

Joint BBSRC-DBT Call for Collaborative Proposals to support Sustainable Bioenergy and Biofuels (SuBB)

Status: OPEN

Closing date: 9th October 2012

Further information: BBSRC: www.bbsrc.ac.uk

DBT: <http://dbtindia.nic.in/index.asp>

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SUMMARY

The Biotechnology and Biological Sciences Research Council (BBSRC) in the UK <http://www.bbsrc.ac.uk/> and the Department of Biotechnology (DBT) in India <http://dbtindia.nic.in/index.asp> are pleased to announce a joint call for collaborative research proposals that underpin the generation and implementation of sustainable, advanced, bioenergy including biofuels. BBSRC and DBT have each earmarked up to £5M for this call. Projects should be up to a maximum duration of 3 years; whilst no upper cost limit per project is stipulated, BBSRC and DBT envisage funding multiple projects under this call.

The purpose of the call is to build on the combined strengths of academic research groups within India and the UK to work together on collaborative cross-disciplinary projects relevant to the **biological** processes that underpin the development of novel advanced (second generation and beyond) bioenergy and biofuels.

This call for collaborative proposals will require applicants based in India and the UK to work together in partnership within cross national teams on research projects where the India-based component would be funded by DBT and the UK-based component would be funded by BBSRC. Eligibility to apply will be determined by national eligibility rules. The nature of the resources requested must also adhere to national guidelines. Further information is presented within the Section: **Application process including how to apply.**

Priority areas for this call are:

- Identification, characterisation and improvement of novel biomass (including algal biomass) processing enzymes.
- Application of systems and synthetic biology approaches for the development of microbial strains for the production of advanced biofuels and capable of using all of the sugars derived from lignocellulosic or algal biomass.
- The improvement of algal strains suitable for biofuel applications including genomics approaches.

Applicants wishing to apply to the call must use the specific **Case for Support Template** associated with this call. The template can be downloaded from the related links section: www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc.

BBSRC and DBT will conduct an integrated peer review process involving external referees. Applications will be ranked by an international panel of experts in April 2013 and a decision for funding will be made by June 2013. It is expected that all awarded grants will commence soon after October 2013.

The deadline for receipt of full proposals is: 16:00 local time on 9th October 2012.

A **Frequently asked Questions** document can be found in the related links section: www.bbsrc.ac.uk/web/files/guidelines/subb-faqs.pdf

BACKGROUND TO THE CALL

Research towards the development and implementation of advanced (second generation and beyond) sustainable bioenergy and liquid biofuels is of global importance. BBSRC and DBT recognise that each organisation has made significant investments in sustainable bioenergy research; moreover each organisation wishes to further strengthen and diversify their bioenergy portfolios.

In October 2011 BBSRC and DBT held a joint workshop in New Delhi. The rationale behind the workshop was for invited experts, in different areas of bioenergy research from India and the UK, to come together to discuss the relative research strengths, and in some cases research gaps, that exist in different areas of bioenergy research within the two countries. The ultimate aim of the workshop was to identify areas of complementarity and synergy which could form the basis of future collaborative joint working between the UK and India. Further information about the workshop including links to presentations can be found here: <http://www.rcuk.ac.uk/international/Offices/OfficeinIndia/events/Pages/BBSRC-DBT.aspx>

The workshop identified specific areas of bioenergy research where there would be particular merit, and benefit to both countries, in developing joint collaborative research projects relevant to advanced sustainable bioenergy research.

The call for proposals is focussed around the 3 key areas which were agreed by workshop participants to be priorities (see **Scope of the Call**, below).

For information about bioenergy research supported by BBSRC please see <http://www.bbsrc.ac.uk/news/industrial-biotechnology/industrial-biotech-news-index.aspx>

For information about bioenergy research supported by DBT please see <http://dbtindia.nic.in/index.asp>

Specific Objectives that underpin the SuBB Initiative are:

- To support high quality collaborative scientific research projects that underpin biological processes and methodologies that work towards the generation and implementation of advanced, sustainable, bioenergy including biofuels.
- To enable academic research teams within India and the UK to benefit from international collaboration thereby developing collaborative research projects that would not be possible by using existing mechanisms.
- To use resources provided by BBSRC and DBT in a coordinated manner so as to provide access to skills, expertise, existing equipment and infrastructure including national facilities for mutual benefit.

SCIENTIFIC SCOPE

Research towards the generation and implementation of sustainable, advanced, bioenergy represents a very broad research topic. Research may be focussed on different aspects of

the process including: generation and biological routes for the processing of different biological feedstocks including perennial biomass, agricultural residues such as straw as well as municipal, forestry and biological waste along with different **biological** processes for conversion of the feedstock to different molecular entities that can be used to generate bioenergy including heat, power and biofuels.

