

EDITORIAL

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Time to build capacity for evidence synthesis in environmental management

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The increasing need to intervene and manage our environment, from the local to global level, is evident from the impacts humans have on its condition. Nowhere on earth remains untouched by humanity. In turn, the state of the environment has both direct and indirect impacts on human health, wellbeing and developmental capacity. Environmental management is therefore inherently interdisciplinary and involves many interactions between the environment, human health, wellbeing and behaviour. Poverty alleviation is unlikely to be successful if we do not tackle climate change and food security, and similarly, disease eradication will not succeed without water security and pollution control. Environmental management is not an isolated task that can be put to one side in hard times but needs to be an integral part of all of our major global efforts to improve human welfare and quality of life. Tough policy decisions need to be made in environmental management just as in other sectors but the synthesised evidence base required to inform these decisions is largely absent. Although large amounts of data have been collected on the state of the environment, human impacts on the environment and effectiveness of efforts to manage it, this rapidly increasing body of data has not been organised into a coherent evidence base to inform decision making. The potential of this evidence to help us make tough decisions is therefore not being realised.

In contrast, the evidence base for many health interventions is well established. For example, in the health sector the Cochrane Collaboration Library (www.cochrane.org) contains in the order of 6000 systematic reviews (SRs) of evidence of effectiveness of health interventions, the equivalent Collaboration for Environmental Evidence (CEE) Library (www.environmentalevidence.org/Reviews.html) for environmental management contains just 60; a two-orders of magnitude evidence deficit. This imbalance between sectors is brought into sharp focus when interdisciplinary evidence is required, such as for international

development, where the need for policy to be evidence-informed is critical to achieving best use of scarce resources. Some examples of environmental systematic reviews informing international development are already published in this journal [1] and in the CEE Library [2,3], but many more are needed. A step change in evidence synthesis activity is required to bring environmental management in line with other major sectors, otherwise the continuation of this imbalance will likely inhibit development of an interdisciplinary evidence base sufficient to inform policy and provide win-win solutions for humans and the environment. The environmental sector urgently needs to play catch-up through a co-ordinated programme of evidence synthesis.

The CEE is a not for profit organisation and relies on the dedication and enthusiasm of contributors who form an open community of scientists and managers working towards a sustainable global environment and the conservation of biodiversity. We aim to increase effectiveness of environmental management by synthesising evidence on issues of greatest concern to environmental policy and practice. CEE has been successful in developing guidelines and standards for the conduct of environmental evidence synthesis as well as establishing a global network to promote this activity, including this journal. We currently have four Centres in Australia, South Africa, Sweden and UK. This openly collaborative and 'bottom up' approach has already enabled teams from many countries to conduct SRs to CEE standards and contribute to the growth of the CEE Library. We now urgently need to accelerate the growth of CEE activities and build much greater capacity to conduct systematic reviews and related evidence synthesis activities.

The CEE proposes a five-year programme to build capacity for the conduct and use of SR in the environment sector. The programme will; (1) Increase the commissioning and use of SR in evidence-based policy; (2) Develop the capacity of the global environmental research community to conduct SRs and; (3) Develop the capacity of CEE to co-ordinate and promote the conduct

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of SRs in the environmental sector. To execute this programme CEE is seeking to engage with a range of philanthropic, government and business funders. Key elements of the programme are as follows.

1. Conduct of SRs on questions selected by programme partners:

This core part of the programme will be spread across the global environmental sciences community through an open call for proposals for conduct of SRs. We anticipate a series of calls on an annual basis. On average each SR will require a budget of around US\$100 K. If we wish to begin to catch-up with health, by 2020 we would need in the order of 1000 SRs, requiring a budget of some \$100 M. At first this might seem a daunting or unrealistic figure, but in terms of the global economy it is modest and arguably a small price to pay to provide an evidence base for the management of the environment on which we all depend. The environment is ultimately our most important patient and we need to keep it healthy. An important point to make is that the vast majority of any funding will be dispersed among the many teams conducting systematic reviews and relative little would go to running the CEE network (see below). To incentivise the pool of potential evidence synthesisists and encourage the next generation to build their careers in this area it is vital to generate sufficient capacity and opportunity to achieve our aims.

2. Training events to develop SR skills:

Training for individuals and Review Teams is a critical element of capacity building. Recent experience has demonstrated that when funded programmes for SRs are established the experience of the Review Teams tendering for the contracts is low. Many teams have never conducted an SR before and do not necessarily understand the skills and resources required. CEE has developed a range of training opportunities both through training courses run by its Centres and a new distance learning course that will be available in 2014. Events will be run by certified trainers and co-ordinated by the CEE network of Centres. We intend to scale-up this activity across a greater geographical range. At the launch of the work programme for each call CEE will hold one or more training events based at its Centres and other suitable locations to prepare the Review Teams for their task.

3. Enable CEE to play a programme co-ordinating role:

Along with building global capacity for conducting SRs, the CEE network also needs to grow to meet the increasing demand for support and information

dissemination. In co-ordinating the programme and disseminating the outputs through its open access journal and web site platforms, CEE will need to establish a more functional infrastructure of regional/national Centres, Working Groups (e.g. for the development of Guidelines, methodology and training provision) and subject-based Review Groups.

All of these plans require a big effort on the part of those already active in CEE but also provide opportunities for others to join in and contribute to the growth of our network. We need more Centres and Groups, more trainers and leaders to take us to the next level. We may be on the cusp of an evidence revolution in environmental management but it will take a new wave of contributors and investment to make it a reality. The CEE website www.environmentalevidence.org has details of how you can engage.

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