



## GUIDANCE FOR APPLICANTS

### Virtual Joint Centres in Agricultural Nitrogen with India

**Closing Date: 22 July 2015, 4pm UK time**



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**Contact:** [newton.fund@bbsrc.ac.uk](mailto:newton.fund@bbsrc.ac.uk)

#### INTRODUCTION

##### Summary:

BBSRC, NERC and Newton Fund partners in India (DBT) are delighted to announce a call for Virtual Joint Centres in Agricultural Nitrogen. This call forms part of BBSRC's and NERC's Newton Fund activities and therefore requires projects to address Overseas Development Assistance (ODA) objectives alongside their scientific aims.

Information contained within this document is aimed at UK applicants and complements the [BBSRC Grants Guide](#) and [NERC Grants Handbook](#) which should be read alongside it.

**Specific guidance on working with each country, including contact information, priority areas, and scope and scale of proposals, is provided within the Country Annexes (pages 12 to 15).**

Applications are invited to enable **bilateral** research activities in the form of Virtual Joint Centres with one of India of up to **three years** in duration. Individual researchers may develop multiple proposals, but all submitted proposals should address bilateral working between researchers in the UK and academic partners in India.

Please note that the assessment process **may** involve an interview step. If applicable, interviews for UK applicants will be scheduled for week commencing 19 October 2015 (precise date to be confirmed), to be held in Swindon or London. Interview dates for individual proposals will be confirmed by the BBSRC Office. **Submission of an application will be taken to mean that the UK Principal and/or Co-Investigator(s) will be available to attend an interview on any of the specified dates and will make a commitment to attend if selected.**

### **Background:**

There is a pressing global need to optimise nitrogen use in agriculture to address societal, economic and environmental challenges of food security and sustainability, in the face of a growing world population and associated pressures on resources compounded by climate change.

To reduce emissions of potent greenhouse gases to the atmosphere, and pollution and eutrophication by run-off to water, a balance must be struck between the provision of adequate nitrogen to maximise crop yields, and the release of excess reactive nitrogen to the environment as nitrous oxide, ammonia or nitrate.

Account must be taken of both current high use of synthetic nitrogen fertilisers - manufactured by a very energy-consuming process - in intensive agricultural systems, and the contrasting needs of lower-income nations where soil fertility and crop yields are nitrogen-limited because fertiliser is unaffordable or not available.

Within this call the funding partners seek to explore ways to sustain or improve current levels of crop production with lower energy inputs and reduced environmental impacts, and wish to encourage innovative research which will lead to the production of high yields of crops with lower inputs of nitrogen fertiliser.

A Town Meeting was held in London on 11 March 2015 which helped to inform the development of this call. A report and presentations from this meeting are available (<http://www.bbsrc.ac.uk/nitrogen>) but the call is open to all eligible researchers (see eligibility, below). Attendance at the Town Meeting is not a requirement for funding.

### **NEWTON FUND AND ODA COMPLIANCE**

The Newton Fund is a new initiative intended to strengthen research and innovation partnerships between the UK and emerging knowledge economies. It was launched by the Chancellor of the Exchequer in April 2014, and will deliver up to £375M of funding over five years.

The Fund forms part of the UK's Official Development Assistance (ODA) commitment which is monitored by the Organisation for Economic Cooperation and Development (OECD). ODA funded activity focuses on outcomes that promote the long-term sustainable growth of

countries on the OECD Development Assistance Committee list. Newton Fund countries represent a sub-set of this list.

More information about the Newton Fund can be found [here](#).

RCUK guidance on ODA compliance can be found [here](#).

## **VIRTUAL JOINT CENTRE APPROACH**

Virtual Joint Centres have been selected as an approach to encourage the development and/or strengthening of UK research partnerships with India to enable collaborative research and strategic relationships. Funding is available to support mobility and exchange of researchers to augment the planned research programmes and support capacity-building and training activities.

