Geology for Global Development

6th ANNUAL CONFERENCE

Water, Geoscience and Sustainable Development

Meeting the needs of the poorest while maintaining healthy ecosystems

Friday 2nd November 2018
Registration: 09:45 (for a prompt 10.20 start)
Ends: 17:30 (followed by a drinks reception)
The Geological Society, Burlington House, London, UK

Find out more about our work online or register for our newsletter: www.gfgd.org

Follow news, updates, events and opportunities to get involved on Facebook (www.facebook.com/gfgd.org) or Twitter (@Geo_Dev)

Geology for Global Development (GfGD) is a not-for-profit organisation, established to champion the role of geology in sustainable development, mobilising and equipping the geology community to support the UN Sustainable Development Goals. Registered Charity Number: 1165663.

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ACKNOWLEDGEMENTS AND SUPPORTERS

We are grateful to the Geological Society of London for hosting and supporting this conference:

The Geological Society of London is a not-for-profit organisation, and a registered charity (no. 210161). Its aims are to improve knowledge and understanding of the Earth, to promote Earth science education and awareness, and to promote professional excellence and ethical standards in the work of Earth scientists, for the public good.

Founded in 1807, it is the oldest geological society in the world. Today, it is a world-leading communicator of Earth science – through its scholarly publishing, library and information services, cutting-edge scientific conferences, education activities and outreach to the general public. It also provides impartial scientific information and evidence to support policy-making and public debate about the challenges facing humanity.

The Society is the UK's professional body for Earth science and has a worldwide membership of over 11,500. More than 2,000 of its members live overseas and over 2,500 are Chartered Geologists or Chartered Scientists – professionals who have demonstrated a high level of education, professional competence in their field and a commitment to professional ethics.

Read more: **www.geolsoc.org.uk**

A special thank you to all our speakers and session chairs for taking the time out of their busy schedules to support this conference and share their experiences.

Read more about how you can support our work: www.gfgd.org/donate

DIRECTOR'S CUT

"Water is complex because it is linked to almost everything in the world. But complexity should not hinder understanding: Water is a precondition for human existence and for the sustainability of the planet."

[UN-WATER]

Water Resources in Kenya
(Credit: Hudson Shiraku, used with permission)

The monitoring, understanding, management and protection of water resources is inextricably linked to sustainable development. Water is not only essential for life to exist, but the ease of access to and quality of water determines the extent to which individuals and societies thrive.

Local access to safe water improves health, reducing the likelihood of avoidable diseases and increasing the likelihood of both mothers and children surviving childbirth. UNICEF estimate that around **500,000 children die each year from diarrhoea** caused by unsafe water and poor sanitation.

Local access to safe water also frees up time that can be used for education and economic activities. Estimates suggest that women and children spend **140–200 million hours each day collecting water**. That equates to a total of **51–73 billion hours** each year not spent in school, going to work or setting up businesses, nurturing family, or engaging in pastimes. Safe water, and improved sanitation and hygiene are critical interventions to achieve Sustainable Development Goals on health, education, gender equality, and economic growth.

Water is also critical to many of the industries that societies depend on. Agriculture, forestry, energy generation, manufacturing, and mineral extraction and processing all require water resources. In Europe, an average of 44% of abstracted water is used for agriculture, 40% for industry and energy production (cooling in power plants), and 15% for public water supply (European Environment Agency, 2018). In Africa, the average amount of abstracted water used for agriculture exceeds 80% (FAO, 2014). Meeting UN Sustainable Development Goals on food security, access to reliable energy, industry and innovation therefore also require water resources.

When these resources are scarce or limited, coherent policies and integrated planning are needed to ensure appropriate use and management of water to optimise socio-economic development. This is even more complex when water resources are shared across national boundaries, as is in the case in many contexts. The protection of water resources is as important as ensuring access to them. Effective strategies are needed to avoid over-abstraction and contamination. Damage to water resources can result in them no longer being available to use, and the loss of wider ecosystem services. Further challenges to water management arise from environmental change and shocks. Resilient communities require reliable access to safe water supplies, with both change and natural hazards threatening this access.

Ensuring the poorest have access to a sustainable water supply, while facilitating energy for all, supplying growing industrial demand, and protecting freshwater and saline ecosystems is therefore a significant challenge to sustainable development. This meeting brings ambassadors from diverse disciplines and sectors together with 130+ geoscientists, to explore the role of water in sustainable development. Solutions require interdisciplinary and intersectoral partnerships, with geoscience research, innovation and training all being important contributions to improving the understanding and stewardship of water resources for the public good. We will need to invest in new skills, better understanding of public policy, and prioritise better approaches to working in the Global South. This meeting acts as a focal point to start conversations around these themes, and we hope that they can continue in universities and workplaces around the UK and beyond.

