



Water for All Grand Challenge: Large Scale Solutions to Water Scarcity

29th November – 3rd December 2010

Low Wood Hotel, Lake Windermere

Call for Participants in a five-day sandpit focused on Large Scale Solutions to Water Scarcity

Closing date for applications: 1200 on 29 September 2010.

Introduction

In July 2010 an initial scoping workshop, attended by engineers, chemists, environmental scientists and water industry experts was run by the EPSRC Process, Environment and Sustainability (PES) Programme to identify possible research themes for a Grand Challenge in the area of 'Water for All'. One of the major challenges to be identified at the meeting involved exploring 'Large Scale Solutions to Water Scarcity' and this has therefore been adopted as the focus of this sandpit. This sandpit will take forward the evolving research agenda in this area to bring fresh approaches to this challenge.

The Research Challenge

The challenge identified for the sandpit is Large scale solutions to water scarcity. A third of the world's population lives in water-stressed countries now. By 2025, this is expected to rise to two-thirds. When the problem of water stress is conflated by poor infrastructure and dense populations, the consequences can be devastating.

Almost two fifths of the world's population does not have access to adequate sanitation. – *Water Aid*

It is almost inevitable that competition for sparse heterogeneously distributed water resources will lead to conflict. The threat of water scarcity could become insurmountable if action is not taken quickly to redistribute, reuse, generate and store water on a grand scale. Thus it is timely to explore new strategies and technologies and adapt and improve existing ones that could ultimately lead to water for all. Are there new technologies that could effectively transport fresh water over long distances? Can we efficiently and cheaply recycle the water used in dense populations where little infrastructure exists? Can we find novel ways of storing and cleaning water or generating it from saline sources in an energy efficient manner? The best minds in water research in the UK have often been directed to iterate upon solutions to well established problems within their own fields. With water engineering at the regional to global scale there is an opportunity to redefine the current paradigms and exploit the talent of *inter alia*, physicists, water engineers, chemists, biologists, earth system scientists, mathematicians and many other disciplines to develop radical new technologies, solutions and strategies.

A Sandpit for Ideas

The concept of the IDEAS Factory is to organise interactive workshops (sandpits) on particular topics, involving 20-25 participants. The focus for this sandpit is Large Scale Solutions to Water Scarcity.

The sandpit is sponsored by the EPSRC PES Programme. As such, anyone eligible to apply for funding from Research Councils UK can apply.

The Sandpit Event

The sandpit will run over **five days** starting mid-morning on day one and finishing mid-afternoon on day five.

As the sandpit progresses, participants will build up thoughts on how the identified 'challenges' may be addressed and develop their innovative ideas and activities into research projects, which contain genuinely novel and speculative investigations that address new approaches to changing travel behaviour, habits and practise. The sandpit will include inputs from a variety of sources.

Approximately £2.5 million has been allocated to fund collaborative research projects arising from the sandpit.

The research projects and novel ideas that are initiated by this event must address the objectives of the PES Programme.

Those selected to attend will receive further briefing before the event.

How will the Sandpit Work?

The sandpit is an intensive, interactive and free-thinking environment, where a diverse group of participants from a range of disciplines and backgrounds get together for five days – away from their everyday worlds – to immerse themselves in collaborative thinking processes in order to construct innovative approaches.

The sandpit will be led by a Director whose role will be to assist in defining the topics and aid facilitated discussions at the event.

The process can be broken down into several stages:

- Defining the scope of the challenges
- Evolving common languages and terminologies amongst people from a diverse range of backgrounds and disciplines
- Sharing understandings of the challenges, and the expertise brought by the participants to the sandpit
- Taking part in break-out sessions focused on the challenges, using creative thinking techniques
- Capturing the outputs in the form of highly innovative research projects
- A funding decision on those projects at the sandpit using "real-time" peer review.

The sandpit will be an intensive event. For the well-being of participants, the venue offers opportunities for relaxation, and the timetable will include networking and other activities to allow a break from the detailed technical discussions.

The Director will be joined by a small number of Mentors. The Director and Mentors will take full part in the sandpit, but will not be eligible to receive research funding, and so will act as impartial peer reviewers in the process.

Who Should Attend?

Having the right mix of participants influences the success or failure of such an event. Those attending will need enthusiasm and appropriate personal attributes to engage in collaborative research as well as demonstrate an enthusiasm for working at the interface between disciplines.

Applications are encouraged from diverse research areas across engineering, physical sciences, life sciences, the social sciences and the arts and humanities.

We are not defining the disciplines that should be represented at this sandpit; rather we are asking potential participants to indicate how their expertise can address the challenges of ensuring water for all.

Expertise is required from a very broad range of disciplines, and applicants should not feel limited by conventional perceptions: the whole IDEAS Factory sandpit approach is about bringing people together who would not normally interact. We actively encourage people to apply that are experts in their own research areas but have not yet applied themselves to the challenges of ensuring water for all.

Participants are welcomed at any stage of their research career as long as they meet EPSRC eligibility requirements to receive grant funding.

This is an opportunity to share ideas and develop future collaborations, to address some of the issues and problems around water scarcity.

It is emphasised that we are not defining the disciplines that should be represented at this sandpit. However we anticipate that researchers involved in engineering, physical sciences as well as the social sciences, geography and economics may be particularly well positioned to contribute.

Location and Date

The date for this sandpit is 29 November to 3 December 2010, at the Low Wood Hotel, Lake Windermere.