Priority Areas

The workshop that led to the development of this call identified three key priority areas which form the focus of this call:

- Identification, characterisation and improvement of novel biomass (including algal biomass) processing enzymes. Such enzymes may originate from different biological sources including: algae, animal, bacteria, fungi or plants and may be natural isolates or manipulated by molecular and / or metabolic engineering, including synthetic biology approaches, to produce more efficient enzymes.
- Application of systems and synthetic biology approaches for the development of microbial strains (bacteria, yeast, fungal) for the production of advanced biofuels and capable of using all of the sugars derived from lignocellulosic or algal biomass.
- The improvement of algal strains suitable for biofuel applications including genomics approaches.

Additional Factors to Consider

Appropriate biological routes suitable for study under this call include: bacteria, yeast, fungi, micro- and macro-algae and terrestrial plant derived biomass. Applicants are encouraged to consider using a range of appropriate methodologies to address the key priorities above.

All research projects must employ second generation or beyond technologies and should demonstrate that sustainability factors such as selection of feedstock, sourcing of feedstock, the energy balance, use of precious resources such as water, land and the environment have been taken into consideration.

Projects that employ cutting edge technologies including: genomics, metabolic engineering, systems biology and synthetic biology are particularly welcome, as are projects that reach across the boundaries of individual science areas and employ multi-disciplinary teams. Where possible projects should involve some form of private sector engagement.

Whilst the areas outlined above remain key priority areas for this call, providing that a project uses **biological** feedstocks and relevant **biological** conversion processes to underpin research that works towards the production of sustainable bioenergy and / or biofuels, other relevant aspects of research may be developed into research projects. Applicants considering developing research projects outside the key priority areas outlined above are strongly advised to contact BBSRC or DBT at an early stage of the project development and before submitting the proposal.

Exclusions

This call is designed to fund experimental research projects or projects that combine both theoretical and experimental based approaches. Requests to fund theoretical projects that are not coupled to experimental work or projects based on networking and knowledge transfer only will not be supported.

This call will **not** support research projects that:

- Exploit thermochemical and / or other non-biological routes to produce bioenergy.
- Utilise first generation biofuel technologies i.e. the use of whole crops or grains that could otherwise be used for human or animal feed (e.g. wheat, maize, oil crops) although projects that utilise agricultural residues, such as straw, from food crops are welcome.
- Feedstocks that are specific to either the UK or India, (e.g. Jatropha), unless the feedstock is being used to demonstrate a principle that could readily be translated to other feedstocks (e.g. the outcomes from projects involving rice straw would be highly relevant to other straw based crops including wheat, barley and maize).

The funders reserve the right to withdraw applications that do not fit the scientific scope.

APPLICATION PROCESS INCLUDING HOW TO APPLY

A. Eligibility to apply

Each collaborative research proposal must involve eligible applicants based in India and the UK with a minimum of one applicant per country. The principal investigator (PI) from India and the PI from the UK will act as the project coordinator for their country and the liaison point with DBT and BBSRC respectively. It is the responsibility of the project coordinators from each country to ensure that all named co-Investigators are eligible. Applications involving ineligible applicants, from either India or the UK, will result in the whole application being withdrawn.

UK based applicants will apply to BBSRC and Indian based applicants will apply to DBT for funding. All applicants must adhere to national eligibility rules for research proposals as set out by BBSRC and DBT.

BBSRC applicants:

Standard BBSRC rules for eligibility will apply. Full details of eligibility conditions can be found on the BBSRC website: <http://www.bbsrc.ac.uk/funding/apply/eligibility-overview.aspx> and in BBSRC Research Grants: - The Guide <http://www.bbsrc.ac.uk/funding/apply/grants-guide.aspx>

Funding will be awarded on the basis of full economic costs as described on the BBSRC website. PhD students will not be funded as part of this call.

Special schemes such as the New Investigator Scheme, Industrial Partnership Awards and Industrial LINK will **not** apply to this call.

Changes in how equipment is requested on Research Council grants came into effect in May 2011 in response to the Wakeham Review. Applicants requesting items of equipment costing over £10k will be required to follow the guidelines as set out on the BBSRC website. <http://www.bbsrc.ac.uk/funding/apply/research-equipment-guidance.aspx>

For applications involving work at more than one BBSRC eligible institution, funding for a Joint Research Project may only be requested by submitting one joint application from the lead institution. The principal applicant must be from the lead institution and will be the person to whom all scientific correspondence is directed. All other applicants and their affiliations must be entered on the application form. The lead institution will be responsible for the distribution of funds to the other named BBSRC eligible institutions. Failure to adhere to this requirement may result in the project being withdrawn.

