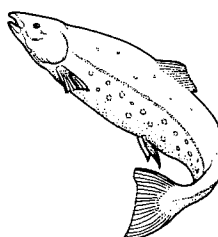
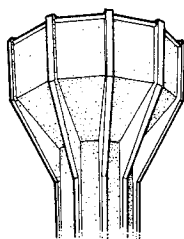
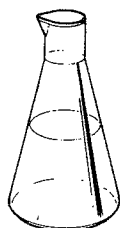
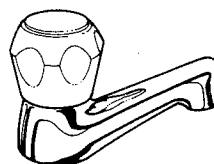
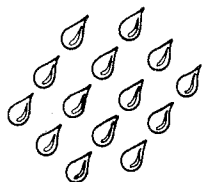


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Foreword

This edition of *Waterfacts* relates mainly to the financial year 1990/91, but later information has been included where appropriate.

We have always asked for our readers' suggestions and criticisms. The invitation this year is especially important because we are carrying out a major review of the content and format of *Waterfacts*.

This is part of the general communications review being carried out by WSA's new communications director, Stephen Robin. It will also enable us to take account of the publication of water information by OFWAT and CRI (see page 53 of this edition to find out what the initials mean!) So this is your opportunity to influence the future shape of *Waterfacts*.

Please tell us what you particularly value and would like to see retained. Tell us also what you think is redundant. Above all, tell us what is missing or needs developing.

Michael Carney, Secretary, Water Services Association
Philip Turton, Editor, *Waterfacts*

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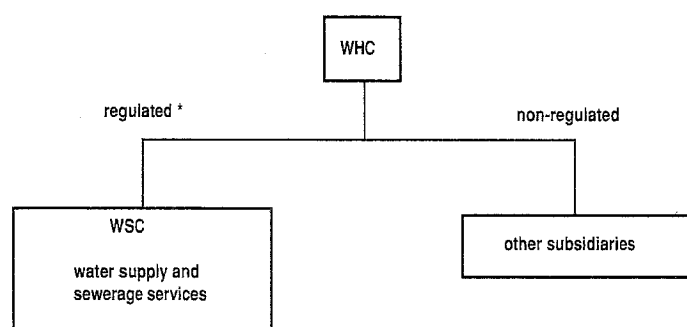
1. Organisation of water services

WATER SERVICE COMPANIES (WSC)

The ten WSCs were appointed on 1 September 1989 under the Water Act 1989 as water and sewerage companies responsible for water supply and sewerage services within their water regions and sewerage regions respectively. The water and sewerage regions are broadly within the same geographical areas as their predecessor water authorities. The two regions broadly coincide, except where water is supplied by one of the 29 Water Companies or where water supply or sewerage services are carried out by neighbouring Water Service Companies.

The WSCs are the principal operating subsidiaries of the 10 Water Holding Companies (WHCs) which are plcs established under the Companies Acts. It is the WSCs, the "core businesses" which have statutory responsibilities relating to water and sewerage services and are licensed to provide these services within their boundaries.

FIG 1A. WATER HOLDING COMPANIES (WHCS) AND WATER SERVICE COMPANIES (WSC)



* the regulated business consists of the water supply and wastewater activities within the WSC, not the WSC itself

The principal regulatory provisions, applying to water and sewerage undertakers are set out in the Water Act, in regulations made under it and in the conditions of the Appointments. Most of the recent business activities of each of the Water Groups consist of water supply and the provision of sewerage services and are, accordingly, regulated under these provisions. With certain exceptions, the regulatory provisions do not apply to business activities of the Water Groups which are not connected with the carrying out by the Water Service Companies of their water and sewerage functions.

1A. FORMAL TITLES AND SHORTENED FORMS OF EACH OF THE COMPANIES

Water Holding Companies	known as	Water Service Companies	known as
Anglian Water Plc	Anglian	Anglian Water Services Limited	Anglian Water
Northumbrian Water Group Plc	Northumbrian	Northumbrian Water Limited	Northumbrian Water
North West Water Group Plc	North West	North West Water Limited	North West Water
Severn Trent Plc	Severn Trent	Severn Trent Water Limited	Severn Trent Water
Southern Water Plc	Southern	Southern Water Services Limited	Southern Water
South West Water Plc	South West	South West Water Services Limited	South West Water
Thames Water Plc	Thames	Thames Water Utilities Limited	Thames Water
Welsh Water Plc	Welsh	Dŵr Cymru Cyfyngedig	Dŵr Cymru
Wessex Water Plc	Wessex	Wessex Water Services Limited	Wessex Water
Yorkshire Water Plc	Yorkshire	Yorkshire Water Services Limited	Yorkshire Water

Details of the board members and chief officers of each of the companies are listed in *Who's Who in the Water Industry*.