A Virtual Joint Centre is not a physical entity, but an agreed collaboration and way for working together. Partners recognise that different approaches may be required to address specific scientific needs.

A Virtual Joint Centre should include a core research programme supported by a range of partnering activities. Where applicable, project partners should align existing resources and infrastructure to augment the research programme thereby building new links or strengthening existing links. The output from the Virtual Joint Centre should be the delivery of exciting new research and strengthened bilateral strategic relationships between the UK and partner countries.

The types, and combinations, of activities which can be supported in a Virtual Joint Centre are intended to be fairly flexible so that applicants can select the most appropriate activities and ways of working to support their research programme.

Some **exemplar** activities are outlined below; it is **not** expected that all types of activities would be included within an individual Virtual Joint Centre proposal.

Activities that **could** be potentially supported by a Virtual Joint Centre include:

- Joint research projects between researchers at the partner centres in agreed research areas;
- Laboratory exchanges including short and longer term visits by academics, post-doctoral researchers or visiting fellows. Exchanges of post graduate students (funded from other sources) are also possible with India.
- Establishment of honorary faculty positions at collaborating institutions to enable established researchers to conduct joint research in collaborators' laboratories and contribute to teaching / training activities;
- **Sharing of key resources across the partner centres;**
- Development of robust interfaces for data management and data sharing across the partner centres;
- Supporting wider activities to strengthen links, for example holding symposia, workshops, seminars, meetings etc.;
- Equipment that will support the joint research project. For UK academics this will need to be in-line with Wakeham guidelines and must not be over the level at which it would be then be considered capital expenditure.

## **RESEARCH THEMES/SCIENTIFIC SCOPE**

The Funders aim to support innovative basic, strategic or applied research that will enable crop production to be enhanced in ways that make appropriate use of fertilisers (or potential

alternative sources of nitrogen) to optimise yields, while maintaining the quality of soil, water and air, and reducing adverse impacts on terrestrial, freshwater and marine ecosystems.

Increasing food security is a complex and multifactorial global challenge. One aspect on which emphasis has been recently placed is Sustainable Intensification (SI)<sup>1</sup>, which aims to combine the production of food (or other agricultural products) with improved resource use efficiency (inputs of nutrients, energy and water) and better environmental (and social and economic) outcomes.

New advances in bioscience, precision agriculture and phenomics, coupled with improvements in agronomy, and understanding nitrogen cycles at a range of scales, including the global scale, offer the potential to optimise nitrogen application rates and develop management practices tailored to specific environmental conditions and crop species. Such advances make more effective management of nitrogen use within farming systems a valid and timely target for SI approaches to global food security.

Areas of research that might feature in proposals for Virtual Joint Centres are summarised in three themes below. They span a spectrum of basic, strategic and applied research with potential for application on a range of spatial and/or timescales. The themes are not intended to be prescriptive or exclusive and proposals that cut across themes would be welcomed.

**Additional information relating to specific scientific priorities for working with India is provided in Annexe 1, page 12.**

**A. Agronomic nitrogen use efficiency:** optimising farm practices and soil management to make more effective use of fertilisers and reduce losses of reactive nitrogen to the environment and help mitigate against environmental impacts associated with this loss.

Possible approaches might include:

- Precision farming tools to identify optimal nitrogen requirements of individual crops in particular environments and tailor fertiliser applications accordingly;
- Plant-mediated biological inhibition of nitrification using crop varieties that reduce losses of nitrous oxide by releasing suppressors of soil nitrification activity.

**B. Biological nitrogen use efficiency:** improving the efficiency of nitrogen uptake or metabolism by plants.

Possible approaches might include:

- Developmental, e.g. modification of root architecture to enhance nitrogen acquisition;
- Genetic, e.g. identification of traits for “nitrogen economy” or efficient uptake from low-nitrogen environments;
- Biochemical, e.g. manipulation of aminotransferase enzymes;
- Physiological, e.g. relationships between nitrogen availability, uptake and metabolism, and plants’ responses to nitrogen stresses, and their effects on nitrogen use efficiency, yield and stress tolerance;
- Microbiological, e.g. understanding and manipulation of biogeochemical cycling in the rhizosphere or the role of mycorrhizal fungi in nutrient uptake.

