



## Mechanical, Electrical, Instrumentation, Control and Automation (MEICA) scoping programme

### Science Summary SC70040/SS

This report, produced under contract by Atkins on behalf of the Environment Agency, describes a survey of possible research projects that might be undertaken or initiated by the Environment Agency in the field of mechanical, electrical, instrumentation, control and automation (MEICA).

In response to business needs, the Environment Agency has become more focused on research & development/science over recent years, and this has led to a study to investigate areas where MEICA science and research investment could most effectively be deployed. This project focuses particularly on the mechanical and electrical areas where strategic investment could bring benefits, setting aside such areas as civil structures or major construction, which are addressed separately in other projects.

Early on in the study, interviews were conducted with MEICA staff from the Environment Agency and other related organisations such as internal drainage boards and from their comments a list of possible projects was drawn up. Core members of the project team then assessed this list and divided projects into 'science', 'collation and best practice', 'scoping', 'park' and 'initially ruled out'. They also, in some cases, combined suggested projects where they were very similar, or grouped projects together under a more general project title.

This 'shortlist' of projects was taken forward to a workshop held on 25 February 2009, where projects were introduced by the project 'sponsors' and the attendees were then asked to score the projects in three ways:

- importance or benefit to the Environment Agency
- perceived difficulty
- expected cost.

The data was collated for analysis, and in chapter 4 of the report a series of figures present the results graphically, while the text elaborates and comments on some of the results.

In the light of this data, the shortlist was cut down to nine chosen projects, which the project team recommend that the Environment Agency should consider taking forward. The nine projects are as follows:

'Science' projects:

- (1) Improving the efficiency and best practice for pumps
- (2) Use of biodegradable oil as opposed to conventional products (Project 50)
- (3) Non-intrusive methods for detecting corrosion between plates and I-beams (critically relating to the Thames Barrier)
- (4) Alternatives to bespoke stop logs for gate structures

'Collation and best practice' projects:

- (1) Devices and methods for inspecting wire ropes
- (2) Best practice for use of remote camera surveillance or CCTV
- (3) Paint finishes for gates and structures
- (4) Identifying common signs leading to of gate and plant failure
- (5) Research into the use of alternative materials for flap valves, penstocks etc

The project team provide some guidance on prioritisation of these projects, and also some comments on possible sources of funding .

A very brief literature search on the chosen projects was also undertaken to get some idea of what information was already available.

The final chapter of the report summarises the recommendations, and this is followed by appendices, which give more detailed information on the comments made during the survey consultations and the voting results from the workshop, as well as project summary tables for the recommended projects.

This summary relates to information from Science Project SC070040, reported in detail in the following output:

**Science Report:** SC070040/SR1

**Title:** Mechanical, Electrical, Instrumentation, Control and Automation (MEICA) scoping programme

**ISBN:** 978-1-84911-098-3

**August, 2009**

**Report Product Code:** SCHO0809BQWU-E-P

**Internal Status:** Released to all regions

**External Status:** Publicly available

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**Research Contractor:** WS Atkins, Peterborough

This project was commissioned by the Environment Agency's Science Department, as part of the joint Environment Agency/Defra Flood and Coastal Erosion Risk Management Research and Development Programme.

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