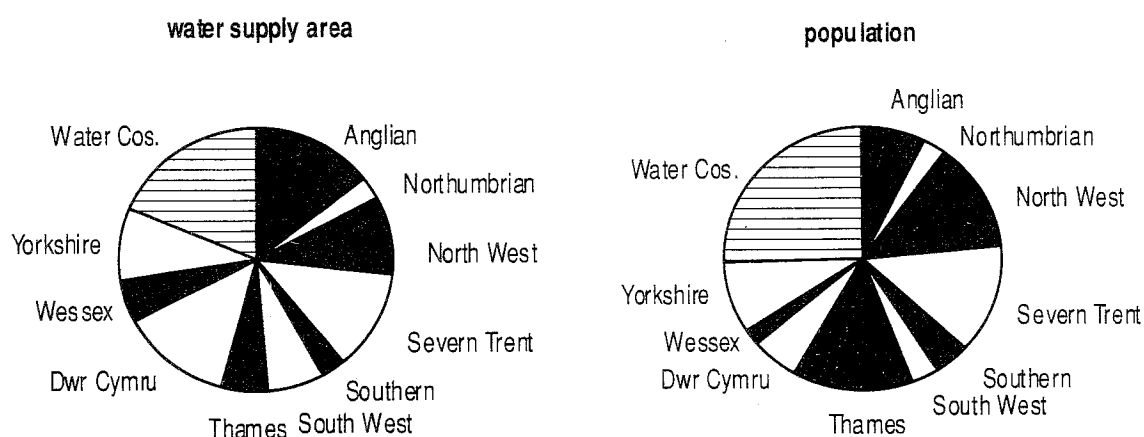
This is published for the Water Services Association by the Turret Group plc and available from:-

Turret House, 171 High Street, Rickmansworth, Herts WD3 1SN, tel: 0923 777000, fax 0923 771297.

1B. RESIDENT POPULATION AND AREA 1991

	Area		Resident population	
	water supply	sewerage	water supply	sewerage
	km ²	km ²	millions	millions
Anglian	22,000	27,000	3.8	5.4
Northumbrian	3,850	9,400	1.2	2.6
North West	14,415	14,445	6.8	6.8
Severn Trent	18,960	21,650	6.9	8.3
Southern	4,450	10,450	2.1	4.3
South West	10,300	10,800	1.5	1.5
Thames	8,200	13,750	7.3	11.7
Dwr Cymru	20,400	21,300	2.8	3.1
Wessex	7,350	10,000	1.1	2.5
Yorkshire	13,900	13,600	4.4	4.6
WSCs	124,000	152,000	37.9	50.8
Water only companies	28,000	-	12.9	-
England and Wales	152,000		50.8	
Scotland	77,750		5.1	
Northern Ireland	14,150		1.6	
UK	244,000		57.5	

FIG 1B. WATER SERVICE COMPANIES BY POPULATION AND AREA



WATER SERVICES ASSOCIATION (WSA)

1 Queen Anne's Gate, London, SW1H 9BT, tel 071-222-8111, fax 071-222-1811

The WSA is an Association of water and sewerage undertakers. The main functions of the WSA are:

- to promote and protect the common interests of the members of the Association, ensuring that UK and EC Institutions are made aware of members' common needs and interests.
- to provide a forum for members to discuss among themselves and with representatives of Government and outside organisations matters relevant to the water industry.
- to distribute accurate and relevant information about the water industry and provide public relations and public information services.

The WSA is governed by a Council of its members, currently one member from each of the ten water service companies. From 1 January 1992 the Chairman of the Association is William Courtney CBE Chairman of Southern Water Services Limited. The Deputy-Chairman is John Bellak, Chairman of Severn Trent Water Limited. The Vice-Chairman is Sir Michael Straker, Chairman, Northumbrian Water Limited.

WSA members are the Water Service Companies in England and Wales as are shown in the map in section 10.

WATER ONLY COMPANIES

There are 29 water companies that supply water only. The sewerage services in their areas are the responsibility of the water service companies. The names of these companies are shown in table 3E and their location shown in the map in section 10.

Several of these companies, which existed prior to privatisation, have opted for plc status and this is shown on table 3E. There have also been amalgamations since 1989 where several companies' managements have come under a new plc.