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<sup>1</sup> <http://www.bbsrc.ac.uk/web/FILES/Reviews/1409-sustainableagriculture-workinggroupreport.pdf>

- C. Biological nitrogen fixation (BNF):** enhancing nitrogen-fixation in legumes or exploiting the potential of BNF in non-leguminous plants.

Possible approaches might include:

- Enhancing nitrogen fixation in legumes;
- Understanding and exploiting BNF by endophytic diazotrophic bacteria associated with non-leguminous plants;
- Transferring BNF capability of legumes to non-leguminous plants.

### **Taking an integrated, more holistic approach to develop Virtual Joint Centres**

Proposals for joint centres should be predominantly in BBSRC's remit, but some aspects of the proposed activities are expected to appropriately fall within the remits of other Research Councils. New agricultural or biotechnological ways of addressing the nitrogen challenge should be considered in their environmental (locally and at the landscape scale), social and economic contexts.

Integrative, multidisciplinary and multi-scale approaches are encouraged, and there is particular scope for interaction between plant, agricultural and environmental scientists, and on nitrogen use in the context of the global nitrogen cycle, at the interface between the remits of BBSRC and NERC. Options for future nitrogen use should also be viewed in the context of the global nitrogen cycle, and their potential impacts on ecosystems and the broader environment if widely adopted.

The extension of molecular understanding from the laboratory to crops in the field is needed in order to benefit agriculture by enhancing production and mitigating adverse impacts in ways that are sustainable and economically viable.

It is envisaged that proposals for joint centres will involve not just researchers who currently work on nitrogen, but also others, with relevant skills, whose expertise could be brought to bear on the nitrogen challenge. They might draw on plant, microbial or soil scientists with interests in related underpinning areas such as soil microbiology, plant-microbe interactions, root development or molecular genetics of plant-nutrient interactions, as well as the agricultural and environmental research communities and, where appropriate, other relevant disciplines such as engineering, informatics or mathematics. Integration of genetics (in its broadest sense) or biotechnology with agronomy or ecology to optimise relationships between agricultural output and its environmental impacts is particularly encouraged.

## **HOW TO APPLY**

### **Eligibility**

Standard BBSRC and NERC managed mode eligibility conditions apply to this call. All UK applicants must be eligible to receive research funding from BBSRC or NERC as Principal/Co-Investigator; see the [BBSRC Grants Guide](#) and / or the [NERC Grants Handbook](#).

Applicants should also ensure that overseas collaborators fulfil the eligibility requirements for working with the relevant country. For further details please see **Annex 1** below or contact:

**India (DBT):** Dr Shailja Gupta ([Shailja@dbt.nic.in](mailto:Shailja@dbt.nic.in)) and Dr Sanjay Kalia ([sanjay.kalia@nic.in](mailto:sanjay.kalia@nic.in)).

Principal Investigators are responsible for ensuring that they, and any Co-Investigators included on the application, are eligible. **Applications involving any ineligible applicants (UK or partner country) will result in the whole application being rejected.**

Please note that given the nature of this call, the following BBSRC schemes will **not** apply: New Investigator; Industrial Partnership Awards and Industrial LINK. BBSRC and NERC will not fund studentships as part of this call (but funds may be requested for exchanges of students supported from other sources).

## Application Process

Eligible researchers from the UK wishing to apply to this call should submit an application to BBSRC using the Je-S system.

Applications may involve researchers from multiple eligible UK institutions, but should be submitted as a single Je-S application submitted by the organisation of the lead UK Principal Investigator. Separate/joint proposals are **not** permitted for this call. If successful, the lead organisation would be the recipient of the award, and would be responsible for managing and distributing the finances for the partnership in accordance with the terms and conditions of the award.

