

EA R+D Box 1



ENVIRONMENT
AGENCY

A Short Guide

EA-R+D



ENVIRONMENT AGENCY

NATIONAL LIBRARY &
INFORMATION SERVICE

HEAD OFFICE

Rio House, Waterside Drive,
Aztec West, Almondsbury,
Bristol BS32 4UD

Research and Development
in the Environment Agency

THE ENVIRONMENT AGENCY

The Environment Agency for England and Wales is one of the largest environmental regulatory and management organisations in the world. It has as its vision a better environment for England and Wales for present and future generations. The Environment Agency provides an integrated approach to environmental management through its various Core Functions for the protection and management of water, land and air. Its statutory duties and powers enable it to take a rational approach to regulation of industry and also to work actively - with others where appropriate - to prevent pollution, conserve natural resources, and protect and manage the environment.

PRINCIPAL AIM AND OBJECTIVES

The principal aim of the Agency, as set out in the Environment Act 1995, is to contribute towards achieving sustainable development. The Agency does this by working to the following broad objectives set by government:

- an integrated approach to environmental protection and enhancement, taking into consideration the impact of all activities and natural resources;
- delivery of environmental goals without imposing disproportionate costs on industry or society as a whole;
- clear and effective procedures for serving its customers, including the development of single points of contact with the Agency;
- high professional standards, using the best possible information and analytical methods;
- organisation of its own activities to reflect good environmental and management practice, and providing value for money for those who pay its charges, as well as for taxpayers as a whole;
- provision of clear and readily available advice and information on its work;
- development of a close and responsive relationship with the public, including local authorities, other representatives of local communities and regulated organisations.



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THE AGENCY'S MISSION FOR R&D

To contribute to a better environment by delivering practical research and development results based on high-quality science, engineering and technology.

AIMS AND OBJECTIVES FOR R&D

- to ensure that our R&D Programme supports the main issues facing our business functions;
- to ensure that our R&D Programme establishes and benefits from links with similar research being funded by other organisations;
- to help set the agenda for future environmental R&D in the UK and the EU;
- to ensure that the highest standards of research management are met and that clear benefits and value for money are achieved from the results;
- to produce outputs which are fit for purpose and, where appropriate, generate income from them and;
- to maintain and improve the scientific and technical expertise of our staff.

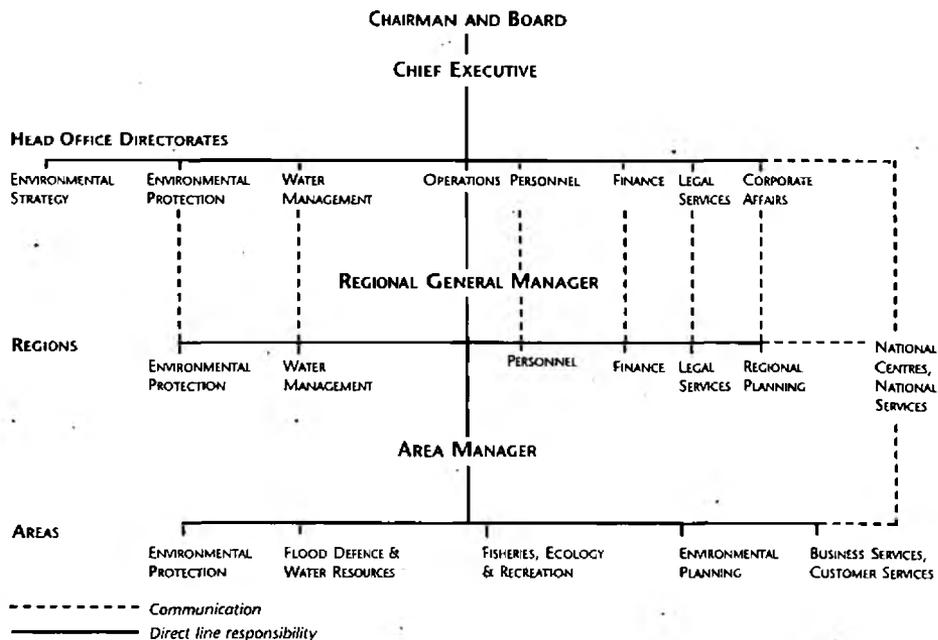
THE AGENCY'S ENVIRONMENTAL MANAGEMENT RESPONSIBILITIES

The Agency takes a wide view of environmental management, while remaining an impartial regulator in the best tradition. Its main regulatory and management responsibilities for protecting the environment are to:

