



Newton-Bhabha
Fund



Atmospheric Pollution and Human Health in an Indian Megacity

Guidance for post-workshop applications

1. Introduction

The Natural Environment Research Council (NERC) and the Medical Research Council (MRC) in the UK and the Earth System Science Organization, Ministry of Earth Sciences (ESSO-MoES) and Department for Biotechnology (DBT) in India are investing in a strategic research programme on urban air pollution in the megacity Delhi and impacts on health. This will be delivered by research partnerships between UK scientists and Indian scientists.

Pollution in Indian cities is a rapidly increasing problem, with significant impact on air quality and human health. The vision of this programme is to initiate efforts on air pollution hazards and impacts on health in a rapidly urbanising society and the evidence to support cost-effective measures for air quality improvements related to anthropogenic pollutants in a mega city of India (Delhi).

NERC and MRC have a budget of £6.5m (£4m of which is from the Newton Fund) for the overall programme. ESSO-MoES and DBT will provide matching funds. NERC/MRC funds will specifically be used to support UK researchers, while ESSO-MoES/DBT funds will fund Indian researchers.

The delivery of this programme is a two stage process. This guidance relates to the second stage of the delivery of the APHH India programme.

2. Scope

- Proposals should address one or more of the programme themes
 - T1: Emission validation and sources
 - T2: Processes: physical and chemical
 - T3: Exposure validation and health impact
 - T4: Mitigations and interventions
- Proposals should focus on the Indian megacity Delhi but using information and making comparisons with existing studies/data outside of Delhi would be within scope. Any elements of the work from outside of Delhi should be based on extending existing work and not investing in new infrastructure.
- The focus of this programme is the impacts of urban atmospheric pollution on health. While impacts on other issues such as agriculture and climate can be cited and explored if deemed necessary in order to set the work in a broader context, these should not be the main considerations, and they should not be investigated at the expense of looking at impacts on health.
- The focus of this programme is outdoor urban atmospheric pollution. However, in order to understand the full picture of ground-level air quality, emissions from residential localities may be of interest. Indoor measurements can be taken, but only as part of a study involving measurement of outdoor air pollution.
- Considering beyond the immediate boundary of Delhi, understanding regional and long range transport of pollutants will be relevant and important in this programme. However, this should always be related back to the need to understand individual exposure and impacts on health. This has to be shown in each project.
- Observations at all levels are relevant to the programme, from the surface through Earth's lower atmosphere.
- Pollutants and their precursors of interest in this call are those of relevance to health.
- Above and beyond the focus of the programme, as laid out above, applicants will need to ensure that their proposals are within the remit of the funders, i.e. environmental science and medical science. Proposals can include the development of new technologies or the adaptation of existing technologies, as long as these are well accepted in the literature and then applied to address the science themes of the programme outlined. Proposals which exclusively focus on social/economic research are beyond the remit of the funders and will not be accepted.
- Using existing infrastructure and facilities will be important to add value to this programme. Applicants are encouraged to make use of existing Indian and UK capabilities.

3. Requirements

Applicants invited to proceed to the second stage of the APHH programme were invited to attend the integration workshop in Delhi in June 2016 and are now required to submit:

- A joint integration plan, setting out how the projects will work together to deliver an integrated research programme.
- Separate project proposals, setting out the research objectives that each individual project will undertake.

Je-S will open (details in Section 4 below) on 1st August 2016 and the closing date for proposals and the integration document is **16:00 UK time 8th September 2016**.

Funds of up to £6m (80% FEC) in the UK, and equivalent Indian support, will be available for research projects. An additional £300k (80% FEC) in the UK will be available specifically for programme coordination and integration activities.

Projects should be three to four years in duration and begin in November 2016.

3.1 Integration plan

The integration workshop identified a number of areas with potential for projects to work together to deliver an integrated programme. These areas are:

- Coordinated observations and field campaigns
- QA/QC protocols
- Emissions inventories
- Model protocols
- Data sharing protocols
- Stakeholder engagement and communication strategy
- Management and coordination structure

An integration plan will be developed from the discussion at the workshop and will set out where the projects can work together to achieve an integrated programme. It should be used as the basis around which the proposals are finalised and the grant applications should reference the framework described in the integration plan.