WATER COMPANIES ASSOCIATION (WCA)

1, Queen Anne's Gate, London SW1H 9BT, tel 071-222-0644, fax 071-222-3366

All the water only companies, except Cholderton and District, belong to the Water Companies Association which was formed in 1885 to encourage the companies both to exercise their powers effectively and to discharge their responsibilities efficiently. The water only companies and the area they supply are shown in the map in section 10. They are subject to regulation of their water supply activities in the same way as the ten WSCs.

WATER IN SCOTLAND

Scottish Office Environment (SOEnD) Department, Civil Engineering and Water Services, 27 Perth Street, Edinburgh EH3 5RB, tel 031-244-3040, fax 031-244-2903

The reorganisation of local government in Scotland in 1975 resulted in the functions of the regional water boards established under the Water (Scotland) Act 1967 - with the exception of the Central Scotland Water Development Board - being transferred to 12 regional or islands councils, along with other services including sewerage and sewage disposal. The control of pollution in Scotland is administered by the river purification authorities (RPAs) which were established under the Rivers (Prevention of Pollution) (Scotland) Acts 1951 and 1965. There are currently 7 River Purification Boards (RPBs) who between them cover the entire Scottish mainland. The three islands councils (Orkney, Shetland and Western Isles) act as river purification authorities in their areas. However, on 23 September 1991 the Secretary of State for Scotland announced proposals to set up a Scottish Environment Protection Agency (SEPA) with responsibility for controlling all forms of pollution. SEPA will assume the responsibility of HMIP, the RPAs, the 53 district and 3 Island Councils in respect of the disposal of solid waste on land and the Hazardous Waste Inspectorate which is part of SOEnD.

WATER IN NORTHERN IRELAND

Department of the Environment, 3 Frederick Street, Belfast BT1 2NS, tel 0232-244711

Responsibility for all water and sewerage services in Northern Ireland lies with the Department of the Environment for Northern Ireland.

WATER INDUSTRY CERTIFICATION SCHEME (WICS)

1, Queen Anne's Gate, London SW1H 9BT, tel 071-222-8111, fax 071-222-1811

The Water Industry Certification Scheme (WICS) provides certification for products and management systems used in the construction of works for the water industry. It is sponsored by the Water Services Association, the Water Companies Association, the Convention of Scottish Local Authorities and the Department of the Environment for Northern Ireland. Its chief executive and scheme manager operates from separate offices at WRc Swindon.

THE CERTIFICATION AND ASSESSMENT BOARD FOR THE WATER INDUSTRY (CABWI)

1, Queen Annes Gate, London SW1H 9BT, tel 071-222-8111

The water services industry has recognised the need for occupational standards that reflect not only existing practice but emerging demands which will lead towards best practice within its employment sector. To this end the industry lead body for the water services, the Water Services Association, has developed and prepared a range of National Vocational Qualifications (NVQs) for the workforce in water services and associated industries.

An awarding body, the Certification and Assessment Board for the Water Industry, has been set up by the two principal employers in the water sector in England and Wales, the Water Services Association and the Water Companies Association, to manage and award these NVQs. CABWI is a Company Limited by Guarantee and has six directors. Three are nominated by the Water Services Association plus one representing the interests of the WSA as industry lead body (ILB) and two members are nominated by the Water Companies Association. Provision has been made for the inclusion of employers from Scotland and Northern Ireland in due course.

FOUNDATION FOR WATER RESEARCH (FWR)

Allen House, The Listons, Liston Road, Marlow, Bucks SL7 1FD, tel 0628-891589, fax 0628-472711

The Foundation is collectively funded by its members to manage a national programme of water research. The membership is the Water Service Companies, Water only companies (excluding Cholderton), DoE in England and Wales as well as Northern Ireland, OFWAT, NRA and Scottish bodies. There are also about 100 consultants and industrial companies as well as 60 educational establishments.

There is a core research programme which is the subject of a contract with WRc plc until 1994. The core research programme is worth £3.9 million in 1991/92. Additional research is subject to selective tender.

There are four WSA/FWR Technical Committees (Environmental, Process Systems, Sewers & Water Mains and Telecommunications)

WATER RESEARCH CENTRE (WRC)

Henley Road, Medmenham, PO BOX 16, Marlow, Bucks SL7 2HD, tel 0491-571531, fax 0491-579094

WRc is an independent company. Besides the UK it has bases in Europe, North America and the Far East.

It has a turnover of about £30 million and a staff of over 600. The WRc carries out a core research programme for the Foundation for Water Research worth £3.9 million in 1991/92.

There is a major engineering office in Swindon.

