

# Fleming Fund Country Brief

December 2023

## BHUTAN



### Who we are

The Department of Health and Social Care (DHSC)'s Fleming Fund is a UK aid programme supporting up to 25 countries across Africa and Asia to tackle antimicrobial resistance (AMR), a leading public health threat across the world. The Fleming Fund invests in strengthening surveillance systems through a portfolio of country grants, regional grants and fellowships managed by Mott MacDonald, and global projects managed by DHSC partners.

Focusing on low- and middle-income countries (LMICs), as they bear the heaviest consequences of the spread of drug-resistant infections, the programme generates, shares, and uses robust and quality-assured data to support AMR strategies and interventions.

Supporting AMR data collection and analysis, through a One Health approach across human clinical, animal, and environmental sectors will help improve patient health, inform health policies, and warn of emerging threats.



### Country context

Bhutan developed a National Action Plan (NAP) on Antimicrobial Resistance (2018 – 2022) approved by the Ministry of Health and endorsed by the Cabinet. The NAP features an integrated One Health approach to address AMR and the transmission of drug-resistant pathogens between humans, animals, and the environment.

### Government support in Bhutan

To sustain the national AMR surveillance system, the Royal Government of Bhutan has incorporated tackling AMR into its national budget. This will include the upkeep of the Fleming Fund country grant-procured laboratory equipment by on-site trained biomedical engineers, and the replacement of consumables and reagents for routinely used equipment at surveillance sites maintain in-country professional resources.

More information about Bhutan can be found on the Fleming Fund website: [flemingfund.org/countries/bhutan](https://flemingfund.org/countries/bhutan)



### Country Grant

**Grantee:** Royal Government of Bhutan, Department of Medical Services  
**Value:** £1,559,560  
**Duration:** Apr 2019 – Jun 2023

### Fellowship Scheme

**Number of fellows:** 14  
**Host Institution:** Doherty Institute, University of Melbourne  
**Total value:** £840,000  
**Duration:** Feb 2019 – Dec 2022

### Regional Grants

**Grantees:** International Vaccine Institute, Technical University of Denmark, Ending Pandemics  
**Total value:** 11,869,455  
**Duration:** Jan 2019 – Feb 2023

# Country Grant

**Management Agent:** Mott MacDonald  
**Grantee:** Royal Government of Bhutan,  
Department of Medical Services

**Sub-grantees:** Bhutan Agriculture and Food and Regulatory Authority, Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) and Royal Centre of Disease Control (RCDC).

Establishing a One Health governance structure supporting and strengthening AMR surveillance and AMU (antimicrobial use) in human health (HH), food safety and animal health (AH).



## Achievements

9

AMR surveillance reference laboratories in HH (5) and AH (4) equipped and trained to perform antimicrobial susceptibility testing (AST).



Establishment of robust governance and reporting system in HH and AH laboratories.

3

AMR surveillance sites renovated with advanced laboratory equipment at JDWNRH, RCDC and National Centre for Animal Health to support country's health system.



AMR data surveillance protocols, updated, validated, endorsed, and used by respective laboratories.



One Health collaboration increased through activities such as sheep blood collection and maintenance for AMR testing.



Conducted AMU surveys in hospitals and animal farms for clinical engagement, formulating AMU guidelines, and influencing policy.



Digital applications and software updated and upgraded to incorporate AMU guidelines in AH and HH.



Reference laboratories participate in external quality assurance (EQA) assessments and provide national EQA assessments to surveillance sites.

1,060

data samples collected for active AMR surveillance conducted in commercial poultry farms. Data generated informed technical committees, community of practice and policymakers on AMR status in poultry sector in Bhutan.



Strengthened One Health coordination mechanism and governance by supporting high-level Inter-Ministerial Committee for One Health (IMCOH), National AMR technical committee (NATC) and technical working groups (TWG).

# Fellowship Scheme

**Host Institution:** Doherty Institute, University of Melbourne

**Professional Cohort I:** AMR/AMU/AMC Surveillance and AMR Laboratory Fellows in HH and AH.

**Professional Cohort II:** AMR Surveillance and Bioinformatics Fellows in HH, AMR Surveillance Food Testing and Antimicrobial Stewardship and Farm Biosecurity Fellows in AH.

**Policy Fellows:** AMR Advocacy and Health Economics Fellows in HH and AH.



## Achievements



Conducted surveys and data capture analysis in HH and AH sectors. Contributed to capacity development across country by developing One Health app and AH laboratory competency testing system, and leading quality assurance systems training.



Supported evidence-based policy development, advocacy, and One Health collaboration between RCDC and JDW - implementing data sharing and paving way for wider collaborations.



AMU surveillance to identify and report on high-risk issues for hospital staff of potentially resistant pathogens circulating with patient care.



Training provided in areas from biosecurity and risk to specialist laboratory skills, data analysis and interpretation, and antimicrobial stewardship – including training materials and report templates.



Engaged in updating Veterinary Information System (VIS) for antibiotic prescriptions to be recorded with existing collected data - allowing easier monitoring of AMU across Bhutan.



Led highly ambitious national campaign of sterilisation and vaccination to mitigate pathogen spread, to cover the entire canine population in Bangladesh.



Supported professional development of senior scientists, epidemiologists, and clinicians across AMR One Health disciplines.



Formation of cross-country knowledge sharing Technical Working Group on bioinformatics with Pakistan.



Led major task of Bhutan's healthy poultry surveillance programme and built capacity across different veterinary laboratories.