- regulate more than 2,000 industrial processes with the greatest polluting potential, ensuring the Best Available Techniques Not Entailing Excessive Cost (BATNEEC) are used to prevent or minimise pollution to the environment;
- regulate the disposal of radioactive waste at more than 6,000 sites including nuclear sites; to regulate the keeping and use of radioactive material and regulate the accumulation of radioactive waste at non-nuclear sites;
- regulate the treating, keeping, movement and disposal of controlled waste involving 7,500 waste management sites and more than 77,000 carriers and brokers, so as to prevent pollution of the environment or harm to public health, in a manner which is proportionate to the threat posed;

- preserve or improve the quality of rivers, estuaries and coastal waters through pollution control powers, which include more than 77,000 discharge consents and the regulation of more than 6,000 sewage treatment works;
- take any necessary action to conserve, redistribute, augment and secure the proper use of water resources, in part through the regulation of 48,000 licensed water abstractions;
- exercise supervision over all matters relating to flood defence, involving more than 34,000 km of defence works, and undertake certain measures approved by Regional Flood Defence Committees;
- maintain, improve and develop salmon, trout, freshwater and eel fisheries and regulate them through a system of licensing, byelaws and orders, including the issue of more than one million angling licences;
- conserve and enhance the water environment, including areas of outstanding natural beauty or environmental sensitivity extending to nearly four million hectares and, where appropriate, promote the recreational use of water;
- maintain or improve navigation on waters for which the Agency has navigation responsibilities, including licensing 37,000 boats on 800km of navigation;
- regulate the remediation of contaminated land designated as special sites;
- administer registration of business and exemption schemes, in accordance with regulations on producer responsibility; to monitor and enforce associated obligations;
- gather environmental information and promote an understanding of methods for environmental protection and management, including forming and overview of the general state of environmental pollution.

ORGANISATIONAL STRUCTURE OF THE AGENCY



The Agency has three technically-based policy Directorates – Chief Scientist and Environmental Strategy, Environmental Protection, and Water Management – which together are responsible for the 13 Core Functions’ (such as Land Quality or Fisheries). These Core Functions are the Agency’s internal customers for R&D Commissions. The Chief Scientist is responsible for the overall programme, its relevance, its balance, and its relationship to the wider R&D spend across government departments.

The Agency’s R&D Programme is driven from needs that arise at three distinct levels within its organisational structure: *strategic* – via the Chief Scientist and Environmental Strategy Directorate; *policy* and *national issues* – via Head Office Directorates generally; and *operational*, through Regions and Areas. However, a lead on national issues is not taken solely by staff based in Head Office; staff based in a Region or at a National Centre outside Head Office may be given a national role as part of their job.

The Agency’s six National Centres and three specific National Services (see opposite) contribute to all sectors of its business. They provide an important resource both for undertaking R&D work and for developing and maintaining contacts with the research community outside the Agency.

ENVIRONMENT AGENCY NATIONAL CENTRES AND SERVICES INVOLVED IN R & D

- National Centre for Environmental Data and Surveillance, Bath
- National Groundwater and Contaminated Land Centre, Orton, Solihull
- National Centre for Ecotoxicology and Hazardous Substances, Wallingford
- National Centre for Risk Analysis and Options Appraisal, Westminster, London (to be relocated in 1999)
- National Centre for Water Demand Management, Worthing
- National Centres for Coarse /Salmonid Fisheries, Kidderminster and Cardiff
- National Laboratory Service, Headquarters, Nottingham
- Environmental Protection National Service, Westbury-on-Trym, Bristol
- National Service for Compliance Assessment, Lancaster

WHY CARRY OUT R & D?

Carrying out R&D to support its activities is an essential part of the Environment Agency's business. It must ensure that, in all its business areas, it operates to high professional standards. These must be based not simply on principles of best practice and cost effectiveness, but also on the best possible understanding of the environment and the processes which might affect it. In this respect, it must always be looking to the future, and considering the changing issues it needs to address and the framework of legislation and public expectation within which it must operate.

The importance of the Agency using R&D to support its business activities is underpinned by its statutory duty to "make arrangements for carrying out R&D in respect of matters to which its functions relate". The Agency's R&D is thus focused on ensuring that environmental management is undertaken effectively, and not simply on environmental issues.