PO BOX 85, Frankland Road, Blagrove, Swindon Wilts, SN5 8YR, tel 0793-511711, fax 0793-51171

There are other major offices in Scotland, Warrington, Pennsylvania and Hong Kong.

WRc Water Byelaws Service, which evaluates consumer products for suitability, is being expanded particularly in response to the recent EC Construction Products Directive. Its address is:

WRc Water Byelaws Advisory Service, 660 Ajax Avenue, Slough, Berks SL1 4BG, tel 0753-37277, fax 0753-37277

WATER TRAINING INTERNATIONAL (WTI)

Tadley Court, Tadley Common Road, Tadley, nr Basingstoke, Hants RG26 6TD tel 0734-813011, fax 0734-817000

Water Training International is an independent company. It covers the whole of the United Kingdom. The Council of WTi consists of the ten WSC representatives, two Convention of Scottish Local Authorities representatives, two from water only companies, one from the Department of the Environment, Northern Ireland and one from the Scottish River Purification Boards Association.

WATERAID

1 Queen Anne's Gate, London SW1H 9BT, tel 071-233-4800, fax 071-233-3161

Charity Registration Number: 288701

Ten years ago the people and institutions of the British water industry founded WaterAid. Now the charity funds drinking water supply and sanitation projects in eight countries in Africa and Asia.

From the start WaterAid decided to assist some of the huge number of rural communities which are often not reached by larger organisations.

By working with indigenous partner organisations, ensuring that WaterAid is the minority partner, those communities can be reached. In the last ten years WaterAid has helped over 1¼ million people in Africa and Asia attain safe water and basic sanitation. WaterAid provides the necessary expertise and training required, but it is the villagers who provide the labour and locally available materials. They are involved in planning, building and maintaining their new water supply. By using technology that is simple and suitable to local needs, keeping costs to a minimum and ensuring that health education is a key part of water supply and sanitation schemes, the impact is even greater. WaterAid's growth during the 1980s has been steady. Annual income has increased from £25,000 in 1981-82 to £2.8 million in 1990-91.

The network of more than 20 regional support groups and the support of water industry employees (more than 20,000 employees regularly support WaterAid by direct deductions from pay) has been key to that growth. So, too, has the support of the water organisations who have agreed to enclose fund-raising appeals to their customers for WaterAid with their annual water service bill. More than 100,000 households now donate to WaterAid each year in response to these appeals.

THE INSTITUTION OF WATER AND ENVIRONMENTAL MANAGEMENT (IWEM)

15 John Street, London WC1N 2EB, tel 071-831-3110

IWEM is a multi-disciplinary learned society and examining body which represents the interests of engineers, scientists and other professionally qualified personnel engaged in water and environmental management. The main object of the institution is to advance the practice of water and environmental management for the public benefit and to promote education, training, study and research in those areas. IWEM's membership is over 11,600 of whom almost 2,500 are from overseas.

INSTITUTION OF WATER OFFICERS (IWO)

Heriot House, 12 Summerhill Terrace, Newcastle upon Tyne NE4 6EB, tel 091-230 5150

Established in 1945 - formerly Association of Water Officers (until July 1990)

The objectives of the Institution are to provide a means for members to advance their technical and administrative knowledge of the water industry. This is achieved through meetings, conferences, exhibitions and works visits.

The Institution is run by a National Council comprising ten representatives of the membership and ten officers. The membership is broken into nine areas covering the whole of Britain and in addition there is extensive overseas membership. The headquarters office, run by the General Secretary, administers national policy as decided by the National Council and the membership, and coordinates regional activities.

BRITISH WATER INDUSTRIES GROUP (BWIG)

9 Harley Street, London W1N 2AL, tel 071-436-7541, fax 071-436-7393

BWIG has a co-ordinating, advisory role for all sectors of the UK Water Industry. It was established to improve the level of export business in the water and wastewater sectors and to promote overseas projects.

BRITISH EFFLUENT AND WATER ASSOCIATION (BEWA)