Joel C. Gill PhD
GfGD Founder/Executive Director

CONFERENCE INFORMATION

Understanding, managing and protecting freshwater and marine water resources is critical to the delivery of many of the Sustainable Development Goals (e.g., water and sanitation, healthy oceans, zero hunger, good health, gender equality, energy, industry, and biodiversity). Urbanisation, industrialisation, and climate change are increasing pressure on water supplies and reducing water quality. Our 6th Annual Conference will explore the role of geoscientists in managing conflicting demands for diverse water resources, ensuring that the needs of the poorest are met while maintaining healthy ecosystems. Participants will have the opportunity to:

- Consider the challenges and opportunities associated with water and sustainable development.
- Interact with those from diverse sectors to develop a better understanding of career paths in water.
- Learn more about the vision and work of *Geology for Global Development*.

The conference is also a great opportunity to meet geoscience students, recent graduates, and professionals from across the UK that share an interest in international development.

RECOMMENDED READING: Many of the conference sessions include the opportunity for you to ask questions and share your opinions and ideas. We'd therefore encourage you to have a look at some of the background reading below:

- UN Water – Water Facts - www.unwater.org/water-facts/
- UN Water – Water and the SDGs Interlinkages - www.unwater.org/publications/sdg-6-infographics/
- Water for a Sustainable World - www.unwater.org/publications/world-water-development-report-2015/

CODE OF CONDUCT: We are committed to providing a safe, productive, and welcoming environment for all meeting participants. We therefore expect all those participating in this meeting to abide by a meetings code of conduct, where for the purpose of this event AGU can be replaced with GfGD.

WHAT TO BRING?: We suggest you bring a notebook and a pen, as well as your lunch (see below). We do not require you to print out and bring your ticket. However, we may ask to see some form of ID (e.g., student card) if necessary. **We will have some copies of the conference programme (Page 6 of this handbook) but will not have printed copies of the full handbook for delegates. We suggest you download this to your phone/tablet/computer or bring your own print-out.**

ARRIVAL: Please enter The Geological Society via the main entrance (opposite Fortnum and Mason Department Store). **Doors open and registration starts at 9.45am (please do not arrive before this time)**, with drinks served in the lower library. The conference sessions start at 10.20am. We would kindly request that you make every effort to arrive on time and take your seat by 10.15am so that we can start promptly. If arriving later, please inform a steward upon arrival so they can register you.

VENUE: Full directions and a map can be found on **Page 9**.

POSTERS: Please do look at the posters in the Lower Library relating to our strategy, examples of our work in UK universities, and water and sustainable development. These include a range of infographics produced by UNESCO, Unilever and WWF.

SOCIAL MEDIA: Please use **#GfGDConf** if referring to this event on social media, such as Twitter and Facebook. You can also include **#GlobalGoals** or **#SDGs** We'd love to see and share your comments and photographs.

PHOTOGRAPHY: At registration, you will be asked if you are happy to be included in photographs taken during the day. These may be used on our website, blog and other publicity. If you do not wish to be photographed, please indicate this during registration and to our photographer on the day.

LUNCH: We will not be providing lunch, but there is space to eat a packed lunch at the venue, giving more time for informal networking, looking at posters and talking with others. The venue is close to a range of shops and cafes.

FEEDBACK: Please take the time to complete a feedback form at the end of the day, this will help us to improve future events.

DRINKS RECEPTION: The conference sessions will end at 5.30pm, with a drinks reception in the Geological Society Lower Library. This is a great networking opportunity, and we look forward to meeting many of you during this time.

CONFERENCE STEWARDS: If you have any problems or questions on the day, please speak to one of the conference stewards who will do their best to assist you. Stewards can be identified by their conference badges.