WHAT TYPE OF R&D DOES THE AGENCY CARRY OUT?

The Environment Agency carries out R&D for a range of purposes in support of its business, covering strategic, policy response or operational activities. R&D can address any of the following business questions:

- Is the Agency able to respond effectively to external influences?
- Is the Agency able to forecast its future needs?
- Is the Agency able to maximise the returns from its own resources and efforts and, through its actions, the investment made by others in the environment?
- Is the Agency able to account for the consequences of its actions and decisions, over different time-scales and across the environment as a whole?
- Can the Agency use research to make better decisions and to act more effectively?
- Is the Agency in a position to influence other people and what they want?

Because of this business orientation, the Agency's R&D Programme will always be structured towards the 'sharp end', in terms of the end-user of its products. These products could range from hardware, such as a test kit for detecting pollutants in the environment, through to 'soft' products, such as procedures for monitoring the environment. Products may be totally new, but more often will build on existing practice and understanding, thus helping the Agency to ensure that it follows 'best practice'. Indeed, establishing what best practice comprises is often a necessary first step in establishing a baseline against which further R&D is defined.

On the spectrum of research from curiosity-led to practical application, the Agency's R&D will generally be practical – **applied specific or development** (Frascati definition) – although it will always consider supporting more broadly based research where this is needed to underpin its business.

The overall rationale for the Agency's R&D Programme is explained in its R&D Strategy. The research objectives addressed by the R&D projects fall into 12 thematic programmes covering Frameworks and key Environmental Themes for managing the environment.

MANAGEMENT STRUCTURE OF THE R&D PROGRAMME

The Agency has 13 Commissioned Programmes of R&D projects, each reflecting the policy and operational interests of one of its Core Functions (see Box). The size and balance of policy and operational research for each Commissioned Programme varies – the largest are for those Environmental Protection Functions, such as Water Quality, where there is significant policy and operational change. The Agency's overall R&D budget for 1998/99 is £11M.

The related Function Committee, comprising the Head of Function plus eight Regional Function Managers, acts as a **Customer** for each Commissioned Programme. A nominated **Programme Officer** – from the core function concerned – is responsible for managing each function's Commissioned Programme and for ensuring the delivery of the R&D products to its customers. Where necessary to assist management, a Commissioned Programme may be subdivided into a number of Topic Areas, each covering a specific sector of the Commissioned Programme and led by a **Topic Leader**.

Published Programme

The Agency publishes its approved R&D Programme early in the fiscal year (April/May). To obtain a copy, external organisations should contact the R&D Programme Officer at Head Office or visit the Agency's Web Site (www.environment-agency.gov.uk). In addition to 'new start' projects, the Programme always contains a significant number of projects continuing from the previous year. The Agency also publishes a list of Programme Officers and Topic Leaders for the Commissioned Programmes, to whom specific technical queries should be addressed.