Only costs associated with the UK project participants should be entered on the BBSRC proforma. Overall project costs should be entered in Part A of the case for Support. www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc.

DBT Applicants:

The standard DBT rules for eligibility will apply. 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. PhD students will be funded as part of this call as per normal DBT guidelines.

Only costs associated with the Indian project participants should be entered on the DBT finance proforma which should be downloaded here: www.bbsrc.ac.uk/web/files/forms/subb-dbt-finance-proforma.doc

Overall project costs should be entered in Part A of the case for Support. www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc.

B. Structure of proposals; how to apply and format of proposals

Both UK and Indian based applicants must complete the necessary components required to submit an application to their national funding agency. **However the Case for Support submitted to both BBSRC and DBT must be identical and must be submitted using the specific template developed for this call, adhering to page length restrictions as specified within the template.** The Case for Support template can be found within the related links section: www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc. Failure to use the specific template will result in the application being withdrawn.

Proposals must be written in English using Arial, Helvetica or Verdana typefaces (or an equivalent) and a minimum font size of 11.

BBSRC applicants must apply using Je-S by completing a standard BBSRC grant application along with their customised Case for Support document (see below). Within Je-S,

under document type and scheme please select “standard”; within call / mode please select “**12 BBSRC/DBT JOINT BIOENERGY**”. The application should include all standard attachments (Pathways to Impact statement, Applicants’ CVs, Letters of Support; and Justification of Resources). Applicants should refer to the Je-S helptext <https://je-s.rcuk.ac.uk/Handbook/index.htm#pages/JeSHelpdesk.htm>

Applicants should also attach the completed copy of the DBT finance proforma www.bbsrc.ac.uk/web/files/forms/subb-dbt-finance-proforma.doc as an additional attachment.

DBT applicants: Standard eligibility norms and terms and conditions of DBT will apply. In addition to the custom case for support, DBT applicants should complete and submit both a hard copy and an electronic version (soft copy) of the DBT finance proforma: www.bbsrc.ac.uk/web/files/forms/subb-dbt-finance-proforma.doc. The electronic version (soft copy) should be e-mailed to Dr Shailja Gupta (shailja@dbt.nic.in) by the closing date: 9th October 2012. Applicants should ensure that the DBT finance proforma is submitted as an additional attachment with the UK application via Je-S.

Case for Support

The scientific case for support submitted by Indian and UK applicants must be identical and must be submitted using the specific template developed for this call, www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc, adhering to page length restrictions as specified within the Case for Support document. The document should be completed using: Arial, Helvetica or Verdana typefaces (or an equivalent) and a minimum font size of 11. A minimum of single line spacing and standard character spacing must be used. Margins must not be less than 2cm.

The Case for Support template can be found within the related links section: www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc.

In addition to the assessment criteria set out under the section ‘Peer Review’, applicants should carefully demonstrate within the Case for Support that their projects:

- Represent true collaborative partnerships between transnational research teams; the added value of such collaborations should be clearly highlighted within the proposals.
- Highlight the relevance and benefits to both the UK and India.
- Contain an integrated workplan and an equal commitment to the project (in terms of hours dedicated to the project rather than project costs). Projects that appear to be working in parallel with little interaction between the countries will not be supported.

Projects will be funded for a maximum duration of 3 years, and applicants who receive funding from this call must be prepared to contribute to workshops and / or other dissemination type activities associated with this call.

The Case for Support (template available at www.bbsrc.ac.uk/web/files/forms/subb-case-for-support.doc) should comprise the following Sections:

A. General Information (up to 2 sides of A4) comprising:

- Names, full affiliations and contact details, including e-mail addresses, of the lead investigators for each country.
- Names of all co-Investigators and affiliations.
- Project Title.
- Short summary of project (up to 4000 characters).
- Project aims (up to 4000 characters).
- Total cost of project, (in £ sterling), including UK and Indian Partners.

B. Detailed Scientific Information to include:

Previous Track Record (up to 4 sides of A4) describing:

- Track record of all applicants including, experience of working in the area of bioenergy and, where relevant, experience of conducting international, collaborative, research.
- Information relating to the project's host institutions including access to specific infrastructure and equipment required to undertake the project.
- Details of other National Facilities, outside of the project's host institutions that would be required to undertake the project.