PROGRAMME

TIME	SESSION DETAILS
09.45–10.20	**Arrival and Registration** *(Tea/Coffee Available)* Please aim not to arrive before 09.45 to allow us time to prepare for registration.
10.20–10.30	**Conference Introduction – *Joel Gill*** *(Executive Director, Geology for Global Development)*
10.30–10.40	**Welcome Address – Lord Duncan of Springbank FGS (UK Government Minister for Scotland/Northern Ireland)**
10.40–10.55	**Session 1a: Setting the Scene – Viewpoints from Tanzania** ***Benedicto Hosea*** (Tanzania Development Trust) - *(Interview)*
10.55–11.35	**Session 1b: Water: Geoscience and Societal Relevance from Source to Oceans** *(Keynote Lecture)* ***Professor Robert Kalin (Professor of Environmental Engineering for Sustainability, University of Strathclyde)*** Water management is vital for food security, tackling energy poverty, supporting economic activities, producing key minerals, improving gender equality, and designing resilient cities. This talk will profile the interactions between water, geoscience, and societal impacts from source to ocean. Whether considering a groundwater aquifer, rainwater catchment, river, lake, delta or ocean, geoscience research, monitoring and innovation can help to understand how to manage these resources to support the implementation of the SDGs.
11.35-11.45	**Session 2:** This session will briefly profile organisations and courses of interests to participants: • ***Alison Parker*** *(Lecturer in International Water and Sanitation, Cranfield Water Science Institute)* • ***Nic Bilham*** *(European Coordinator, International Association for Promoting Geoethics)*
11.45–12.00	**Break**
12.00–13.00	**Session 3: Conflicting Demands – Integrated Water Management and Policy** *(Panel Discussion)* Urbanisation, industrialisation, and climate change are all increasing the pressure on water supplies and water quality. This session will draw on diverse perspectives to explore how integrated water management and coherent policies can protect water supplies and ensure equitable access to advance economic and social development, meeting the needs of the poorest and fostering healthy ecosystems. **Chair: Nic Bilham (University of Exeter/Geology for Global Development)** Panel members: • ***Eva Ludi*** *(Head of the Water Policy Programme, Overseas Development Institute)* • ***Hayley Zipp*** *(Manager – Environmental Stewardship & Social Progress, International Council on Mining and Metals)* • ***Phil Burris*** *(Associate Director of Hydrogeology, Wardell Armstrong International Ltd)*
13.00–14.00	**Lunch *(Bring your own!)***
14.00–15.00	**Session 4: Pollution – Pathways, Impacts, Solutions** *(Presentations and Discussion)* Sources of natural and anthropogenic pollution threaten the integrity of water supplies, impacting health and ecosystems. This session profiles the sources, pathways and impacts of different types of pollution, and discusses possible solutions and management techniques. **Chair: Alison Parker (Cranfield Water Science Institute)** Speakers: • Geogenic Pollution (e.g., arsenic) – ***Mohammad 'Shams' Shamsudduha*** *(University College London)* • In-Direct Anthropogenic Pollution (e.g., saline intrusion) – ***Pauline Scheelbeek*** *(London School of Hygiene and Tropical Medicine)* • Waste (e.g., plastic) – ***Mike Webster*** *(WasteAid)* • Contaminated Land (e.g., through industrial activity) – ***Paul Nathanail*** *(Land Quality Management)*
15.00–15.40	**Session 5: Water and the SDGs** *(Interactive Exercise)* Using a model UN structure, we will explore the role of water in the Sustainable Development Goals. Small groups will work to identify the research and innovation priorities relating to water and the SDGs in different contexts.
15.40–16.10	**Break *(Tea/Coffee Available)***
16.10–17.00	**Session 6: WASH in Tanzania – At the Frontline of Water and Sustainable Development** *(In Conversation Style)* Returning to Tanzania, this session will explore water and sustainable development in Biharamulo and Chato districts, through the work of the Eleanor Foundation. Topics will include building good partnerships with government, links between water and health/education/ gender equality, challenges in practical development work, and what the future holds for this innovative charity. • ***Allister Carey*** *(Founder, The Eleanor Foundation)* • ***Dr Valerie Cameron*** *(Environmental Health Specialist, and CEO of VCK Consulting)* • ***Godfrey Gahanga*** *(Project Manager, The Eleanor Foundation, Tanzania), Via Skype (TBC)*
17.00–17.30	**Session 7: GfGD Annual Report 2018 - Championing the Role of Geoscience in Sustainable Development**
17.30–19.00	**Drinks Reception**

SPEAKER PROFILES

LORD DUNCAN OF SPRINGBANK FGS (UK GOVERNMENT MINISTER FOR SCOTLAND AND NORTHERN IRELAND). Lord Duncan has a degree in geology from St Andrews University and a doctorate in palaeontology from Bristol University. In 2014 Ian was elected to the European Parliament. There, he served on the Environment & Public Health (ENVI) Committee, the Industry, Research & Energy (ITRE) Committee, and the Fisheries (PECH) Committee. During his time in the Parliament, Ian's primary focus was climate change. He was a Parliamentary delegate to the UN Climate Change Conferences (COP) in Lima (2014), Paris (2015) and Marrakech (2016).

BENEDICTO HOSEA (KIGOMA RURAL REPRESENTATIVE, TANZANIA DEVELOPMENT TRUST). Benedicto has a degree in environmental planning from the Institute of Rural Development Planning in Dodoma, Tanzania. He is passionate about the role of youth in transforming rural communities to enable everyone to prosper, believing that small scale grassroots organisations can lead to decisive and far reaching changes in society. His goal is to lead young people and impoverished rural societies to successful self-sufficiency and prosperous lives through adapting their surroundings.