**Additional specific instructions for working with India are provided in the Annex 1.**

## How to submit your application

1. Log in to your Je-S account.
2. From the left hand menu, select **Documents**.
3. Under functions on the Main Menu, select **Create New Document**.
4. In the Add New Document screen:
  - a. Select Council: **BBSRC**
  - b. Select document type: **Standard Proposal**
  - c. Select scheme: **Newton Fund**
  - d. Select Call / Type Mode: **Nitrogen Newton Fund**
  - e. Select: **Create Document**

The Je-S form should for the most part be completed in the standard way using the guidance and help text available in the Je-S system. Please also note the following guidance which is specific to this call:

5. The start date of the grant should be **01 January 2016**.
6. The **Other Support** section is not relevant to this application. Please tick the box indicating “not relevant to the application”.
7. **Proposal classifications** are non-mandatory fields and should be completed as follows:
  - a. **Research Area** – Please choose at least one from the list available
  - b. **Qualifiers** – Please leave this section blank.

- c. **Free-text Keywords** – Please identify at least five (and a maximum of eight) keywords relevant to the project.

**The deadline for applications is 22 July 2015, 4pm UK time.**

## Resources

One single Je-S application (proforma) should be submitted per project using Full Economic Costing (fEC). Only costs for the UK component of the application should be submitted in the Resources section of the Je-S application; information about overseas collaborators and associated in-kind contributions should be submitted in the project partner section of the Je-S proforma, and in the relevant attachments including the Case for Support and Justification of Resources documents.

Please include all relevant UK costs in the Resources section of the BBSRC Je-S application, taking particular care to include sufficient costs to enable partnering aspects (workshops and exchanges) of the Virtual Joint Centre such as travel and subsistence in addition to salary (Investigators and PDRAs) and consumables.

1. **Travel and Subsistence:** To support partnering activities, requests for costs associated with travel and subsistence will be supported at 100% fEC. To request these costs at 100% fEC, please tick the “Exception” box in Je-S for each travel and subsistence line item you request. Costs under all other fund categories/headings will be reimbursed at the standard rates, which is typically 80% fEC. Please note that any equipment requested would be funded in line with Wakeham rules, see the guidance in section 5 of the Grants Guide for further details:

<http://www.bbsrc.ac.uk/web/FILES/Guidelines/grants-guide.pdf>.

2. **Social Survey:** This section is non-mandatory. Please leave this section blank.
3. **Other DA Costs for Research Facilities/Existing Equipment:** Please ensure you specify clearly in the description field if you are requesting the use of any of the following BBSRC facilities:
  - ARCHER
  - National Wind Tunnel Facility
  - Research Data Facility (RDF)
  - The Genome Analysis Centre (TGAC)

If this is the case, a Technical Assessment Form of attachment type “Facility Form” must also be uploaded with your application.

Applicants wishing to use a NERC facility will need to submit a mandatory ‘technical assessment’ with their proposal (including aircraft but excluding ships and HPC); this will require a quote for the work which the facility will provide. A full list of the Facilities requiring this quote can be found here: <http://www.nerc.ac.uk/research/sites/facilities/apply/> in the section ‘NERC grant applications involving NERC facilities’. This assessment must be uploaded with your application.

4. **Project Value:** See Information within Annex 1.

Please note that requests for costs of exchanges of students funded from other sources are permitted under this call, but requests for new studentships will not be supported.

## Documents Required

Applicants will need to ensure that they have uploaded all the mandatory documents required by the Je-S system before they will be able to submit their application through Je-S.