Additional funding (up to £300k) is available to UK institutions for the integration and coordination activities.

The integration plan will be considered alongside the proposals at the panel and should be submitted as a formal document with the agreement of all the UK and Indian PIs to atmospheric@nerc.ac.uk by 8th September 2016 by 16:00 UK time.

The total permitted page length is 10 sides of A4, with 8 pages of A4 describing the integration framework and 2 pages for the cost description of the additional £300k.

The integration document should:

- reflect the integration decisions agreed at the workshop;
- focus on activity and outputs at the programme level;
- describe the areas where the projects will work together to achieve an integrated programme using the section headings agreed at the workshop;
- emphasis to be given to air pollutants and not air quality
- Quality control of observations/data an essential component. To be achieved by using standard equipments and proper calibrations.
- detail the concrete actions agreed:
 - agreement of a common supersite/reference site
 - timing of intense observation campaigns
 - calibration of instruments and analytical protocols
 - pollutants such as heavy metals, polycyclic hydrocarbons, dust in the region and primary and secondary aerosols to be addressed
 - common approach to stakeholder engagement
 - outlining what will be achieved, when, and which projects will contribute

- Clear cut deliverables leading to applicability for use in policy making
- identify individual leads for each section; and
- include a section listing the costs for the integration plan.

3.2 Project proposals

Six outline proposals have been invited to proceed to the full proposal stage. Proposals should address the feedback from the stage 1 moderating panel and incorporate decisions and adjustments agreed at the integration workshop, but the scope of the research should not change significantly and additional investigators should not be included.

Proposals should focus on the activities that the project will deliver, specifying elements that contribute to the integration plan and the overall programme aims, particularly where they incur additional costs. For example, the management plan for the project will describe how the project only is managed by the PIs. The management section in the integration plan document will describe how the project PIs will coordinate to manage the programme as a whole.

Funds of up to £6m (80% FEC) and equivalent Indian support are available to support research projects. The additional £300k for integration and coordination activities should be requested through the projects (but clearly identified as additional) raising the total budget for proposals to £6.3m (80% FEC). Applicants are encouraged to coordinate to design a programme of research within this budget envelope.

The following section outlines the project application process.

4. Application process for post-workshop proposals

4.1 Basics

The closing date for the proposals and the integration document is 16:00 UK time on 8th September 2016. No proposals can be submitted after this time. The grant proposals will be submitted through the Joint Electronic Submission (JeS) system. The JeS scheme name is “**Directed International**” and call name is “**Newton: Atmospheric Pollution and Human Health in an Indian Megacity**”. There will be a single joint UK-Indian application through JeS which will be shared with ESSO-MoES and DBT. The UK applicants must be the submitting partner and enter their details in JeS and Indian applicants enter their details as part of the attachments within JeS (further detail below).

The applications will be considered alongside the integration plan, providing the project level detail to fit into the overall programme framework.

Applications must be completed in English.

UK grants are funded at 80% Full Economic Costing (FEC).

More details on NERC’s submission rules can be found in the [NERC research grant and fellowships handbook](#) and in the [submission rules](#) on the NERC website.

4.2 Eligibility

Individual UK researchers may be named on a maximum of two different proposals, but on only one as the lead Principal Investigator. This is across the call as a whole, and not restricted to individual themes. Proposals with UK individuals listed on more than two will be rejected. An Indian researcher can participate only in one funded proposal and thus in the event of a researcher being awarded two proposals, he/she will have to withdraw from one.

For UK researcher eligibility, please refer to section C of the NERC Research Grants Handbook. Indian researchers from the Government institutes including Indian Institute of Technology, Indian Institute of Sciences, Government laboratories, Universities, Academic institutions, and other related institutes are eligible to apply.

4.3 Application guidance

The full stage applications will consist of a pro-forma and a series of attachments. The staff information on the proforma should include details only of the UK applicants as Indian applicants will be listed as part of the attachments using the template provided in Annex A. As such the UK applicant must be the submitting partner. The JeS proposal form will allow for joint submissions (i.e. where a research proposal consists of more than one component proposal enabling funding to be awarded directly to different Research Organisations).