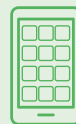
Critical review of NAP alongside preparation of costing plan and a cross-sectoral report on AMC/AMU.



Development of guideline appraisal tools used to review current antibiotic and standard treatment guidelines.



Development and contribution to biorepository surveillance guidelines across multiple sectors.



Development of mobile app to provide easy access to National Veterinary Formulary and antibiotics treatment guidelines to all veterinary prescribers.



# Regional Grants

**Management Agent:** Mott MacDonald  
**Grantees:** International Vaccine Institute, Technical University of Denmark, Ending Pandemics

## CAPTURA

**Collection of Historical AMR Data – CAPTURA led by International Vaccine Institute (IVI)**

**Total value:** £2,712,824\*

**Duration:** Jan 2019 – Feb 2023

Supports the collection and analysis of historical AMR data across key Fleming Fund countries to provide early information for policy making.



## Achievements

### 13

AMR/U/C data sources identified in consultation with the AMR (TWG) at Bhutan Ministry of Health.

AMR and AMU questionnaires plus rapid laboratory quality assessment (RLQA) conducted to verify data availability and grade data.



### 126,000

isolate records collected from AMR, AMU and AMC data between 2016-2019.

AMR data analysis focused on quality and epidemiology, and AMU/C patterns summarised at national and facility levels and shared with relevant stakeholders.

Analysis created preliminary baseline and exemplified data use to understand and improve facility's data management capacity and testing practices.



Produced Country Final Report to summarise CAPTURA's work and major findings.



Supported in-country capacity building for data digitalisation and analysis using software WHONET and Backlink – helping collect data electronically to existing database for future use.

Facilitated development and piloting of mobile data-gathering platform 'EpiCollect' as AMU data collection tool in regional hospitals for routine AMU audit.



## EQASIA

**External Quality Assurance – Asia, led by Technical University of Denmark**

**Value:** £4,247,345\*

**Duration:** Jan 2020 – Dec 2022

Supports development of EQA practices in laboratories around Asia to ensure confidence in testing results.

## RAADAR

**Policy, Practice & Advocacy, led by IVI**

**Value:** £2,715,217\*

**Duration:** Sep 2019 – Nov 2022

Supports data sharing for global AMR planning and advocacy, providing policymakers with evidence for robust, data-based policy recommendations.

## PARSE

**Common Surveillance Protocols**

**Value:** £2,715,217\*

**Duration:** Sep 2019 – Jan 2022

Supports data sharing for global AMR planning and advocacy to provide policy makers with evidence to make robust, data-based policy recommendations.

### 14 countries

participating in building capacity in AST through EQAs to NRLs and Centres of Excellence.

### 6

National Reference Laboratories at regional hospitals and government health departments enrolled in EQASIA programme, participating in Proficiency Testing trials and capacity building training activities.

### 4 regional

Mapping and Gap Analysis reports produced for situational analyses of AMR surveillance status in selected regional countries, including Bhutan, as valuable healthcare resource.

Developed One Health Protocol for AMR Alert and Response for South Asia – to generate data on links between human AMR development with that of animal, food, and environment.

### 4 regional

analyses developed, including all Fleming Fund priority countries, to identify data sharing bottlenecks.

Delivered both regional data and policy workshops to review material and visualisation approaches - developing plans to improve data sharing and analysis.



# Strategic Alignment Grants

Management Agent: Mott MacDonald



## Achievements

### FIND

**Grantee:** FIND

**Value:** £2,586,226\*

**Duration:** Apr – Dec 2023

Enhances common approaches to laboratory quality management systems, bacteriology laboratory network design, collation and analysis of AMR surveillance data, and clinical engagement strategies.

Digital tools to reduce time taken to clean AMR data received from surveillance sites, leading to more efficient HH and AH data analysis, and national-level reporting.

New opportunities for cross-sectoral AMR data use and interventions based on the collation of AH and HH AMR data in single repository.

### Commonwealth Pharmacists Association - CPA

**Grantee:** CPA

**Value:** £1,152,947\*

**Duration:** Dec 2021 – Dec 2023

Assists with AMU surveillance and uses data to improve prescribing practices.

CPA networks established in Fleming Fund-supported countries to provide HH and AH guidelines for uploading data sharing permission documents.

Identified clinical sites for PPS training aligning with sustainable model to ensure capacity in-country to undertake and support future AMR studies.

CPA networks established in Fleming Fund-supported countries to provide HH & AH guidelines for uploading permission documents.

### WHONET

**Grantee:** : Brigham and Women's Hospital

**Value:** £889,045\*

**Duration:** Apr 2022 – Dec 2023

Providing training and technical support to use free WHONET desktop application for managing and analysing microbiology laboratory data, with focus on AMR surveillance.

Ran centralised training (both on-site and remotely) and identified gaps for specialist training in Fleming Fund-supported countries.

Developed training materials and provided ongoing technical support to software users.

Supported development of modules, including online data entry and integration platform compatible with DHIS-2 software, and provided scientific guidance for breakpoints (aiding pathogen AST) interpretation and report generation for AMR analysis.

\*(across multiple countries, including Bhutan)

The Fleming Fund supports a range of additional projects delivered at national, regional, and global levels to support the generation, sharing, and use of high-quality AMR data. These all align closely with the country and regional grants and fellowships portfolio and support further achievement of the Fleming Fund objectives. A full list of global grants is available on the [Fleming Fund website](#).

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