Detailed description of project (up to 16 sides of A4; page limits below cannot be exceeded or combined)

- Overall aims and objectives of project (max 1 side of A4).
- Description of the current landscape relevant to the project in India, the UK and other countries (max 1 side of A4).
- Detailed project description highlighting novelty and originality of the project, anticipated outcomes and potential impacts from the project. The description should indicate where project participants fit to the specific work packages (up to 8 sides of A4).
- Added value of the proposed collaboration, including a description of how the project will be managed, communication strategies, data management and data sharing across the project and management of intellectual property (up to 2 sides of A4) **see data management**, below.
- A description of Information dissemination and knowledge exchange mechanisms along with potential routes to translate the outcomes from the project into genuine impacts that benefit the UK and India, including interaction with the private sector, policy makers and other relevant stakeholders (up to 1 side of A4).
- A Gantt chart, or diagrammatic workplan, for the project including milestones (1 side of A4).
- A description and justification of the resources requested for the project (up to 2 sides of A4). Applicants should ensure that sufficient travel and subsistence costs are included within their applications to undertake the project. Additional costs should be included to cover the costs of travelling to two workshops: one held within India and one within the UK, see **Dissemination Events**, below.

C. Description of the Project Teams:

Brief CVs of each named investigator (Indian and UK), including the three most significant, recent, publications (maximum of 1 page per investigator).

In addition, applicants should give full consideration, within the page limits described above, to the following:

Data Management

Applicants to this call should give full consideration to the practical requirements for data sharing both within the research teams and to the wider community and describe how this will be conducted. Applicants should ensure that they have requested appropriate resources for data management and sharing.

Dissemination Events

Successful applicants will be required to disseminate the outcomes of their projects at a mid-term and final dissemination event, one of which will take place in India and the other in the UK. Applicants should ensure that they include sufficient travel costs within their projects to participate in such events.

Funding Period and Budget

BBSRC and DBT have each earmarked up to £5M for this call. Whilst no upper cost limit per project is stipulated, BBSRC and DBT envisage funding multiple projects under this call. Projects should be up to a maximum duration of 3 years. All budget items must conform to national rules relevant to BBSRC and DBT and be fully justified.

Additional Collaborators

Collaborating partners from industry and / or partners from other countries are strongly encouraged where relevant to the research; however, neither BBSRC nor DBT will provide funding for such collaborators. Such partnerships are welcome provided they come with contribution in kind. Applicants may include Letters of Support to accompany their application. Applicants are advised to restrict such letters to genuine collaborators.

Peer Review

BBSRC and DBT will conduct a rigorous and fully integrated peer review of the projects, using reviewers from India, the UK and other countries. Applicants will be given the opportunity to respond to reviewers' comments. Such responses will be coordinated across the project and submitted by the UK project coordinator. Applications will be assessed by an international peer review panel comprising experts from India, the UK and other countries. In addition to all relevant application documents, the panel will also have access to reviewers' comments and applicants' responses. The following criteria will be taken into consideration:

- Scientific Excellence
- Timeliness and Promise, including potential impacts
- Transnational added value of the project
- Benefits and Relevance to the UK and India
- Project Management, data sharing, data dissemination strategies

- Fit to the call's research priorities

Project Administration

The financial administration and contacting of successful applicants will be performed at the national level, where grant announcements and funding announcements will be issued according to national rules.

INTENTION TO SUBMIT

For each project under preparation the proposed UK principal investigator must complete an Intention to Submit form. The form can be downloaded from the related links section: www.bbsrc.ac.uk/web/files/forms/subb-intention-to-submit.doc.

The form should be returned to bbsrcdbtbioenergy@bbsrc.ac.uk by 30th August 2012.

The Intention to Submit form will be used for the following purposes:

- To provide information about project numbers and the response to the call.
- To perform preliminary eligibility checks of applicants and institutions.
- To perform a preliminary assessment of the project's fit to the scope of the call.
- To enable BBSRC to contact the UK project coordinators to assist with submission queries.

Timetable

- Deadline for Submission of Intention to Submit form: 30th August 2012 (UK applicants only)
- Deadline for submission of full proposals is 9th October 2012.

For applications to BBSRC, proposals must be submitted electronically by the Je-S system by 16:00 UK time on 9th October 2012.

DBT Applicants should submit both hard copies and an electronic version (soft copy) of the proposal to DBT. The electronic version (soft copy) should be e-mailed to Dr Shailja Gupta (shailja@dbt.nic.in) by the closing date: 9th October 2012.

Note: Applicants should ensure that the completed DBT finance proforma www.bbsrc.ac.uk/web/files/forms/subb-dbt-finance-proforma.doc is submitted as an additional attachment with the UK application via Je-S.

Applications will be subject to full peer review and will be assessed and ranked for funding by an International Assessment Panel in April 2013.

Contacts:

BBSRC (UK) Eligibility and Peer Review Queries: nicola.easen@bbsrc.ac.uk

BBSRC (UK) Scientific Queries: vicky.jackson@bbsrc.ac.uk / sarah.wagstaffe@bbsrc.ac.uk

DBT (India) Scientific and administrative Queries: Dr Shailja Gupta (shailja@dbt.nic.in)