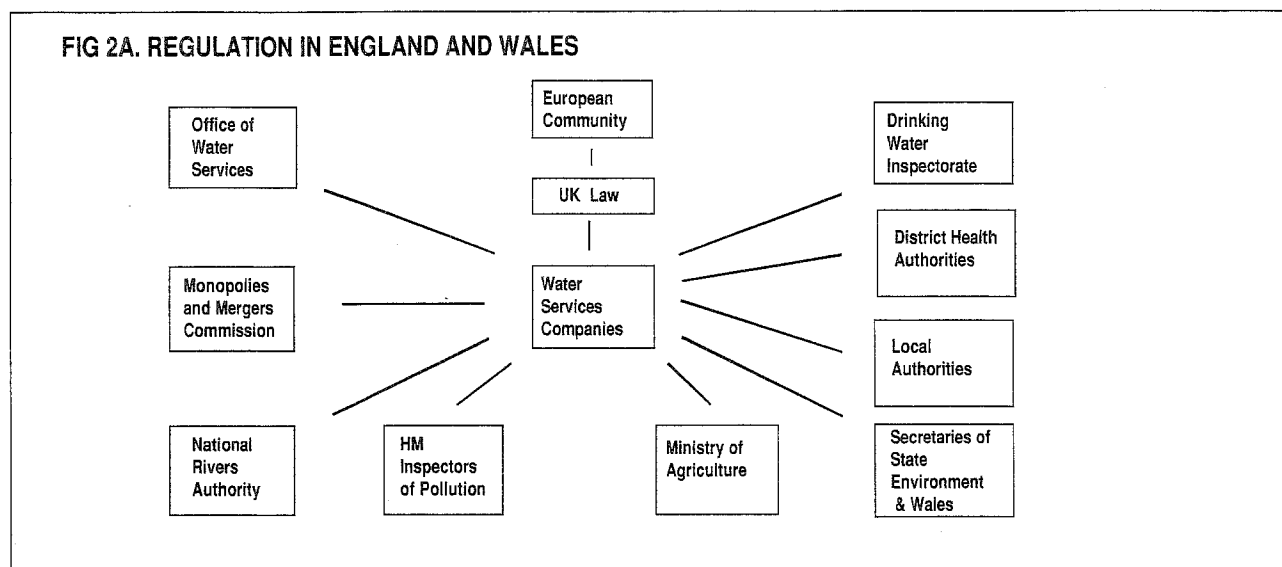
5 Castle Street, High Wycombe, Bucks HP13 6RZ, tel 0494-444544, fax 0494-446185

BEWA is the representative trade association of the water, effluent and sewage treatment plant industry and its membership includes the majority of the leading companies in this sector. Full members of the Association must be companies "actively engaged and fully established in the UK as designers, contractors, manufacturers or suppliers of specialised equipment and/or associated chemicals and/or services, in the water and effluent treatment plant industry and who accept responsibility for the process designed, marketed or engineered". Specialist and newly created companies may apply for subscriber membership of one of the four technical committees - Municipal, Industrial, Disinfection or BEWA Quality Water Group. BEWA is the secretariat for Aqua Europa which is a federation of European water treatment equipment associations.

2. Regulation of water services

Public water and sewerage services in the United Kingdom are provided by undertakers from the public and private sectors. In England and Wales undertakers are appointed (licensed) water companies whereas in Scotland, Regional Councils and in Northern Ireland, the Department of the Environment for Northern Ireland provide the services. Economic regulation, in particular, is very different in England and Wales from that elsewhere.

FIG 2A. REGULATION IN ENGLAND AND WALES



2A. THE REGULATORS

SECRETARY OF STATE FOR THE ENVIRONMENT

The Secretary of State's main functions in water and sewerage matters are:

- appointing of individuals to serve on the National Rivers Authority, of the Director General of Water Services, and of the companies to act as water and sewerage undertakers
- elaborating and supplementing the regulatory framework by means of subordinate legislation, for example, to establish standards of performance in relation to the supply of water and sewerage services, to determine standards of wholesomeness of water, to set out criteria for the classification of river quality and to impose requirements to take precautions against pollution
- approval of codes of practice in relation to various aspects including conservation and recreational duties, and the exercise of pipelaying powers
- taking steps to enforce certain statutory obligations imposed on water and sewerage undertakers, for example, by making enforcement orders and by initiating the prosecution of any water undertaker which supplies water unfit for human consumption

In respect of the National Rivers Authority, the Secretary of State's main functions are:

- paying a grant-in-aid, setting financial duties and controlling overall staff numbers and conditions of service
- designating water protection zones and making drought orders
- approving charges schemes for water abstraction
- appointing technical assessors of water quality
- applying, in exceptional circumstances, for a special administration order

SECRETARY OF STATE FOR WALES

The Secretary of State for Wales is responsible for the appointment and regulation, under the Water Act 1989, of the water and sewerage undertakers in the former area of the Welsh Water Authority including prescribing standards for the wholesomeness of water. The Secretary of State for Wales receives the reports of the Director General of Water Services and the National Rivers Authority and, in certain circumstances, can give directions to them and receive information from them related to his functions.

