



Faculty of Engineering

**School of Civil, Aerospace and Mechanical
Engineering**

**Global Challenges Research Fund Chair in
Environmental and Infrastructure
Resilience (ACAD103293)**

Further Particulars



Contents

1. Introduction
2. The Post: Job Description
 - a. Main job purpose
 - b. Statements of responsibilities
 - c. Contacts
3. The Post: Person Specification
4. The Faculty of Engineering
5. The University and the City of Bristol
6. The University's Commitment to Equality and Diversity and a Positive Working Environment
7. Academic Career Pathways
8. Terms and Conditions
9. Application Procedure and Selection Process
10. Additional Information
11. Organisational Chart

1. Introduction

The School of Civil, Aerospace and Mechanical Engineering (CAME) wishes to make a key research leadership appointment in the area of **Environmental and Infrastructure Resilience**, to our Department of Civil Engineering. This Chair position will be aligned with the aims and remit of the **Global Challenges Research Fund (GCRF)**.

Building on strong existing GCRF and related activities in two of our research groups, *Water and Environment*, and *Earthquake and Geotechnical Engineering*, this is an exciting opportunity for the right individual to lead activities aligned directly with research related to GCRF, as well as reinforcing existing and building new links with other national and international partners.

Working alongside Prof Thorsten Wagener, UoB lead on GCRF research related to Water, this post will provide a complementary pillar of leadership and expertise, to present a compelling case for GCRF research to be placed in Bristol. Engineering will provide many of the solutions to the challenges identified in GCRF, and the groups in Bristol are well poised to capitalise on this opportunity. It is envisaged that this Chair will help organise a strategic approach to seeking GCRF funding, establishing and supporting a network of potential international partners, and serve as an advocate within the wider GCRF community on behalf of Bristol and our institutional goals. It will also help to fully capitalise on our recent significant investment (£12M) in world leading infrastructural test facilities (from £138M capital funding for UK Collaboratorium for Research on Infrastructure and Cities - Soil-Foundation-Structure Interaction). *Infrastructure and Environment* is one of a small number of priority research themes within the Faculty of Engineering, and as such this Chair will also help grow activity e.g. recruitment of high-quality PDRAs and PGRs, as well as inspire a research-rich teaching curriculum fit for the next 20 years, as part of our Faculty strategy 'ES2030'.

This post will build on strong research links with the University's Cabot Institute (<http://www.bris.ac.uk/cabot/>), a multidisciplinary institute for research on all aspects of global environmental change, from basic science and social science to technological and policy solutions. The Cabot Institute brings together some of Bristol's most outstanding research - in water, energy, climate modelling, natural hazards and risk, energy, global insecurities and governance, and systems engineering. Infrastructure failures caused by geohazards form an important component of research in Cabot, as does work on foundations for offshore renewable energy and modelling of groundwater flow. Within Civil Engineering, the University has invested in research leadership in water and environmental engineering with the appointment of Professor Thorsten Wagener in 2012 and in geotechnics and soil-structure interaction with the appointment of Professor George Mylonakis in 2013.

In direct support for this Chair position, we are currently recruiting a *Global Challenges Research Manager* who will help consolidate and grow our GCRF portfolio, promote our activities in order to raise our national and international profile, and stimulate new research activities by facilitating collaboration and managing the development of strategic proposals. This role will be able to support the GCRF Chair in developing and delivering a coherent research strategy around Global Challenges, thus enhancing the impact of the Chair.

The Department of **Civil Engineering** at Bristol is internationally renowned for its research and teaching and currently comprises 37 academic staff, 23 post-doctoral research associates, about 48 PhD/EngD students and 288 taught students. It delivers 3 and 4-year undergraduate programmes in Civil Engineering, including year-abroad programmes, and postgraduate taught MSc's in Water and Environmental Management (WEM), and Earthquake Engineering and Infrastructure Resilience (EEIR). It is also a partner in the EPSRC-funded

CDT in Water Informatics, Science and Engineering (WISE), <http://www.wisecd.org/>, which is a joint CDT across the Universities of Bath, Cardiff, Bristol and Exeter (lead).

The Department has a strong tradition in research related to environmental and infrastructure resilience with a particular focus on large-scale experimental testing and numerical modelling of structures and the analysis of soil-structure interaction. Research and teaching are supported by world class laboratory facilities, including a 6-axis earthquake shaking table.