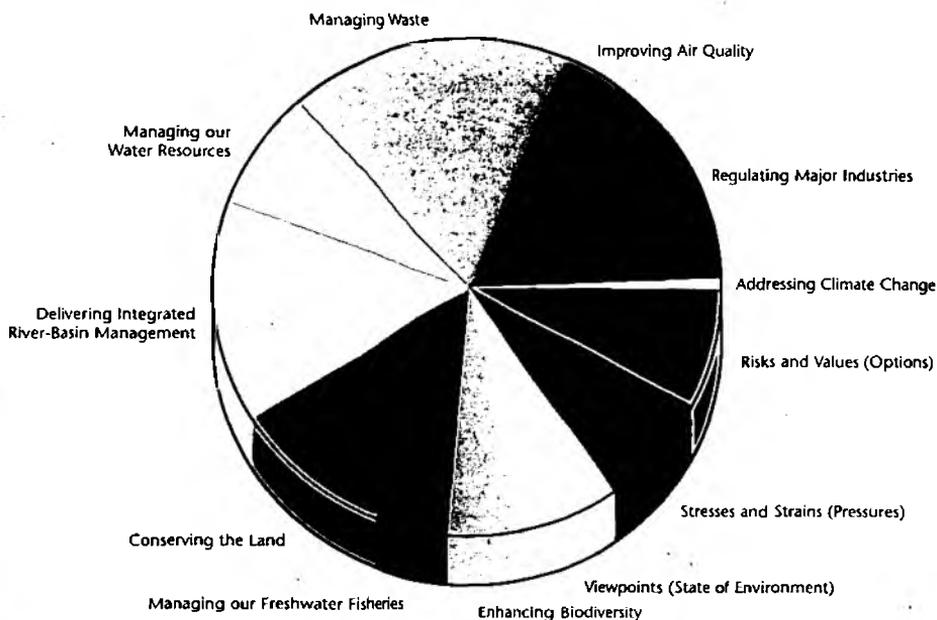
External links

The effectiveness and value to the Agency of its R&D Programme depends strongly on the extent to which it links with those of other research-commissioning organisations in the public and private sector. The Agency **collaborates** with R&D organisations having similar business or science, engineering and technology (SET) interests to develop shared approaches or partnerships, and/or avoid overlaps. The Agency also aims to influence the R&D Programmes of other organisations, particularly those – like the Research Councils – responsible for developing underpinning knowledge. Benefits may accrue in terms of additional resources, sharing or developing know-how and knowledge, and/or staff development – three key criteria against which the Agency will judge the benefits of external liaison. Organisations and groupings with which the Agency aims to work are listed in the box on pages 10 and 11.

COMPOSITION OF 1998/99 R&D PROGRAMME

THEMATIC STRUCTURE

R&D Programme by Framework and Key Themes



Frameworks – Understanding the Environment

- Viewpoints (State of Environment)
- Stresses and Strains (Pressures)
- Risks and Values (Options)

Response – Key Environmental Themes

(Delivering a Better Environment)

- Addressing Climate Change
- Regulating Major Industries
- Improving Air Quality
- Managing Waste
- Managing our Water Resources
- Delivering Integrated River-Basin Management
- Conserving the Land
- Managing our Freshwater Fisheries
- Enhancing Biodiversity

R & D COMMISSIONS

R&D Programme by Commissioned Programme



Environmental Protection

- P1 Waste Regulation and Management
- P2 Water Quality
- P3 Radioactive Substances Regulation
- P4 Process Industries Regulation
- P5 Land Quality

Water Management

- W1 Conservation
- W2 Fisheries
- W3 Recreation and Navigation
- W4 Local Government Liaison
- W5 Flood Defence
- W6 Water Resources

Environmental Strategy

- E1 Environmental Monitoring and Assessment
- E2 Sustainable Development

EXTERNAL COLLABORATING ORGANISATIONS AND GROUPINGS

Department of the Environment, Transport and the Regions (DETR), Ministry of Agriculture, Fisheries and Food (MAFF) and Welsh Office, as the Agency's parent departments have parallel R&D Programmes to develop policy, advise ministers and address international obligations.

Department of Trade and Industry (DTI) has common interests, both with regulated and environmental industries, and through Office of Science & Technology with the Technology Foresight initiative.

Scottish and Northern Ireland Environment Agencies have similar roles to the Environment Agency, providing common R&D interests and the ability to carry out some R&D on a national (UK) basis.

Research Councils' support for research institutes and academic organisations underpins the nation's science (SET) base. The four principal Research Councils are the Natural Environment Research Council (NERC), Engineering and Physical Sciences Research Council (EPSRC), Biotechnology and Biological Sciences Research Council (BBSRC), and Economic and Social Research Council (ESRC). The Agency will liaise with the health sector through the Institute for Environment and Health (IEH).

Industry Groups collaborate with the Agency in areas of common interest, provided this does not prejudice the Agency's independence. Examples are the Chemical, Water, Waste, and Environmental Industries, and bodies like the CBI and Business in the Environment.

European Groups – the Agency has common interests with other European regulators as correspondents with the European Environment Agency, and with DG XI (Environment), DG XII (Research), DG XIV (Fisheries) and DG XXI (Industry) in the Commission for European Communities.

Other Public Bodies – the Agency shares interests with English Nature, Health & Safety Executive (HSE), British Waterways, Broads Authority, Highways Agency, etc.

Key International Organisations – the Agency will work with various leading environmental groups including UN organisations (WMO and WHO) and international bodies such as International Association of Hydraulic Research (IAHR) and Society for Environmental Toxicology and Chemistry (SETAC).

EXTERNAL COLLABORATING ORGANISATIONS AND GROUPINGS

US Leaders with which the Agency will collaborate in keeping abreast of best practice and other advances include the Environment Protection Agency (EPA), Water Environment Research Federation (WERF) and US Army Corps of Engineers (Flood Defence).