DIRECTOR GENERAL OF WATER SERVICES (OFWAT)

The *Director General of Water Services* has a primary duty to exercise and perform certain of his powers and duties under the Water Act in the manner he considers best calculated to secure that:

- water and sewerage functions are properly carried out throughout England and Wales; and
- undertakers are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of those functions.

Subject to this primary duty the Director General must exercise and perform such powers and duties in the manner he considers best calculated to:

- protect the interests of customers and potential customers in respect of charges (having particular regard to the interests of customers in rural areas and to ensuring that in fixing charges there is no undue preference towards, or undue discrimination against, customers or potential customers)
- protect the interests of customers and potential customers in respect of other terms of supply, the quality of services (taking into account in particular those who are disabled or of pensionable age) and the benefits that could be secured from the proceeds of disposal of certain land
- promote economy and efficiency on the part of undertakers in the carrying out of water and sewerage functions
- facilitate effective competition between persons holding or seeking appointments under the Water Act as water or sewerage undertakers.

The Director General, Ian Byatt, was appointed in April 1989 for a period of five years. He controls a staff of just over 100, the cost of which is recovered from appointees by a licence fee. From 1 September 1989 all companies in England and Wales (water service companies and water companies) operate under terms of an individual appointment which in particular, sets out the maximum charge increases ("K") for the basket of regulated services. The terms of the appointment also define the circumstances where unforeseen or previously unquantifiable obligations placed on the companies may be eligible for cost pass through, and together with provisions in the Water Act, enable him to monitor the standards of customer service, including assessments of the state of underground assets to protect against progressive deterioration of the water pipe and sewer systems.

DRINKING WATER INSPECTORATE (DWI)

The Inspectorate was formed in January 1990 and now has a compliment of 26 posts of which 17 are professionally qualified staff. Its role is to check on behalf of the Secretaries of State that the water companies of England and Wales are fulfilling their obligations with regard to the sufficiency and quality of drinking water supplies. The main tasks of the Inspectorate are to:

- carry out the technical audit of water companies
- initiate action as necessary to secure or facilitate compliance with legal requirements
- investigate incidents which affect drinking water quality adversely
- advise the Secretary of State on prosecution of water companies if water has been supplied which is unfit for human consumption
- provide technical and scientific advice to Ministers and officials of the Department of the Environment and Welsh Office on drinking water policy matters
- assess and respond to consumer complaints when local procedures have been exhausted
- identify and assess new issues or hazards relating to drinking water quality and initiate research as required
- assess chemicals and materials used in connection with water supplies
- provide authoritative guidance on analytical methods used in the monitoring of drinking water.

The Inspectorate, with the assistance of the consultants Messrs Watson Hawksley and Messrs Rofe, Kennard and Lapworth, inspected all water companies during 1990. It plans to use consultants in future in order to bring a wide range of expertise and different views into the inspection process, and to provide a measure against which the Inspectorate can assess its own performance.

The Inspectorate initiates enforcement action, on behalf of the relevant Secretary of State, in the following circumstances:

- when a water quality standard set by regulation 3 of the Water Supply (Water Quality) Regulations 1989 is breached and the breach is not trivial and is likely to recur
- when a breach of one of the other enforceable regulations, such as those covering sampling, analysis, or water treatment requirements, is identified
- when existing Section 20 undertakings or time limited relaxations, authorised under regulation 4, expire before the required improvements have been completed.

The inspectorate will not initiate enforcement action when a company, after becoming aware of a breach of regulatory requirement, takes immediate remedial action and demonstrates that compliance has been achieved.

NATIONAL RIVERS AUTHORITY (NRA)

The NRA is an independent statutory body set up in September 1989 under the Water Act 1989. The NRA's responsibilities make it a powerful watchdog with clearly defined duties and the resources to put them into effect. The water environment for which it has responsibility includes all rivers, lakes, reservoirs, estuaries, coastal waters up to three miles from the shoreline (and for migratory fish up to six miles from the shoreline) and water stored naturally under the ground. By the terms of the Water Act these are all "controlled waters" and it is an offence to cause "any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters". The NRA has the power to decide whether water quality in any place is up to prescribed standards; and if not, to determine the most immediate and practical way to bring about an improvement. It constantly monitors water quality by taking samples and analysing them at points all over the country and throughout the year. The NRA has regulatory control over thousands of direct discharges.