The School's research groups cover: Dynamics and Control, Earthquake & Geotechnical Engineering, Engineering Systems & Design, Fluid & Aerodynamics, Robotics, Solid Mechanics, Ultrasonics & NDT and Water and Environmental Engineering. Our strategic research activities include Bristol Composites Institute and Nuclear Engineering.

The CAME School is also home to several UK EPSRC Centres for Doctoral Training: Robotics, Advanced Composites and Composites Manufacturing. Investment by industry in engineering related research at Bristol has grown substantially in recent years, involving such prestigious names as EDF, Rolls-Royce, Leonardo Helicopters, Vestas, Airbus, Toshiba, Jaguar Landrover, DSTL, and GKN. The University of Bristol is also host, in partnership with industry, to the National Composites Centre supported by £40M+ of public-sector investment.

The School holds a Bronze Athena SWAN Award and we are committed to the equality of opportunities and to selection on merit.

The School of Civil, Aerospace and Mechanical Engineering (CAME) is part of the vibrant and successful Faculty of Engineering. In the 2014 Research Excellence Framework (REF), 93% of Engineering research was judged to be 'world leading' or 'internationally excellent'. The REF2014 panel judged Bristol to be in the top 10 in the UK according to GPA score, research power and research intensity. Our research has been shown to have world-leading impact (over 70% of our impact case studies were 4*: world-leading) with "outstanding case studies across many aspects of Engineering activity, including aerospace and alternative transport." Details of current research in the Faculty of Engineering are at www.bris.ac.uk/engineering/research/

2. Job Description

a. Main job purpose

The post will be on Pathway 1 (see Section 7) at Professorial level. Section 7 gives the role profile summary for this level, which should be read in conjunction with this section and the Person Specification in Section 3. An organisation chart can be found in Section 11.

Women are under-represented in Engineering and we would particularly welcome applications from female candidates.

We are happy to discuss the possibility of flexible working patterns to accommodate caring responsibilities.

b. Statement of responsibilities

Leadership

They will champion the theme of ***Environmental and Infrastructure Resilience*** within the School and beyond to ensure that it remains at the forefront of current thinking and that recommendations for teaching and research developments are fed through the Head of Department to senior management. They will also contribute to the wider success of the University through participation in School, Faculty and University-level activities, for example the Cabot Institute. They will initiate and lead collaborations with academic, government and industrial partners along with other external stakeholders to support and maximise investment into Engineering for GCRF related research.

Research

The postholder will demonstrate research excellence in environmental and infrastructure resilience and make a positive contribution to future Research Excellence Framework (REF) exercises. They will be expected to initiate new research ideas, and seek substantive external funding, to supervise postgraduate and post-doctoral researchers, and to produce top class research outputs, with demonstrable impact.

As a consequence of the GCRF funding by which this Chair will be partially (50%) supported, there will be certain expectations and obligations as to the type of research activities and funding which can be sought and undertaken, along with specific reporting requirements.

Investment by industry and other external sponsors of engineering research at Bristol has grown substantially in recent years to a sustained portfolio of approximately £50M; current funders of work in areas relevant to this post include the GCRF, European Commission, NERC, EPSRC, Innovate UK, The Royal Academy of Engineering, and EDF Energy.

- **You should include a plan for your current/future research direction, potential sources of funding and potential or existing industrial, governmental, third sector or academic collaborators. This plan must demonstrate how you will link to and/or extend current research capabilities, as well as making specific reference to GCRF funding and activities.**

Teaching

Although envisaged primarily as a research leadership role, the postholder will be expected to contribute a modest amount of teaching at undergraduate and postgraduate level. They will also support the School's move towards a more holistic approach to UG and PG teaching across the civil, mechanical and aerospace disciplines.

In addition to the WISE Centre for Doctoral Training (CDT), the School is also home to three other UK EPSRC CDTs:

- Advanced Composites www.bristol.ac.uk/composites/cdt
- Composites Manufacturing www.epsrc-cimc.ac.uk/idc.aspx
- Robotics <http://farscope.bris.ac.uk>

The postholder will be expected to identify opportunities for further development of research degree programmes, including CDTs, in appropriate areas.