ROBERT KALIN (PROFESSOR OF ENVIRONMENTAL ENGINEERING FOR SUSTAINABILITY, UNIVERSITY OF STRATHCLYDE, GLASGOW). Robert's academic and professional interests are focused on Environmental Science and Engineering to underpin the global sustainability agendas. His work ranges from hydrogeology and palaeohydrology of local to regional scale groundwater systems, study of global biogeochemical cycles and climate change, to site specific biogeochemistry of water treatment, contaminated land and groundwater, development of new chemical analysis techniques for soil, air and water to better understand risk to humans and the environment. Robert has been active in research and capacity building in many countries in the Middle East, Far East, and Africa. Currently, he has projects underway in Malawi.

ALISON PARKER (LECTURER IN INTERNATIONAL WATER AND SANITATION, CRANFIELD WATER SCIENCE INSTITUTE). With a background in Earth Sciences and a PhD in hydrogeology, Alison has research interests in how managed aquifer recharge impacts water quality, with current projects in Kenya and India. She is also interested in urban sanitation and the circular economy. Alison teaches on Cranfield University's MSc in Water and Sanitation for Development.

EVA LUDI (HEAD OF WATER POLICY PROGRAMME, OVERSEAS DEVELOPMENT INSTITUTE). Eva is Head of the Water Policy Programme and a geographer with a diverse project portfolio. She has over 15 years of experience in research and policy particularly related to climate change adaptation, adaptive capacity, water and food security, sustainable rural development and sustainable natural resource management. Eva has done extensive research on the socio-economic dimensions of sustainable rural development and sustainable natural resource management and on sustainable soil and land management in the Ethiopian Highlands, East Africa and Central Asia. She has also conducted research on environmental conflicts and on reconciling nature protection and rural development in protected areas.

HAYLEY ZIPP (MANAGER – ENVIRONMENTAL STEWARDSHIP AND SOCIAL PROGRESS, INTERNATIONAL COUNCIL ON MINING AND METALS, ICMM). Hayley is a Manager at ICMM, an international organisation that brings together 27 mining and metals companies and over 30 regional and commodities associations to strengthen environmental and social performance and enhance mining's contribution to society. Hayley leads ICMM's water stewardship and climate adaptation programmes. Prior to joining ICMM Hayley worked for a London-based sustainability consultancy providing technical support for clients on improved environmental and social performance. Hayley holds an MSc in Environmental Technology from Imperial College and a BA Honours degree in Journalism and Communication from the University of Johannesburg.

PHILIP BURRIS (ASSOC. DIRECTOR, HYDROGEOLOGY, WARDELL ARMSTRONG INTERNATIONAL LTD). Philip is a Chartered Hydrogeologist with 27+ years international and UK experience in water resources, groundwater control and management, environmental hydraulics and risk assessment. His work overseas has taken him to Afghanistan, Australia, Cote d'Ivoire, Guinea, Iraq, Ireland, Kazakhstan, Kyrgyzstan, Mauritania, Morocco, Oman, Philippines, Saudi Arabia, Sierra Leone, Russia, and Ukraine. Philip has led major water and multi-disciplinary environmental projects for mining, oil and gas, infrastructure, utilities, defence and other sectors. He has extensive knowledge of integrated water resource management, engineering solutions, water treatment, total and circular water management, with specialist knowledge of water quality, groundwater behaviour and environmental hydraulics.

MOHAMMAD 'SHAMS' SHAMSUDDUHA (RESEARCH ASSOCIATE, INSTITUTE FOR RISK & DISASTER REDUCTION, UNIVERSITY COLLEGE LONDON). Shams is a Research Fellow at UCL, with specific research interests in (1) risks of water supply and food insecurity: resilience of terrestrial water resources to sustain irrigated agriculture and fresh drinking-water supplies in South Asia and Sub-Saharan Africa; (2) risk to public health and food-grain production associated with chronic exposure to toxic metals (e.g. arsenic, salinity) in untreated groundwater-fed water supplies in Asian Mega-Deltas; and (3) impacts of changes in global climate and land-use on groundwater replenishment and risks of rising sea levels, and more frequent and extensive flooding on livelihoods of dwellers in low-lying deltas in South and Southeast Asia.

PAULINE SCHEELBEEK (ASSISTANT PROFESSOR IN NUTRITIONAL AND ENVIRONMENTAL EPIDEMIOLOGY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE). Pauline is trained as an epidemiologist, with a PhD in global environmental epidemiology. She worked as outbreak control epidemiologist for MSF and subsequently as (spatial) epidemiologist for the Royal Tropical Institute in Amsterdam where she further developed her interests in health-environment interactions. Between 2015 - 2016 Pauline worked as post-doctoral researcher for Imperial College London and the Grantham Institute on salinity-induced cardiovascular disease modelling as well as impact assessments of reduced meat consumption on both population health and environmental sustainability. Pauline works, on a voluntary basis, as an advisor for several NGOs based overseas, where she uses her skills to assist local researchers.