An application to attend will be taken to mean you are available for the whole duration of these dates, and will attend if selected.

The environment will encourage free and open-minded thinking, vital for the purposes of this event. Full details of the venue, how to get there and the accommodation arrangements will be sent to participants.

It should be noted that all accommodation, refreshments, breakfast, lunch and dinner costs will be met by EPSRC. EPSRC appreciates that as the sandpit is an interactive, 5 day residential event, requiring participants to be away from home for the whole duration, then this may cause complications with regards to

childcare. EPSRC expects that any additional costs relating to childcare should be met by your employer. All other travel expenses and incidental costs (such as sundries and bar bill) while at the event must be met by the participant.

If you need any adjustments made at the venue then please let us know by enclosing details as requested in the equal opportunities monitoring form.

Applying to Participate in the Sandpit

Applications are invited from individual academic researchers who can contribute to the sandpit and resulting research projects.

Applicants should complete the short Expression of Interest (EoI) form (**maximum two sides**), which can be downloaded at <http://www.epsrc.ac.uk/SiteCollectionDocuments/Calls/SandpitEoi.pdf>. Your answers to these questions will be used to assess your application and convince us that you have the suitable skills and attitude to participate in this sandpit. No further documentation will be accepted. **Please note that we are not looking for your academic publication or research track record but rather evidence of how you might approach multi disciplinary problems in a novel area.**

The deadline for applications is **1200 on 29 September 2010**. Applications should be submitted electronically. Please note that late submissions will not be considered.

Assessing Applications to Attend

Applications to attend will be considered by a multidisciplinary Selection Panel (including an Occupational Psychologist) in order to ensure a mix of disciplines and experience. Overall, the Selection Panel will seek to ensure that a balance of expertise is present at the sandpit. Their assessment will be based on the specific criteria outlined below:

- The ability to develop new, adventurous and highly original research ideas
- The potential to contribute to research at the interface between disciplines
- The ability to work in a team
- The ability to explain research to non experts

It is therefore important to give evidence of these in your application.

Have you applied to attend a sandpit previously? Have you attended a sandpit before? If so, you are not barred from applying or attending again. At the selection panel EPSRC will identify those applicants that have applied to sandpits previously and also those that have attended sandpits. These applications will be assessed against the selection criteria in the same way as all of the others. However, if in the last resort, two applicants are equivalent in terms of their technical expertise and personal qualities, preference will be given to the applicant that has not applied or attended a sandpit before.

Please ensure you fully complete the EoI form, as this is the **only** information on which potential sandpit attendees will be selected. It is therefore important to give evidence of your experience against the criteria in your application.

Applicants should show an appreciation of the challenges, the latest research and the current and future issues relating to water for all.

Please note that because of the large number of applications expected, we will not be able to give individual feedback to unsuccessful applicants.

Proposal Assessment

Following the sandpit, investigators involved in those projects recommended for funding will be tasked with writing a full proposal covering their intended activities as identified at the sandpit. The deadline for submission of full proposals is expected to be early February 2011. Proposals will be submitted via the Research Councils Joint Electronic Submission System (JeS). Further guidance on this part of the process will be available at the sandpit event.

The primary criteria used throughout the process of developing and assessing the final proposals will be how well proposals address the vision of the call.

We seek to support those that show:

- Novel highly multidisciplinary research projects, clearly reflecting the distinctive opportunity for creating such projects that the sandpit provides.
- Clear evidence that the team have the capability to deliver their project as a high quality multidisciplinary activity, provided both through the presentation and their activity during the sandpit.
- Clear relevance to and the potential to make a distinctive and novel contribution to addressing, the research, challenges in this area.

It is planned that participants will be provided with funding decisions prior to departure from the sandpit, although these will be conditional upon the subsequent receipt of full, worked up proposal documentation. Final funding decisions will be made by March 2011.

Any collaborative project funded through this programme must have a signed Collaborative Agreement between the partners before the start of any grant. The Sponsors of the Programme attach great importance to the dissemination of research findings and the publishing of information about the research they support in the public domain. However, all dissemination and publication must be carried out in the manner agreed in the projects collaboration agreement.

Attendance at the Sandpit does not guarantee funding will be obtained.

Expected Timetable

Call launched	16 August 2010
Call close (expressions of interest)	1200 on 29 September 2010
Participant Selection panel:	Expected end of October 2010
Sandpit:	29 November – 3 December 2010
Funding Announcement:	March 2011

Equal Opportunities

EPSRC are committed to a policy of equal opportunities for our applicants for funding. No eligible applicant should receive less favourable treatment on the grounds of disability, sex or gender re-assignment, marital status, sexual orientation, pregnancy, race, colour, nationality, ethnic or national origin, religion or belief, or contractual and work roles.

If anybody has any concerns regarding our equal opportunities policies or any other aspect of the sandpit application process then please contact us to voice these issues as we constantly strive for absolute equality within our organisation, and we make every attempt to make the sandpits available to as many people as possible.

To help us achieve our aim of equality and fair treatment, an equal opportunities monitoring form is supplied at the end of the Sandpit EoI form document (see p. 4). This form is optional; however, it will help us to monitor the effectiveness of our policy. The form will be removed from your application and the information you have provided will be used for statistical monitoring purposes *only*.

For Further Information

Please contact:

Duncan Shermer
EPSRC
Portfolio Manager
01793 442572

duncan.shermer@epsrc.ac.uk
waterforall@epsrc.ac.uk