

# Action on Engineering Skills Shortages In Flood Risk Management



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## Introduction

**The Environment Agency, Institution of Civil Engineers (ICE) and Defra are committed to improving the quantity and quality of staff working in flood risk management. All three organisations want to prevent present and future programmes of work being jeopardised by skills shortages and by a lack of suitably qualified staff. In responding to ICE's report on such skills, we recognise that an engineering skills shortage exists today and with increasing demand for flood risk management due to the impacts of climate change and the low numbers of students studying science, engineering and technology in secondary and higher education, this shortage is likely to get worse unless the present trend in supply of candidates is improved.**

The supply of good quality candidates in science, engineering and technology is likely to be a long-term problem and no one, simple solution will resolve recruitment difficulties. Rather, it will be necessary to introduce a series of actions that will improve the situation over time. To do this it is necessary to have a management plan with clear objectives.

The Environment Agency recognises the contribution it can make in this area, and will set up an Employers' Forum to address the issues. The Forum's membership will comprise representatives from client organisations, consultants, contractors and other organisations involved in flood risk management. While the Environment Agency's contribution is important, it must be clearly understood that the issues are shared across the industry and it is only with active support from the whole flood risk management community that the skills problem is likely to be resolved. Having said this, the Environment Agency recognises that the influence it has as a major client organisation in flood risk management is useful in generating support and action to successfully tackle this problem.

With the Employers' Forum in place, the various proposals presented in section 5 of the ICE report, 'Engineering Skills For Flood Risk Management' can be addressed. Our initial review of the report's recommendations has resulted in the following action plan.

## General

The plan for improving the supply of skills in the field of flood risk management must build on current initiatives already in place. Any new proposals should add to, rather than duplicate, existing services. Results should also be recorded where possible. At present there is an excessive number of programmes in operation, particularly at school level, and realistically we can support only those most suited to our needs. ICE will identify and suggest the best and most successful for us to support.

## Inspiring more school leavers to take relevant university courses

### *Provision of case studies as teaching materials*

The Environment Agency has already prepared a GCSE case study module through one exam board. Similar case studies should be offered to other exam boards, particularly for use

in mathematics and physics GCSE courses. The Environment Agency will develop this idea with help from the ICE Water Board and other organisations.

### *Provision of work experience to sixth formers and gap year students*

The Environment Agency and ICE will seek to expand work experience opportunities for school age candidates. This will include formal work experience, holiday work and gap year assignments. ICE will draft guidelines showing best practice in work experience and circulate this for comment by the Environment Agency and other principal organisations. The aim is to provide a guide to all potential employers of school age candidates so that the experience is beneficial to everyone involved. The Environment Agency will encourage all people and organisations it works with to accept work experience students in a planned and well-managed manner.

### *Improved careers advice*

The Employers' Forum will seek advice from the Association of Science Education (ASE) about how best to improve awareness among science teachers and careers advisors of the career opportunities in science, engineering and technology in general, and in flood risk management in particular.

ICE will promote itself as the main source of information for civil engineering skills and qualifications, especially among those who manage and influence careers advice. It will adopt a role similar to that already carried out by the Engineering Education Alliance. ICE will communicate positive messages about the breadth of civil engineering careers (including flood management). Within two years ICE will develop itself as a contact point for Scotland, Northern Ireland, Wales and each English regional development agency, providing advice and resources to those who wish to promote civil engineering within their region or country.

### *Provision of scholarships, bursaries and reduced tuition fees*

The Environment Agency will consider developing a sponsorship scheme for undergraduates, or consider joining ICE's QUEST/Industry partnership scheme, and encourage similar support from consultants and contractors. ICE should investigate the provision of bursaries, similar to those awarded in other areas of skills shortage, and establish

whether the scheme can be extended to include civil engineering.

ICE will press Government to support reduced tuition fees for civil engineering students.

### *Sector Skills Agreements*

Together with ICE, the Environment Agency will work with Construction Skills to ensure that any proposed Sector Skills Agreement seeks to address the shortfall in flood skills.

## Encouraging more graduates into flood work

### *Providing vacation work and sandwich course placements*

Along with other public-sector employers, the Environment Agency will consider setting quotas for the number of vacation work and sandwich students it takes each year, at the same time strongly encouraging consultants and contractors to do the same. ICE will set up a system to assess and record the quality of work placements, as an extension to the best practice guidance for work experience opportunities previously mentioned.

### *Providing case studies and computer models for undergraduate courses*

The Employers' Forum will head up an initiative working with universities, consultants and contractors to help provide case study materials, computer models and visiting lecturers and to help develop degree course content aimed at improving the relevance of the course to the real world of civil engineering.

### *Improving provision of postgraduate education in flood management*

The Employers' Forum will explore the potential for developing postgraduate course material to support existing courses. The Environment Agency will work with the engineering consultants and contractors to identify which universities may be receptive to developing such material and seek appropriate funding for its development. The Chartered Institution of Water and Environmental Management Diploma should be reviewed to see if the flood risk management modules can be adapted to suit the postgraduate proposals.

### *Improve support for structured professional development*

The Employers' Forum will help ICE to develop a bespoke graduate training scheme in flood risk management that aids recruitment and improves the professional career development of its members. The Environment Agency will also consider further development to its ICE graduate training scheme as part of this initiative.

ICE would like to thank The Environment Agency for their kind permission to use the images featured in this publication.

## Retaining existing staff

The Environment Agency will encourage the people and organisations it works with to obtain national accreditation for staff training and development, matching its own Investor in People standard.

## Improving skills through continuing professional development

The Environment Agency will take responsibility for the recruitment, training and development of its own staff and encourage the organisations it works with to be similarly committed to the goals identified by the Task Team and Employers' Forum. Through the consultancy tender process, the Environment Agency will check that people and organisations it intends to work with also provide suitable training for their staff.

## Importing staff from outside the UK

The Employers' Forum will consider setting targets for attracting qualified people from other countries, taking full account of the workforce needs of the country from which they come. Potential employees should only be taken from those countries with a surplus of properly qualified staff, or where a short-term assignment with a UK company will improve the individual's skills and experience prior to return.

## Improving salaries for flood management staff

The Environment Agency will work with Defra and other public authority flood management employers in researching the case for higher salaries within flood risk management. To help with this work, ICE will co-ordinate a comprehensive salary survey. The information from this survey and others will help the Environment Agency plan human resource requirements and related budgets.