MIKE WEBSTER (CHIEF EXECUTIVE, WASTEAID UK). Founder of WasteAid UK, Mike was voted in 2017 as the top waste and resource influencer in the UK by his peers. He has worked for 17+ years within the waste and resources sector in the UK and internationally, and has developed and grown not-for-profit consultancy, charity and ethical business and networking organisations. Mike is an accomplished waste business development specialist, having developed solid waste business and supported entrepreneurs, and consulted on and trained extensively within this area. His overseas work includes the South Pacific, Latin America and sub-Saharan Africa, managing ground-breaking projects delivering waste livelihoods, community waste management and research. He holds an MSc in Environmental Economics.

PAUL NATHANAIL (MANAGING DIRECTOR, LAND QUALITY MANAGEMENT). Dr Paul Nathanail is a Specialist in Land Condition (SiLC) and a Chartered Geologist. Paul's expertise includes developing decision support tools for regulators and industry, developing spatial and non-spatial environmental risk assessment tools and developing tools to facilitate sustainable brownfield regeneration. He has extensive contacts with industry and regulators in the UK, Europe, Africa, Asia and North America. He has recently been appointed to the Defra expert panel on contaminated land. He has acted as an expert witness in several planning, environmental and criminal cases.

VALERIE CAMERON (CHIEF EXECUTIVE, VCK CONSULTING). Dr Valerie Cameron is Guernsey's former Director of Environmental Health and Pollution Regulation, a role that included the Water Regulator and Drinking Water Inspector. She recently worked as a Consultant in Public Health with North Yorkshire CC, and now conducts consultancy work on a range of environmental public health themes. She visited Tanzania on numerous occasions to advise and support The Eleanor Foundation on their water and public health projects and is researching the effectiveness and impact of interventions into water and sanitation. Val is a Fellow of the Faculty of Public Health, a Chartered Fellow of the Chartered Institute of Environmental Health, a Chartered member of the Royal Environmental Health Institute of Scotland and is a registered Public Health Specialist.

ALLISTER CAREY (FOUNDER, THE ELEANOR FOUNDATION). Allister lives in Guernsey and had a long career working in investment management and stockbroking. Following the establishment of the Eleanor Foundation in 2012, he now devotes much of his time towards planning and developing the many projects undertaken in Tanzania and assessing the impact of the work carried out. He is a regular visitor to Tanzania having visited the country on 10 occasions since 2014. During this period, he has established strong relationships with local government officials and community leaders in Chato and Biharamulo Districts.

GODFREY GAHANGA (PROJECT MANAGER, THE ELEANOR FOUNDATION TANZANIA). Godfrey lives in Biharamulo (Tanzania) and is Project Manager for Eleanor Foundation Tanzania, responsible for the day to day management of the office and implementation of various projects. Godfrey has a degree in Community Development and has had training in sustainable agriculture practice and has worked on research studies on challenges of safe and clean water supply in rural areas.

CONFERENCE VENUE & DIRECTIONS

The conference will be hosted by The Geological Society, and held at their premises (Burlington House) in Central London. This venue is easily accessible by public transport. It is a short walk from both Piccadilly Circus and Green Park tube stations.