Its Chairman is Lord Crickhowell, former Secretary of State for Wales. It has head office in Bristol, another office in London and 10 regional units - a total staff complement of approximately 6,500 and responsible for:

- river quality and the quality of inland and coastal waters
- land drainage and flood control
- management of water resources
- fisheries
- navigation
- licensing the abstraction of water.
- independently monitoring river quality and discharges from sewage treatment plants
- the enforcement of new water quality objectives to be imposed by the Secretary of State in 1992.

The NRA is a non-Departmental public body with a board of up to 15 members, appointed by Ministers from DoE, MAFF and the Welsh Office. The NRA is financed from a variety of sources. It inherited some income that was collected by the water authorities (e.g. land drainage precepts, charges for abstraction), it has powers to recover from dischargers the costs of enforcing water pollution control, and it receives grant-in-aid to meet its deficit.

The areas of responsibility include:

Water resources

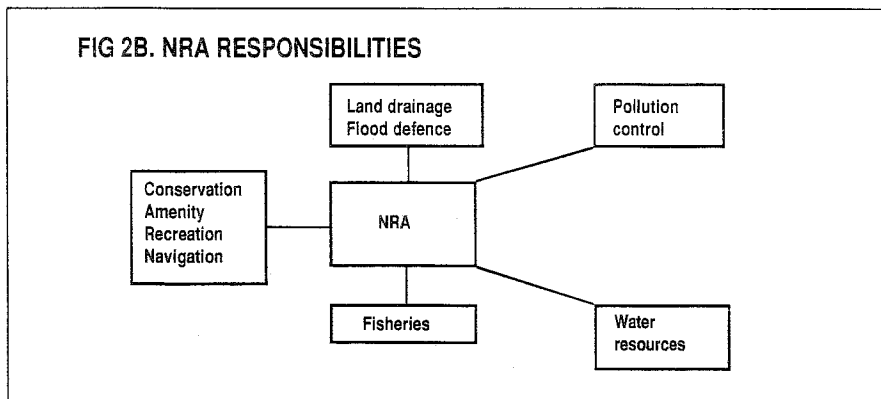
The NRA is under a duty to conserve, augment and redistribute water resources (i.e. to safeguard the resources of the catchment). A component of this regulatory function is a responsibility for licensing abstractions from surface and groundwater sources. Licences are required for all large scale continuous abstractions regardless of intended use. In addition the NRA issues licences for impoundments (for obstructions to flow) and sets prescribed flows for stretches of river through the minimum acceptable flow regime. The NRA are in the process of revising the charges scheme for water abstraction for introduction in April 1992.

Land drainage and flood protection

These were the responsibility of water authorities, district and county councils and internal drainage boards from 1974. County councils determined capital investment programmes. They endeavour to prevent flooding. Where flooding is unavoidable there are warning systems which alert local authorities. Since privatisation land drainage and flood protection has been transferred to the NRA, although water and sewerage companies will continue to have responsibility for protection against foul flooding.

Navigation

The water authorities acted as the navigation authority in three regions (Thames, Southern, and Anglian) and these responsibilities were inherited by the NRA. In addition, the NRA has a permissive power to make bye-laws to regulate the recreational use of waters where there is a public right of navigation but no active navigation authority.



Fisheries

Responsibility for fresh water fisheries is vested in the NRA, whilst reservoir fisheries are the responsibility of the water companies.

Pollution control

In England and Wales the NRA is responsible for pollution control. Statutory quality objectives - designed to maintain and improve water quality - would form the framework within which the NRA would discharge its pollution control functions. It is expected that the NRA will wish to carry out a review of existing objectives and to put proposals for revised objectives to the Secretary of State, possibly in the light of the results of the 1990 River Quality Survey. Statutory quality objectives would be set by the Secretary of State after public consultation. It is a criminal offence to make a discharge into controlled waters, for example, rivers, estuaries or coastal waters, without the consent of the NRA. The NRA would have a statutory duty to ensure so far as practicable by the exercise of its power (for example by reviewing the setting of appropriate discharge consents and ensuring that they are complied with), that the objectives were achieved at all times.

Coastal and estuarial waters

The NRA's activities extend into the sea in two respects. Its fisheries function and its pollution control function both extend to coastal and estuarial waters. This covers monitoring bathing waters in England and Wales identified under the EC Directive.

National Rivers Authority regional addresses are given in the map in section 10.

HER MAJESTY'S INSPECTORATE OF POLLUTION (HMIP)

HMIP's prime responsibility remains the authorisation and oversight of those industrial processes with the greatest pollution potential. In exercising its statutory duties, HMIP aims to ensure that pollution is prevented at source, and the risks to human health and the environment are minimised. Under the Environmental Protection Act 1990, HMIP will develop and implement an integrated approach to pollution regulation to achieve the best overall environmental outcome.