- **You should include in your application evidence of your teaching experience. This should be linked to your research plan and demonstrate how you will link to and/or extend current teaching capabilities.**

Administration

The University of Bristol employs professional administrators for day-to-day tasks in support of its academic staff.

c. Contacts

Line managed by:

- Head of Department

Line manager to:

- Research staff

Internal Contacts:

- Head of School, Dean, Faculty & School Research and Education Directors
- Head of Research Group, other staff, researchers and postgraduate research students within a Research Group
- Senior University Management Team
- Departmental, School and Faculty staff
- Departmental undergraduate and taught postgraduate students
- Staff and students in the wider Faculty and University

External Contacts:

- Industry partners
- Research collaborators (both national and international)
- Government bodies
- Funding agencies

3. The Posts: Person Specification

The person specification provides a summary of what is required to carry out these jobs effectively. It also forms the selection criteria against which decisions to shortlist and then to appoint will be made. Please ensure that you demonstrate how you meet these criteria in your application.

We are happy to discuss the possibility of flexible working patterns and we welcome applications from those with caring responsibilities.

Experience, skills and knowledge

Essential:

- Proven academic leadership and research management capability.
- Strong track record in research related to environmental/infrastructure resilience, publishing in top-ranked journals.
- Evidence of international recognition for research

- Proven track record in acquiring research funding
- Experience of supervising research students.
- Evidence of excellence in teaching in higher education.
- Direct experience of academic/government/industrial engagement.

Relevant qualifications

Essential:

- First degree and doctorate in a subject of relevance to engineering.
- Professional engineering qualifications or equivalent experience, ideally with Chartered Engineer status (or demonstrable ability for this to be achievable post-appointment)

Desirable:

- Teaching qualification recognized by the UK Higher Education Academy, or equivalent.

Communication and interpersonal skills

Essential:

- Excellent spoken and written communication skills.
- Outstanding people management and communication skills.
- Proven ability to lead a team of academics.
- Experience of working in multidisciplinary groups.

Other criteria:

Essential:

- Flexibility for UK and international travel as required.

4. The Faculty of Engineering

The closely integrated Faculty of Engineering, <http://www.bris.ac.uk/engineering>, comprises the School of Civil, Aerospace and Mechanical Engineering (CAME), and the School of Computer Science, Electrical & Electronic Engineering and Engineering Mathematics (SCEEM). The Faculty currently has over 230 members of academic staff, more than 240 contract research staff, 100 support staff and around 2500 undergraduate and 800 postgraduate students. The Dean of Engineering is Professor Andrew Nix.

The Faculty receives over 8000 applications for postgraduate and undergraduate programmes each year from both home and overseas applicants and seeks to recruit and train the best engineers of the future from around the world. The Faculty offers a diverse range of programmes at undergraduate and postgraduate level across the departments, including a number of successful taught masters courses. Collectively the Faculty delivers 8 undergraduate programmes, 15 PGT/MSc Programmes and 12 doctoral programmes (PhD and EngD).

The Faculty has recently completed a £15M refurbishment of teaching and research facilities, comprising a new dedicated teaching wing with state-of-the-art laboratories, study rooms, and teaching spaces. Furthermore, the Faculty will be playing a key role in the exciting development of a new £300M Temple Quarter campus in the City Centre, dedicated to supporting research and teaching focused on digital engineering technologies of the 21st Century.

The Faculty has strong research and teaching links with local, national and international industry, as well as Government departments and research establishments. It has University Technology Centre agreements with Rolls-Royce, Toshiba, EDF Energy and Vestas, and strategic partnerships with Jaguar Land Rover, Airbus and GKN. These links have been an important element in the success of the Faculty in obtaining support for its research. The contract research portfolio totals around £50M, nearly all of which has some form of industrial linkage. Some undergraduate projects involve direct collaboration with industry, and engineers from industry teach on particular units where their experience is directly relevant and act as industrial tutors.

The Faculty has an increasing number of international links and has had a strong presence in EU research programmes for many years. It participates in a range of interdisciplinary research, in particular with the Science and Medical Faculties.

Support for research includes significant computing power available both within the Faculty and through central University facilities; the University has ongoing investment (£14M+) in centralised data storage and high performance computing (HPC) hardware and infrastructure. Professor Chris Allen, Head of Aerospace Engineering, is Chair of the HPC Executive.