The documents required for the full application are listed below.

Document/attachment type	Requirements

Proposal Form	Je-S proforma, To be completed for both the UK lead and UK component applications.
Case for Support	<p>Comprising:</p> <ul style="list-style-type: none"> • a common Previous Track Record incorporating all the Research Organisations involved in the UK and India (up to 3 sides of A4); • a common Description of the Proposed Research (up to 10 sides of A4 including all necessary tables, references and figures); • and a Description of the Proposed Project Management Structure and plans, participant responsibilities and scheduling chart (up to 2 sides of A4). <p>The Case for Support should explain the overarching scientific question, issue or theme.</p>
Outline Data Management Plan (ODMP)	Up to 1 side of A4. Required only by the NERC lead application
Justification of Resources	<p>Up to 4 sides of A4 for all the UK Research Organisations in the proposed grant, including justification for items of equipment between £10,000 and the OJEU threshold requested on the grant.</p> <p>It should include a full justification of all sea-time and facility costs (excluding HPC) included as estimates on proposals. Use of ARCHER should be included as an estimate in Million Allocation Units (MAUs). Only required the lead NERC application.</p>
CV	CVs are required for named research UK and Indian research staff (including Researcher Co-Investigators), Visiting Researchers, all UK and Indian Principal and Co-Investigators named in the proposal (up to 2 sides of A4 for each CV).
Pathways to Impact	Up to 2 sides of A4 – only required by the NERC lead application
Project Partner letter of support	From any named project partner (up to 2 sides of A4). There is a JeS validation requiring the same number of attachments as Project Partners. Existing Project partner Letters of support from Initial proposal stage, where appropriate, may be re-submitted.
Letter of Support	Not permitted
Facility Form	Use only for application forms for Ship-time/Marine Equipment (SME), Antarctic Logistic Support (BAS should already have been approached before the outline proposal stage) and for High Performance Computing (HPC) when use of ARCHER exceeds 160MAU (in any one year).
Technical Assessment	Mandatory for any NERC Facility selected on the JeS proforma except those listed in the previous row. The full list is at http://www.nerc.ac.uk/research/sites/facilities/apply/facilitiesrequiring-technical-assessment.pdf . The attachment should be a quote from the

	relevant facility. All facility costs must also be listed separately on the Je-S proforma under Other Directly Incurred Costs.
Non-UK Components	The details of the Indian collaboration and costs incurred need to be listed here. Only required for the NERC lead application. Annex A should be used as the template.
Equipment Section Attachments	Under the Equipment Section there is a Je-S validation requiring three quotations for each item of equipment requested over £25K and a Business Case (up to 2 sides A4) is required for equipment requests over the OJEU threshold limit.
Other attachment	This attachment does not go out to the panel and should not be used, except where a Head of Department is required to confirm the eligibility of one or more of the Investigators (this will be an internal document for NERC). If the document does not fit within any of the attachment types above, it probably should not be submitted. Contact researchgrants@nerc.ac.uk if unsure.
Proposal Cover Letter	This attachment does not go out to the panel, so should not be used except to flag up a significant issue to the NERC Office.

All documents should be completed in single-spaced typescript of minimum font size 11 point Arial font or other sans serif typeface of equivalent size to Arial 11, with margins of at least 2 cm, unless otherwise specified in a given template. References must now also be presented in minimum font size 11 point. Please note that Arial narrow and Calibri are not allowable font types as they are smaller and any proposal which has used either of these font types within their submission will be rejected. Applicants referring to websites should note that referees may choose not to use them.

Note that the Previous Track Record, Description of Proposed Research, Outline Data Management Plan and Pathways to Impact plan are part of a joint UK-Indian submission and thus must include the activity of both the UK and Indian scientists.

Applicants are advised that they should convert their attachments to PDF prior to upload in order to avoid formatting issues.

