/POST-PN-446/POST-PN-446.pdf>

² (Larsson et al. 2007; Lübbert et al. 2017)

³ Larsson 2014 (from UK-India AMR scoping report)

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The workshop will include an overview of the programme scope and application process, opportunities to network with researchers from the partner countries and begin the development of collaborative research projects, and, potentially, a site visit to learn more about the industry work in this area.

5. The workshop – how to apply

The workshop will take place in New Delhi, India on 15-17 May 2019. Further details of the venue will be circulated to successful applicants in due course.

To attend the workshop you must complete the UK-India Tackling AMR in the Environment from Antimicrobial Manufacturing Waste programme networking workshop [online application form](#), following the instructions provided on the form **by 16:00 (BST) 14 April 2019**. Late applications will not be considered. Invited participants will be notified on 16 April 2019. Submission of the online application form will be taken as indicating availability on the dates of the workshop.

In the online application form applicants should outline details of relevant expertise, relevant experience of working in India, experience of working with pharmaceutical companies and their personal rationale for being involved in the workshop.

Please note that the total number of participants from the UK is limited and UKRI will try to ensure a balance of different disciplines/expertise and the number of attendees from the same institution. It is expected that approximately 20 UK participants will be invited. Attendance at the workshop does not automatically enable project bids to be submitted or guarantee funding. Conversely, absence does not preclude bidding into the call.

Reasonable travel and subsistence expenses for UK participants attending the workshop will be covered in line with NERC policy on recovering travel and subsistence.

The full programme of the workshop and further details will be circulated to successful applicants in April 2019.

6. For further information please contact:

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