DIRECTIONS TO THE GEOLOGICAL SOCIETY, LONDON

Address: The Geological Society, Burlington House, Piccadilly, London W1J 0BG

Tel: +44 (0) 20 7434 9944

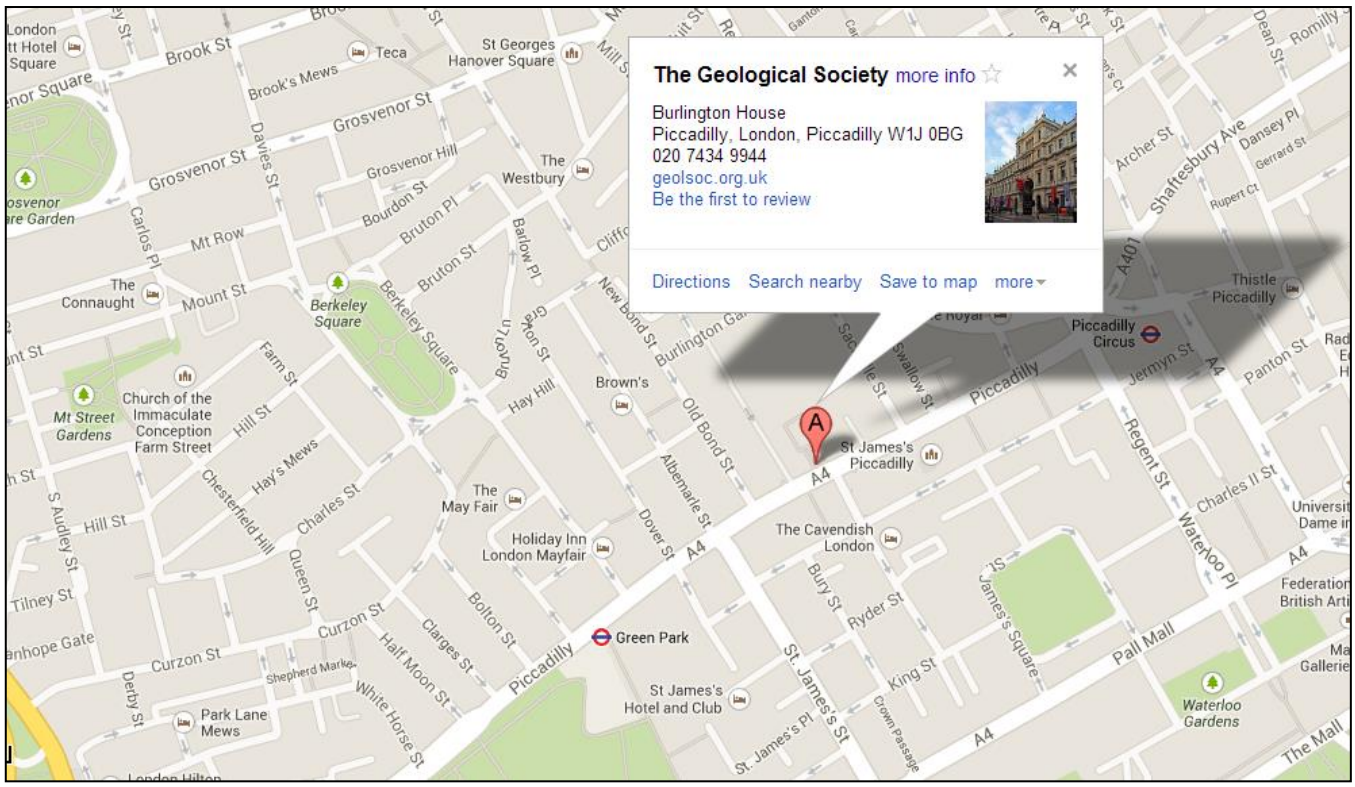
Website: www.geolsoc.org.uk/

How to get there from…

King's Cross Station: Take underground from King's Cross St. Pancras, Piccadilly Line towards Uxbridge alighting at Piccadilly Circus (5 stops, approximately 8 minutes). Take the exit from this station onto Piccadilly. The Geological Society is on the *north side of this road*, opposite Fortnum and Mason Department Store.

Euston Station: Take underground from Euston station, Victoria Line towards Brixton, alighting at Green Park (3 stops, approximately 5 minutes). Take the exit from this station onto Piccadilly. The Geological Society is on the north side of this road, opposite Fortnum and Mason Department Store.

Victoria Station: Take underground from Victoria station, Victoria Line towards Seven Sisters, alighting at Green Park (1 stop, approximately 1 minute). Take the exit from this station onto Piccadilly. The Geological Society is on the north side of this road, opposite Fortnum and Mason Department Store.



ABOUT US

Geology for Global Development **is a registered charity (1165663), existing to champion the role of geology in sustainable development, and mobilise and reshape the geology community to help deliver the Sustainable Development Goals.**

In 2015, the international community agreed the UN Sustainable Development Goals (SDGs), aiming to eradicate global poverty, promote sustainable consumption patterns, and facilitate sustained and inclusive economic growth, social development and environmental protection. Geology can play a vital role in addressing these challenges, but that requires enhanced knowledge, new skills, and strengthened links across civil society, government, academia and industry. In this context, we have published a 5-year strategy (2017-2021), setting out our vision and four strategic objectives.

OUR VISION. WE SEE A WORLD WHERE:

- Every geologist is equipped with the skills and understanding required to make a positive contribution to sustainable development.
- The geology community is actively engaged in the design, implementation, monitoring, and evaluation of international development activities.
- Organisations, governments and individuals have equal access to, and an understanding of, the geological science required to ensure sustainable development.

STRATEGIC OBJECTIVES

1. INSPIRATION. Promote the value of geology in supporting sustainable development. Many people are unaware of the role geology can play in supporting sustainable development. We will work towards greater recognition for, and understanding of, the role of geology in tackling significant global challenges (e.g., water security, food security, resilience to natural hazards, natural resource management, urbanisation, and climate change).

2. EDUCATION. Equip geologists to engage positively in sustainable development. The skills and knowledge required to make an effective and positive contribution to sustainable development are often missing from the traditional education and continued professional development of geologists. We will provide opportunities for geologists to develop these essential skills to best serve the communities that we engage with.