Organisation

Departments are primarily responsible for academic leadership and development in teaching and research, with delivery managed through common School processes and structures. Academic staff are affiliated to a discipline and line managed by the Head of Department. The Head of School, reporting to the Dean and advised by the relevant Heads of Departments, is responsible for the strategic direction of the School and allocation of resource. Research is conducted through the Research Groups, which typically involve staff from more than one Department or School. Each Pathway 1 academic member of staff has a primary affiliation to a single research group, but may have multiple secondary affiliations. Heads of Research Groups have budgets to facilitate research interaction including seminars. Academic staff have the freedom, and are strongly encouraged, to collaborate with colleagues from across the University and from external organisations.

5. The University and the City of Bristol

The University of Bristol is an international powerhouse of learning, discovery and enterprise. Its vision is of a university whose excellence is acknowledged locally, nationally and globally. **The Sunday Times (March 2017), Daily Telegraph (October 2013) and Independent (March 2014) describe Bristol as the UK's most desirable location.**

The University is a member of the Worldwide Universities Network, a grouping of 19 research-led institutions of international standing, and of the Russell Group of universities, an association of 24 major research-intensive universities of the UK.

The University of Bristol is dedicated to academic achievement across a broad range of disciplines. It is made up of 27 schools, organised in six faculties: Arts; Biomedical Sciences; Engineering; Health Sciences; Science; Social Sciences and Law. It has approximately 23,000 students (17,000 undergraduates and 6,100 postgraduates) from around 100 countries. The Quality Assurance Agency for Higher Education, which carried out an institutional audit of the University in 2016, has confirmed that Bristol meets its expectations (the highest rating available) for management of education and the academic standards of its

awards. The University currently has [40 Fellows of the Royal Society and 15 of the British Academy](#) – a remarkable achievement for a relatively small institution.

Bristol supports both individual scholarship and interdisciplinary or thematic research of the highest quality. The Research Excellence Framework 2014 ranked Bristol among the UK's top research universities. Thirty-six per cent of the University's research received the top 4* rating, defined by HEFCE as 'world leading'. This is six per cent above the sector average and twice the level the University achieved in the Research Assessment Exercise (RAE) 2008, placing Bristol 10th in the Russell Group. The University has ten impact submissions ranked in the top five in the Russell Group. Four of these achieved 100 per cent world-leading 4* impact: clinical medicine; public health, health services and primary care; economics and econometrics; and sport and exercise sciences. Eighteen of the University's 31 submissions are in the Russell Group top ten by 4* impact including submissions from all six faculties, underlining the range of the impact of the University's research across a wide range of disciplines.

A key element of the University's vision is to ensure that its research and education contribute to regional and national society and the economy. The University works hard to build effective links with the community and its industries, through high-quality research collaboration and productive knowledge exchange, the creation and support of new companies and enterprises, and the licensing of intellectual property.

Engaging with people outside the University is a vital part of higher education and an area in which staff and students are actively involved. It is part of the University's core business and is integral to research and teaching that is grounded in societal need and that promotes lifelong learning. It is also vital to widening participation and fair access; and for students involved in volunteering, engagement is an aspect of the distinctive 'Bristol experience'.

The University is committed to operating in a sustainable manner, working constantly to reduce carbon emissions and improve the sustainability of the physical estate. Its ambitious capital programme plans to invest in the most cost-effective way in new buildings and facilities (including a new £300M City Centre campus) over the next few years to support research, teaching and learning.

The University of Bristol is a stimulating and supportive environment for all students and staff, distinguished by a commitment to high standards, respect for the individual and a strong sense of collegiality. It is also an integral part of a beautiful, historic city that has been awarded European Green Capital 2015, and was previously European City of the Year 2008, Provincial City of the Year 2008 and Britain's most sustainable city 2008. It has been officially designated a 'Centre of Culture' and a 'Science City' by the Government. It is also England's first 'Cycling City'.

With a population of over 400,000, Bristol is the largest city in the South West of England, and the region's leading centre for business, culture and education. It has a long tradition of trade and engineering, and is also home to many of the newer financial services and creative and media industries. The historic docks in the city centre, now a thriving focus for leisure and the arts, retain many echoes of Bristol's maritime history. Theatre, music, the fine arts and cinema are all well represented, and the neighbouring city of Bath also offers a wide range of cultural activities. Bristol is well provided with open space and parkland and is within easy reach of attractive coast and countryside, including the Cotswolds and several National Parks. The city has an international airport and offers easy rail and motorway links.

More information about the city of Bristol is available at visitbristol.co.uk/ and www.bristol.gov.uk/.