Research Foundations and Associations can provide independent funding (Wellcome Foundation, Nuffield Foundation) and/or broker collaborative projects (e.g. Construction Industry Research and Information Association (CIRIA) and Centre for Exploitation of Science and Technology (CEST)).

ROLE OF THE R&D SECTION

The R&D Section, which operates under the Agency's Chief Scientist, ensures that effective external links are maintained with the above organisations. Its main task, however, is to plan, coordinate and check the quality of the R&D Programme to achieve value for money and excellence. Its duties are listed in the adjacent box.

The Agency publishes a contact list of staff in the R&D Section. These are based either in the R&D Unit at its Bristol Head Office or in the R&D Management Support Service covering the Agency's offices in Bristol, London, its Regions and its National Centres. (The R&D Management Support Service covers R&D planning liaison with different Programme Officers, and project management within the different geographical areas concerned).

DUTIES OF THE AGENCY'S R&D SECTION

Develop and implement Agency R&D policy through published R&D Strategy, agreements and related R&D policy / guidance documents.

Develop and maintain links with external R&D organisations, including other R&D commissioning organisations, potential contractors, and others involved in research partnerships and the exchange of information and knowledge.

Oversee R&D Programme planning through internal guidance, circulation of relevant external information and co-ordination of the planning process (including annual R&D Programme Board).

Co-ordinate and undertake quality control R&D Programme, through R&D Assessment Process and PAB (Project Assessment Board), including updates to R&D Programme.

Support uptake of R&D products through auditing internal implementation and establishing external dissemination procedures and outlets.

Provide R&D Management Support Service to R&D Programme Officers and Project Managers, including maintaining R&D database (Management Information System) and R&D management guidelines.

PLANNING THE R & D PROGRAMME

The R&D planning process fits into the Agency's annual corporate planning process. It also links with the overall public-sector ROAME R&D Assessment framework (**R**ationale, **O**bjectives, **A**ppraisal, **M**onitoring, **E**valuation).

Through this, each Commissioned Programme is actively managed to link in with the business of the Core Function concerned through the setting of its Rationale (eg linkages to statutory duties) and Objectives (eg R&D issues on which a significant advance is to be made). These objectives are set both at Programme (up to five-year horizon) and Project level.

Annual Programme Review Process

The R&D Unit coordinates the annual review process for the Commissioned Programmes, through which progress is assessed, new R&D projects are identified, and the R&D Programme and budget for the following year is

confirmed. This process is driven by the Agency's overall Environmental Strategy, its own corporate objectives, and Functional Action Plans (see R&D Strategy for more detail). The Agency does not generally invite external submissions.

However, the Agency works with many external organisations (see box). Discussions aimed at reviewing and identifying areas of common R&D interest and avoiding overlaps in future work are normally held during the period June to September before the start of the programme in the following April/May. (Where it is agreed that an external organisation should submit a proposal, the submission forms for 'Project Expenditure/Authorisation' and 'Product Description' can be obtained from the R&D Service).

The annual review process results in the agreement, by the Agency's internal R&D Programme Board, of a prioritised programme of projects and budget for each Commissioned Programme. These are then published in the externally-available R&D Programme (see Published Programme) and developed as new project starts, each with a nominated Project Manager.

External Evaluation of R&D

Separately from its use of External Expert Advisors, the Agency will use independent experts to carry out a rolling series of reviews and evaluations of different sectors of its Commissioned Programmes. It is intended that these should evaluate the quality and usefulness of the R&D Programme, and contribute towards the establishment of the long-term objectives of the Commissioned Programme concerned.

CARRYING OUT R&D PROJECTS

The Agency has about 300 projects listed in its 1998/99 R&D Programme. (We regard this as the upper limit and are actively seeking to focus the programme into fewer, larger projects). The duration and budget of projects varies considerably. Most last between nine and thirty months, and have a budget in the range £40k to £150k. For the Agency, an R&D project will usually involve

- (a) identification, appraisal and planning of the overall project;
- (b) specification and procurement of R&D work;
- (c) carrying out the research and/or development work;
- (d) approval and finalisation by Agency of the project outputs and the plan for their implementation; and
- (e) implementation of outputs by end-user, plus general dissemination of the results of the project.

The bulk of the Agency's R&D work is procured externally through competitive tender, with about 10% being undertaken in-house by its own specialists – particularly its National Centres (eg development of aerial surveillance techniques). The Agency aims to spread the procurement of R&D contracts across the year; at any time about 250 contracts will be active.