3. ACTION. Enhance the application of geology to international development. We will make a high-quality contribution to practical development projects. We will develop and support poverty-fighting programmes in collaboration with other UK-based and international organisations. By the end of 2021 we envisage our work having helped to address at least six of the UN Sustainable Development Goals, across five different countries.

4. LEADERSHIP. Exercise international leadership on matters relating to geology and sustainable development. We seek to be a recognised and trusted voice on 'geology and sustainable development', helping to reshape the global geology community to better serve society. We will grow in our international influence, and reputation for excellence.

ORGANISATIONAL DEVELOPMENT

To support the delivery of these objectives, we recognise the need to develop the following aspects of our organisation:

- **Finance**: We will seek a consistent income stream from multiple, diverse sources to promote greater financial resilience.
- **Personnel**: We will grow our Board of Trustees to ensure access to relevant experience and professional skills. We will grow our volunteer executive committee to ensure reliable, professional delivery of these strategic objectives. By 2021, we anticipate having transitioned to a paid staff team, working with a growing volunteer community.
- **Infrastructure**: We will explore the benefits and costs of operating out of a permanent headquarters, such as a host organisation.

Read more: www.gfgd.org/strategy

Geology for Global Development

Strategic Objective 2: #GfGDEducation

Our University Group Network

GfGD Glasgow hold a panel discussion on the significance of Geoparks (March 2018)

5th GfGD Annual Conference (November 2017) -- Cities – Opportunities and Challenges for Sustainable Development --

GfGD Sheffield Hallam hold a Mapathon (November 2017)

GfGD Cambridge hold several Mapathons (Spring 2018) and welcome new members at Fresher's Fair (October 2018)

GfGD Liverpool hold a book drive and cake sale at the Herdman Symposium (February 2018) and run a half marathon (March 2018) to raise money for GfGD

GfGD Oxford hold a talk on the 2015 Gorkha Earthquake in Nepal (November 2017)

GfGD Bristol sign up new members at Fresher's Fair (October 2018)

GfGD Southampton lead the Coastal Hydrogeological Aid Project (CHAPs) to research borehole failures in Rakhine State, Myanmar and run a 10K to raise money for GfGD (April 2018)

GfGD Imperial team up with Raincatcher Society and Crowd2Map to hold a mapathon focussing on rural Tanzania (November 2017) and welcome new members at Fresher's Fair (October 2018)

Glasgow
Edinburgh
Durham
Leeds
Liverpool
Sheffield Hallam
Leicester
Cambridge
Birmingham
Oxford
Cardiff
Bristol
London (UCL & Imperial)
Southampton
CSM

Find out more and get involved:

Website:	**www.gfgd.org**
Blog:	**blogs.egu.eu/gfgd**
Facebook:	**facebook.com/gfgd.org**
Twitter:	**@Geo_Dev**

Interested in starting a new University Group?
www.gfgd.org/contact-gfgd

Registered Charity, Number: 1165663.

SELECTED ACTIVITIES (2017–8)

INSPIRATION

- **Blog:** Hosted by the European Geosciences Union, our blog (**blogs.egu.eu/gfgd**) provides a forum for exploring issues relating to geology and development. It also gives students an opportunity to develop skills in science communication through writing guest blogs. We have four regular blog contributors: Heather Britton, Robert Emberson, Bárbara Zambelli Azevedo, and Jesse Zondervan.
- **Publications:** Peer-reviewed articles on the **Sustainable Development Goals** (Episodes), **Social Geology** (Proceedings of the Geologists' Association), and **Geoscience Engagement in Global Development Frameworks** (Annals of Geophysics) were published in 2017. We will soon issue a joint briefing note with the Geological Society of London and British Geological Survey on 'geology and the SDGs'.

EDUCATION

- **University Groups:** These groups, run by student volunteers, work to engage students with our national work, arrange seminars and discussion groups, and promote the vital role of geology within development. Activities are highlighted in the poster on **Page 11**.
- **Cities and Sustainable Development:** In November 2017, we welcomed over 150 people to our 5th Annual Conference, hosted by the Geological Society of London. This event examined the opportunities and challenges associated with cities, and projected future urban growth
- **Geoscience and Society Summit:** We have joined with organisations around the world to convene a 'geoscience and society summit' scheduled for March 2019 in Stockholm (Sweden). This **solution-focused event** will gather diverse sectors to explore global challenges, and the interdisciplinary partnerships needed to address these.
- **Education for Sustainable Development:** We were commissioned by the coordinating team of the International Commission on Education for Sustainable Development Practice Report, to write a paper on "Enhancing Earth Science Education to Support Sustainable Development" to inform this report. The report, to be published early in 2019, will define priorities in sustainable development education for the coming decade.