6. The University's commitment to Equality and Diversity and a Positive Working Environment

As a leading global institution we are keen to attract the most highly talented individuals from a diverse range of backgrounds. Further information on our commitment to equality and diversity can be found at <http://www.bris.ac.uk/jobs/diversity.html>

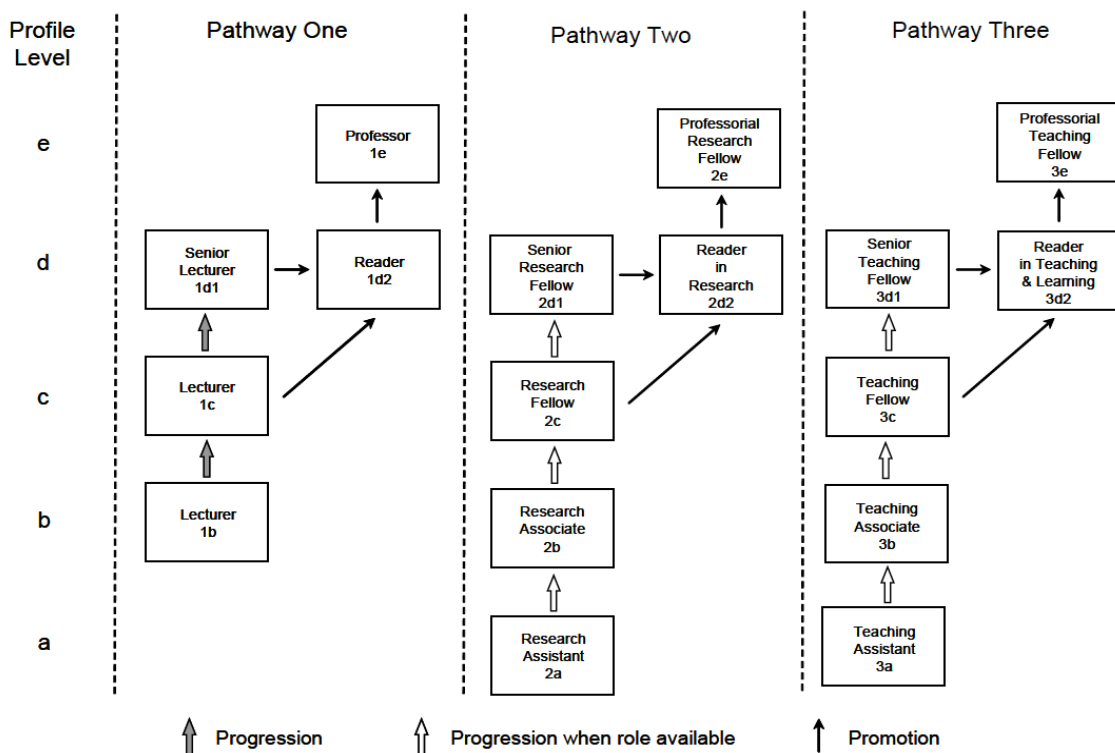
The University's Positive Working Environment (PWE) agenda is an ongoing process with the aim of making working life at the University of Bristol productive, rewarding, enjoyable and healthy for all colleagues. To find out more about PWE please visit our website at <http://www.bristol.ac.uk/pwe/>

7. Academic Career Pathways

As part of the process of modernising its pay and grading systems the University introduced career pathways for academic staff. What this means is that all members of academic staff have a clear career pathway involving a series of levels with distinct role profiles, each with its unique requirements. Each profile sets out what is expected of an academic at the particular level. The role profiles also set out a collection of competencies expected for each level (www.bristol.ac.uk/hr/grading/academic/role-profiles/).

This post is located on [Pathway One](#) (see figure below) - academic roles that combine teaching, research and administrative duties.

Academic Staff Career Pathways



The role profile summary for level e, Professor, which should be read in conjunction with the Main Job Purpose in section 2 and Person Specification in Section 3 is listed below.