The BBSRC Je-S application (proforma) must include the additional documents, described in the table below:

No.	Document Type	Description	How the document relates to the Case for Support
1	<b>Case for Support</b>	<p>A joint Case for Support, covering the entire project including both the UK and partner country, should be submitted using the specific Case for Support template document provided.</p> <p>For all countries: The Case for Support must be written in English and prepared using:</p> <ul style="list-style-type: none"> <li>• Ariel font or sans serif equivalent with a minimum of font size 11 (excluding text in diagrams and work plans);</li> <li>• a minimum of single-line spacing and standard character spacing;</li> <li>• margins must not be less than 2cm.</li> </ul> <p>Applicants must adhere to the page limits and section headings within the Case for Support template.</p> <p>For some countries, overseas funding agencies will also require an <b>identical</b> Case for Support to be submitted separately to them by their applicants. Please refer to the individual country annexes for further guidance.</p> <p>The joint Case for Support <b>must</b> be completed on the specific Virtual Joint Centre Case for Support template – see the download section for the relevant Case for Support template for working with India.</p>	N/A
2	<b>Justification of Resources (JoR)</b>	Your Justification of Resources should provide a breakdown and full written justification of the costs covering the entire project, including both the UK and partner country (up to 2 sides of A4).	Text should be identical to that submitted within the “Justification of Resources Section”, of the Case for Support.
3	<b>Pathways to Impact Statement</b>	Please provide a Pathways to Impact statement, referring to the Je-S help for guidance (up to 2 sides of A4).	The information provided within the “Significance and Impact Section” of the

			Case for Support should be a starting point for the Pathways to Impact Statement.
4	<b>Data Management Plan</b>	Please provide a Data Management Plan, referring to the Je-S help for guidance (up to 1 side of A4).	Text may be extracted from the “Management of the Virtual Joint Centre” within the Case for Support.
5	<b>CVs for Applicants</b>	Please provide a single combined PDF document containing a CV for all applicants involved in the project, including UK and partner country applicants, referring to the Je-S help for guidance (up to 2 sides of A4 per applicant).	CVs may be extracted from within Section C of the Case for Support.
6	<b>Other Attachment</b>	This is a non-mandatory attachment. Please do not use this upload type.	N/A
7	<b>Letter of Support</b>	<p>An official Letter of Support (up to two sides of A4) from the lead Investigator’s Head of Department / Institute Director or equivalent should be provided.</p> <p>The letter should confirm the lead organisation’s commitment to the proposed Virtual Joint Centre and highlight any additional support that will be made available.</p> <p>Where relevant, the letter should describe how the proposed Virtual Joint Centre aligns with the Organisation’s Strategic Aims.</p>	N/A
8	<b>Cover Letter</b>	The covering letter should be a maximum of two pages of A4 and should set out the nature of the proposed collaboration and provide information regarding collaborative activities between the project’s research partners.	N/A
9	<b>Facility Form</b>	Please use this section to provide a Technical Assessment Form if your project requests access to BBSRC or NERC facilities, referring to the Je-S help for guidance.	N/A
10	<b>Workplan</b>	Please provide a diagrammatic workplan, referring to the Je-S help for guidance (up to 1 side of A4).	The Workplan should be identical to that submitted within the Case for Support.
11	<b>Head of Department Statement</b>	Please refer to the Je-S help for guidance on whether this attachment is necessary for your application.	N/A
12	<b>Non-UK Components</b>	Please refer to the individual country annexes for further guidance.	

## ASSESSMENT

Following submission, BBSRC and named partner organisations will undertake parallel and independent peer-review processes in accordance with standard in-country practice. To be funded proposals must be of an equivalent standard to that normally expected to be funded by each funding organisation. (See Annex. 1 for additional information).

Within the UK, the assessment process may potentially include an interview step and therefore the UK Principal Investigator and / or a nominated Co-Investigator may be invited for interview by an assessment panel in Swindon or London during the week commencing 19 October 2015 (precise dates to be confirmed). Applicants should ensure they are available during this week. Further details will be provided at least 4 weeks before the interview date.

The recommendations from the interview stage will be taken forward for bilateral discussions with partner organisations in India. A positive recommendation of support from each funding body is required in order for a joint award to be made.