Research Contractors

The Agency selects its research contractors on the basis of value for money against an R&D specification. Value for money means that both the cost of the research and the excellence of the proposed method (in terms of quality of the scientific/technological approach and staff qualifications) are taken into account in determining the preferred contractor.

The Agency's R&D Service maintains a list of potential research contractors to which external research organisations may supply details. A registration form is available from the R&D Service Manager. The Agency will not be bound by this list in determining potential tenderers, however. R&D contracts may sometimes be awarded by single tender action (ie direct negotiation with a single potential contractor) in circumstances of

- (a) uniqueness of R&D provider,
- (b) co-funding, and/or
- (c) a wider partnership agreement having already been established.

Project Management

Each R&D project will be the responsibility of an Agency Project Manager from the relevant Core Function or National Centre, chosen for his/her understanding of the scientific or technical issues concerned. This Project Manager will work alongside a designated R&D Management Support Officer, and may be assisted by a Steering Group (or Project Board) on scientific and technical issues. Other supporting Agency staff will usually assist with procurement and legal issues. In some cases, the Project Manager will be assisted by an Expert External Advisor in the topic concerned.

As a non-departmental public body, the Agency is necessarily bound by a range of procurement and project management procedures, common to public bodies, which are aimed at ensuring propriety and value for money.

DISSEMINATION AND AVAILABILITY OF R&D OUTPUTS

The Agency disseminates R&D outputs in a range of formats – R&D Publication; R&D Technical Report; R&D Technical Summary; and R&D Project Record as well as other purpose-made products such as posters and handbooks. Dissemination of R&D results is also supported by the following:

- published listing of all R&D outputs (updated quarterly);
- single-page R&D Technical Summary to publicise each R&D output internally and/or externally; and
- Annual R&D Review – the Agency's formal annual report on its R&D duty, reviewing the last year's outputs and describing current year's programme.

It is the Agency's policy to encourage other appropriate dissemination of information on R&D projects through papers and articles in both the popular and scientific literature, and through seminars and conferences held during or following the R&D work. Arrangements for this must be made with the knowledge of the Programme Officer concerned.

Wherever possible, the Agency makes available the results of completed R&D projects internally for general dissemination to its own staff, and externally to the general public. This is coordinated by the Agency's National Library Information and Service (NLIS). An internal brochure, "How to Identify and Obtain Environment Agency R&D Outputs" is available from the NLIS or the R&D Service. Any Agency staff member wishing to know how best to obtain any R&D output should consult this brochure.

The published listings of all R&D outputs, and most of the items themselves, are available to the public through the Agency's R&D Dissemination Centre below. Some R&D outputs are available only through The Stationery Office or its designated agents. R&D outputs are generally priced to enable external dissemination to be self-financing. However, the cover price is always considered against the desired circulation.

WRc plc (Water Research Centre)
Frankland Road
Blagrove
Swindon
SN5 8YF
Tel: 01793 511711
Fax: 01793 511712

Internet World Wide Web: www.wrcplc.co.uk/rdbookshop

Information on R&D outputs is catalogued on the Agency's Library and Information System database, which can be searched on request at the National Information Centre in Rio House. Copies of all R&D outputs are also lodged with the Agency's National Information Centre at the Head Office, Rio House, where they can be viewed by Agency staff and members of the public.

Information on the Agency's R&D outputs and their R&D Technical Summaries will be accessible on the Agency's Web Site, which will also carry details of the proposed new-start projects. There will be a 'hot link' to the Agency's R&D Dissemination Centre so that interested parties can order R&D outputs.

FELLOWSHIPS AND STUDENTSHIPS

The Agency supports some research – through fellowships and studentships – which is aimed at contributing to the knowledge base that underpins its SET activities. A general objective of the Fellowship and Studentship Scheme is to improve links between Agency staff and research workers, which contribute to the working to high professional standards. Details of the Agency's Fellowship and Studentship Scheme are announced separately from its R&D Programme and can be obtained from the R&D Unit at Rio House. Up to six Fellowships or Studentships are usually awarded annually in subject areas determined by the Agency. Some of these are identified and co-funded with the Research Councils and with Foundations.

MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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R&D Management Support Officers are located in each of the Regional Offices

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Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
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Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES

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Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WELSH

Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0LT
Tel: 01222 770 088
Fax: 01222 798 555



For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60

ENVIRONMENT AGENCY



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