ACTION

- **Guatemala – Resilience to Volcanic Hazards:** We have been working with colleagues in Guatemala to develop a programme to help strengthen resilience to volcanic hazards in Guatemala. This work is particularly pertinent given the eruption of Fuego volcano in June 2018.
- **Geoscience Textbooks:** Building on our work in 2017, we have continued to collect geoscience textbooks and rehome these in institutions overseas.
- **Water for Sustainable Development:** We have started the scoping work, and grant applications, to develop a new international programme of work on building local capacity in water resource management in Tanzania.

LEADERSHIP

- **Geoethics:** In May 2017, we signed a Memorandum of Agreement with the International Association for Promoting Geoethics, and gave our support to the Cape Town Statement on Geoethics.
- **Partnerships:** In January 2018, we were officially recognised as an affiliated society of the International Union of Geological Sciences. This is an opportunity to strengthen links with, and influence, the global geoscience community.
- **Building Links in Ireland.** We greatly valued the opportunity to attend and give a keynote presentation at the Irish Geosciences Early Career Symposium in Galway earlier this year. We have started to build good relationships with key universities in Ireland, working with iCRAG (the Irish Centre for Research in Applied Geosciences) and look forward to fostering these relationships in the coming years.
- **UN Science, Technology and Innovation for Development Forum:** In June 2018, we attended this forum to champion the importance of geoscience in sustainable development. Read more on the GfGD blog (**https://blogs.egu.eu/network/gfgd/2018/07/12/event-report-un-science-technology-and-innovation-forum-2018/**)

MEET THE TEAM

The **BOARD OF TRUSTEES**, appointed to oversee and guide our work, consists of the following team:

JOEL GILL
INTERNATIONAL DEVELOPMENT GEOSCIENTIST, BRITISH GEOLOGICAL SURVEY

Joel has an interdisciplinary PhD in geography (natural hazards) from *King's College London*. In November 2016, he joined the *British Geological Survey*, contributing to their overseas development work. Joel founded *Geology for Global Development* in 2011 after working in Tanzania, and continues to coordinate its work.

JULIA HARTIGAN
CLIENT MANAGER, RISK MANAGEMENT SOLUTIONS

Julia is Client Manager at *RMS* where she advises on the use of catastrophe modelling techniques and solutions. Based in Zurich, she has worked with many global (re)insurance companies and public and academic partners on disaster risk management.

NIC BILHAM
UNIVERSITY OF EXETER

Nic recently started a PhD in ethical mining at the University of Exexter, before which he worked at the *Geological Society*, leading its delivery of policy, education, media and wider communications. Nic is European Continental Coordinator for the *International Association for Promoting Geoethics*.

EXECUTIVE TEAM

Day-to-day responsibility for the running of the charity is delegated to a volunteer Executive Director, working alongside a wider leadership team. Our current team has expertise in a wide range of geoscience sub-disciplines and skills, with each member acting as a thematic lead to help broaden the relevance of our work. The team currently consists of:

JOEL GILL
EXECUTIVE DIRECTOR, THEMATIC LEAD FOR GEOHAZARDS AND DISASTER RISK REDUCTION

Joel has overall responsibility for the leadership and management of *GfGD,* overseeing the implementation of our strategy and day-to-day operations. Core responsibilities include: external relations, internal team development, financial management, and project development.

EMILY WHITE
UNIVERSITY GROUPS, THEMATIC LEAD FOR CLIMATE CHANGE

Emily has responsibility for the management and development of our GfGD University Groups, acting as the link between these groups and the GfGD leadership (Executive and Trustees). Core responsibilities include: supporting GfGD Ambassadors, resourcing groups, and communicating their work.

LAURA ROBERTS-ARTAL
COMMUNICATIONS, THEMATIC LEAD FOR ENERGY

In 2017, we appointed Laura to take responsibility for developing and managing our portfolio of communications. Core responsibilities include: the GfGD blog, social media, brand management, website development, and advising on all aspects of our internal and external communications.

LAURA HUNT
ADMINISTRATION, THEMATIC LEAD FOR WATER AND ENVIRONMENTAL CHANGE

In 2018, we appointed Laura to support our administration, with diverse engagement in our fundraising, conferences and project management. Core responsibilities include: accounting and reporting, preparing for meetings and conference, and supporting the wider leadership team.

ALLIE MITCHELL
INDUSTRY ENGAGEMENT, THEMATIC LEAD FOR MINERALS RESOURCES

In 2018, we appointed Allie to help us develop our engagement with industry. Core responsibilities include: building links with geoscientists across all industries, advising the GfGD leadership team on how they can better engage with professionals, and developing new activities to involve professionals in our work.

GET INVOLVED

In 2019, we will be expanding both teams, ensuring we have the skills required to expand and enhance our work.