Role Summary – Professor (Level e)

1. The professorial title is conferred to reflect recognised leadership and substantial reputation in research and teaching in an academic discipline.
2. Role holders at this level will have substantial experience in teaching and research leadership, and in related management/administration, leading to wide recognition for their expertise within their academic discipline.
3. They will enjoy a high reputation internationally, based on an extensive track record of innovative research and a recognised contribution to the discipline through professional activities.
4. The role will typically require significant leadership or management contributions, usually within the School but sometimes also in the University more widely.
5. Role holders will be expected to consistently act as good citizens and role models, actively undertaking administration duties and participating fully in the daily working life of the School, they will provide leadership that will influence and shape the output of their School and contribute directly to the level of success enjoyed by the School.
6. They will be responsible for delivery of a level of research income appropriate to the discipline.
7. Role holders at this level will continue to teach, advise and assess both undergraduate and postgraduate students to a high standard.
8. They will also be expected to make a wider contribution to the success of the University through their participation in faculty and university-wide governance and development activities.

8. Terms and Conditions

- (a) We would like the successful applicant to take up the appointment as soon as possible and no later than the 1st January 2019.
 - (b) The post is located in the School of Civil, Aerospace and Mechanical Engineering, Faculty of Engineering, at Queen's Building, University Walk, Bristol BS8 1TR.
 - (c) This role is located on Pathway One and will be appointed at Professor (Profile level e).
 - (d) The salary will be on Grade M in the range £63,163 - £115,741 per annum. For further information on salary scales please see: <http://www.bris.ac.uk/hr/salaries/>
 - (e) The appointment will be subject to the terms and conditions for staff on grade J and above, details of which can be found at <http://www.bris.ac.uk/hr/terms/jandabovestaff.html>
 - (f) The post is offered on a full-time basis. However, we would be happy to discuss the possibility of job share, part-time or flexible working patterns.
 - (g) The post will be offered on an open-ended contract basis, subject to satisfactory performance, assessed by an annual review.
 - (h) Subject to the rules of the scheme, the post holder may participate in the Universities' Superannuation Scheme (USS). Further information on the scheme can be found at www.uss.co.uk/. Unless newly appointed staff members declare in writing a wish not to participate in the USS, they will be deemed to be members from the start of employment, and contributions will be deducted accordingly. As a consequence of participating in this Scheme, University staff will be contracted out of the earnings-related part of the State Pension Scheme.
 - (i) A Pension Salary Exchange scheme is in operation in order to increase take-home pay and save costs. For more information see <http://www.bristol.ac.uk/hr/salaries/sal-exchange/>
 - (j) The University will reimburse to newly appointed staff already in the UK up to 7.5% of annual starting salary (gross) to cover the costs of moving house. For new staff moving from outside the UK, costs as specified in the Relocation Expenses Policy up to a maximum of 7.5% of annual starting salary (gross) will be covered in addition to standard travel costs. Further details of provisions for staff relocating to take up post are available from the link below: <http://www.bris.ac.uk/hr/resourcing/practicalguidance/appointment/relocation1.html>
 - (k) All new staff with teaching responsibilities are required to attend the University's part-time CREATE Teaching and Learning Programme unless they can show evidence that they have completed a similar programme elsewhere. CREATE seeks to develop a continuing professional development ethos. Further information on CREATE can be found at www.bristol.ac.uk/staffdevelopment/academic/create/
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9. Application Procedure and Selection Process

Please visit our web site at www.bris.ac.uk/jobs, enter the vacancy number **ACAD103293** into the job search and follow the link to the on line application process.

Further information on the University's application process can be found at: <http://www.bristol.ac.uk/jobs/application-process.html>

Please note the following:

- A Selection Panel has been established to review all applications for this post and to conduct interviews of short-listed candidates.
- During the final selection process, candidates will be invited to give a presentation, attend a formal interview and meet members of the Department informally.
- **The closing date for applications is 11:59pm on Sunday 10th June 2018**

10. Additional Information

For an informal discussion about the post or further information please contact:

Name: ***Professor Simon Neild, Head of Civil Engineering***

Address: Queens Building, University Walk, Bristol, BS8 1TR

Telephone: +44 (0)117 331 5706

E-mail: simon.neild@bristol.ac.uk

OR

Name: ***Professor Thorsten Wagener,
Professor of Water and Environmental Engineering***

Address: Queens Building, University Walk, Bristol, BS8 1TR

Telephone: +44 (0)117 331 5737

E-mail: thorsten.wagener@bristol.ac.uk

OR

Name: ***Professor Ian Bond, Head of the School of Civil, Aerospace and
Mechanical Engineering***

Address: Queens Building, University Walk, Bristol, BS8 1TR

Telephone: +44 (0)117 331 5321

E-mail: i.p.bond@bristol.ac.uk

11. Organisation Chart