As the primary focus of this call is to develop and enhance research partnerships, applications will not be sent to external reviewers. The BBSRC Assessment Panel will have the requisite expertise to undertake a thorough and robust peer review of the applications which, together with the outcomes from the interview stage, will form the basis for future discussions with partner organisations.

### Assessment Criteria

Key assessment criteria for the applications include:

- Design and feasibility of the Virtual Joint Centre proposal;
- Previous experience of research teams;
- Scientific rationale: novelty, importance and timeliness of the joint research proposal;
- Research partnership development: including strength and clarity of collaborations and opportunities provided;
- Quality of the project structure proposed (including governance, arrangements for data management and sharing and management of intellectual property);
- Added value of the joint research partnership;
- Quality and suitability of the research environment and of the facilities;
- Significance and impact of the research partnership;
- Capacity building potential;
- ODA compliance and value for money.

## TIMETABLE

Call Opens	w/c 11 May 2015
Call Closes	22 July 2015
Interviews for Shortlisted UK applicants (tbc)	w/c 19 October 2015
Joint Panels to agree outcome	November 2015
Virtual Joint Centre activities to commence	1 January 2016

## CONTACTS AND HELP

For BBSRC and NERC enquiries: [newton.fund@bbsrc.ac.uk](mailto:newton.fund@bbsrc.ac.uk)

➤ **India (DBT):**

Dr Shailja Gupta ([shailja@dbt.nic.in](mailto:shailja@dbt.nic.in)) and Dr Sanjay Kalia ([sanjay.kalia@nic.in](mailto:sanjay.kalia@nic.in)).

## ADDITIONAL GUIDANCE FOR WORKING WITH INDIA

The information below has been provided to assist applicants in constructing their applications. If additional guidance is required please use the contacts listed within the Table, below.

<b>Partner Agency</b>	The Department of Biotechnology (DBT) <a href="http://www.dbtindia.nic.in/">http://www.dbtindia.nic.in/</a>
<b>Eligibility</b>	As per call document
<b>Scientific Priorities</b>	The Funders welcome projects on any aspect of the research themes indicated within the Scientific Scope: pages 4 to 6. Highlighted priorities include: <ul style="list-style-type: none"> <li>• Biological Nitrogen Use Efficiency</li> <li>• Biological Nitrogen Fixation (in legumes, microbial aspects)</li> <li>• Agronomic Nitrogen Use Efficiency</li> </ul>
<b>Indicative Number of Joint Centres and proposed scale (budget)</b>	There is a preference to fund three Virtual Joint Centres, covering the highlighted priority areas. The total indicative budget for the UK components is up to £3.5M with matched funding / resources from DBT.
<b>Eligible Costs</b>	UK costs should be based on Full Economic costing; requests for studentships will not be supported. Costs associated with DBT should be described in full as per the Case for Support template for the call. DBT shall support all costs as indicated in cost proforma.
<b>Documents Required</b>	A description of the documents required by UK applicants is provided in Table 1. The DBT Case for Support template should also be included.
<b>Additional Submission Guidance</b>	UK applicants should submit their application via Je-S using the guidance at page 7. Indian applicants should submit an Identical Case for Support document to Dr Shailja Gupta at DBT ( <a href="mailto:shailja@dbt.nic.in">shailja@dbt.nic.in</a> ).
<b>Assessment</b>	Parallel assessment processes will be conducted in the UK (led by BBSRC) and India (DBT). The outcomes will be synthesised at a joint meeting. A positive recommendation of support from each funding body is required in order for a joint award to be made.
<b>Contacts</b>	<b>DBT, India:</b> Dr Shailja Gupta ( <a href="mailto:Shailja@dbt.nic.in">Shailja@dbt.nic.in</a> ) and Dr Sanjay Kalia ( <a href="mailto:sanjay.kalia@nic.in">sanjay.kalia@nic.in</a> ). <b>UK:</b> <a href="mailto:newton.fund@bbsrc.ac.uk">newton.fund@bbsrc.ac.uk</a>