4.4 Finances

UK applicants should follow the financial conditions set out in Section E of the NERC Grants Handbook. In addition to this, according to Newton Fund rules, requests for capital will only be considered if the proposed equipment is to remain in India for use after the project is completed. However, this will be done with mutual consultations with the Indian agency. If equipment is returned to the UK after the project this cannot be funded through the Newton Fund and an alternative source of funding should be sought. This does not apply to the additional capital budget requests.

DBT will fund eligible Indian academics at 100% of the full economic costing in terms of equipment, consumables, contingency, overheads and manpower salary costs employed under the project. Cost proformas must be duly filled while submitting the project and are non-negotiable.

4.5 Data management

The funding agencies from UK and India require that strategic research programmes implement a data management scheme which covers practical arrangements during the programme and subsequent long-term availability of the data sets. In line with the NERC data policy the data from the programme will be lodged with the appropriate NERC Designated Data Centre. Similarly as per national data policy of Government of India, the data has to be deposited with ESSO-MoES/DBT respectively. The data management plan should also include the decisions made at the workshop concerning data management. There will be no charge to the project for a NERC Data Centre or ESSO-MoES/DBT to accept and manage the agreed data sets at the end of the grant but any in-project data management activities should be costed and included within the proposals. If proposals do include any costs for the Data Centre then these will be removed from the proposal. For any population or patient based studies, the applicants must comply with requirements for data management in the MRC Guidance for Applicants and Award Holders 2015 (section 2.8). In reference to study on population or patient based studies in India it shall be as per ICMR guidelines.

4.6 Pathways to Impact

NERC requires all grant proposals to include a Pathway to Impact plan, which should focus on engagement with users (industry, business, government, charities or the general public), specifically considering what will be done during and after the project to increase the likelihood of the research reaching the identified beneficiaries and maximise the likelihood of the identified benefits being achieved. Further information is given in point 185 of the NERC Grants Handbook and on the NERC pathways to impact webpages. The Pathways to Impact plan will need to refer to the outcomes of

the workshop and the integration document to outline the programme wide impact framework and how each project fits into this plan.

4.7 Facilities

Applicants for NERC grants may also apply to NERC for access to any of the NERC services and facilities. Prior to submitting the proposal, applicants must first contact the facility to seek agreement that they could provide the service required and obtain a technical assessment (quote). Applicants should contact the relevant facility at least one month prior to the grant or fellowship proposal closing date to ensure that the facility can provide the quote in time to be submitted with the proposal. Applicants should refer to the point 219 of the NERC Grants Handbook for further detail. Indian applicants can request the use of facilities available at ESSO-MoES institutes.

4.8 Use of animals and/or human participants

Institutional and national biosafety guidelines for studies related to usage of infectious agents and/or handling of animals infected with such organisms must be followed. Regulations that control the use of non-human animals for scientific experimentation in India and UK must be considered while preparing the project proposals. Mode of treatment, restraint, alleviation of pain and suffering using appropriate anaesthesia or medication with detailed description of procedures etc. should be provided in the proposal. Handling and disposal of infectious organism or infected animals should also be followed according to local (city) and national norms. Investigators must provide a signed statement that 1) they will follow guidelines for use of animals for research available in UK and in India and that 2) before initiation of the proposed research work, appropriate approvals from Institutional and/or central animal ethics and biosafety committees will be obtained for experimental protocols to be adopted in their projects.

For any proposals including the use of animals and/or human participants in research, the guidance in sections 4.1 and 5.1, respectively, of the MRC Guidance for Applicants and Award Holders 2016 must be followed. Applicants using animals and/or human participants must complete and submit the template form in Annex B. If the project involves pre-clinical/clinical trials/experiments/exchange of biological samples etc. the applicant must obtain appropriate approvals from independent ethics committees to comply with requirements in both UK and India. The funders will ensure that ethical clearances and other clearances are in place and copies of these will be conveyed to the funders before implementing the project.

4.9 Studentships

NERC, MRC and MoES will not be funding studentships as part of this call but DBT will fund PhD students as per normal DBT guidelines.

5. Timetable

Call opens on Je-S: 1st August 2016

Submission deadline: 8th September 2016

Panel October 2016

Grants start 14th November

6. Contacts

For queries about this programme and call please contact:

NERC: Simon Howe

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MRC: Tim Cullingford

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