Functions of importance to the industry are:

- provision of authoritative and independent advice to Government on pollution control practices
- approval, inspection and oversight of potentially polluting processes under the Alkali Act, Water Act and Health and Safety at Work Act.
- regulatory oversight of waste disposal authorities
- research on the regulatory aspects of pollution
- preparation for the implementation and operation of new responsibilities now set out in the Environmental Protection Act 1990, including Integrated Pollution Control (IPC) and oversight of Waste Regulatory Authorities.

HMIP is committed to developing the concept of the Best Practicable Environmental Option and feasible methods of applying the cross-media approach (land, air and water) to pollution control.

The main legislation relating to pollution control under which HMIP operated in 1989-90 was:

- The Health and Safety at Work etc. Act 1974
- The Control of Pollution Act 1974
- The Water Act 1989
- The Trade Effluents (Prescribed Processes and Substances) Regulations 1989
- The Control of Pollution (Discharge by Water Authorities) Regulations 1989.

HMIP is reorganised into three Regions (East, North and West) which deal with all aspects of regulation in their areas. They are supported by a central 'Regulatory Standards Division', responsible for coordinating technical standards, research and guidance material and developing regulatory procedures. Administrative functions are performed by the 'Central Planning and Resources Division'.

The Water Act 1989 brought major change in HMIP's water pollution control duties. In particular, it established the National Rivers Authority (NRA) which in 1990 took over from HMIP the responsibility for the control of most of the discharges to the water environment, although HMIP retained a number of technical functions in relation to general water quality. Before the Water Act came into force in September 1989, and as part of the water industry privatisation, HMIP reviewed the extent of compliance of all sewage treatment works with their discharge consents.

On 1 September 1989, the Trade Effluents (Prescribed Processes and Substances) Regulations 1989 came into force. These define certain of the most dangerous substances (known as the "red list") together with certain categories of process. These Regulations effectively transferred responsibility for the authorisation of discharges to sewer of prescribed substances from the sewerage undertaker to HMIP acting on behalf of the Secretary of State for the Environment in England and the Secretary of State for Wales. In considering referrals, HMIP aims to ensure that the effluent is being treated by the best available technique not entailing excessive cost (BATNEEC) before being discharged to sewer. HMIP's determination of such a referral is sent as a notice to the sewerage undertaker and trader detailing the conditions relating to the prescribed substances in the discharge.

MINISTER OF AGRICULTURE, FISHERIES AND FOOD (MAFF)

The Minister of Agriculture, Fisheries and Food appoints two members of the NRA. This reflects his responsibilities for flood defence and fisheries matters in England. Together with the Secretary of State for Wales the Minister has a general oversight of flood defence and fisheries and may give direction as to how they are carried out. Day to day responsibility for these functions rest with the NRA but bye-laws, orders, schemes, etc. will continue to be confirmed by the appropriate Minister.

The Minister appoints the chairperson and a number of members of the Regional flood defence committees. The Minister also licenses, monitors and controls the deposit of any substances, including sewage sludge, in the sea as set out in the Food and Environment Protection Act 1985 Part II.

CUSTOMER SERVICE COMMITTEES (CSC)

The prime responsibility for customers rests with the Companies themselves. The Government decided that customers needed additional protection by the DG and by a network of regional Customer Service Committees (CSCs) reporting to the DG. There is one for each region covering each of the water and sewerage companies. The CSCs are independent of water companies. The Director General appoints a chairperson for each (after consulting the Secretary of State for Trade and Industry) and between 10 and 20 other members. The CSCs are an important source of advice for the DG. Their main duties will be to represent customers' views on the operations of the companies and to investigate customers' complaints.

OFWAT Customer Service Committees (CSC) addresses are given in the map in section 10.

MONOPOLIES AND MERGERS COMMISSION (MMC)

The principal role of the MMC is very much that of a 'court of appeal' both for the DG and for the WSCs. In the event that a company is dissatisfied with:

- the Director General's five-yearly review of 'K'
- the Director General's interim adjustments to 'K' between reviews
- any amendment by the Director General to the Instrument of Appointment

it may appeal to the MMC against the Director General's decision. This appeal procedure does set up a counter-balance to the considerable power of the Director General and is clearly useful for companies and future shareholders.

In the event of any merger or acquisition activity in the industry, the MMC will also play a role. Where the target company holds assets valued in excess of £30m there will be an automatic referral to the MMC.

THE OFFICE OF FAIR TRADING (OFT)

The Office of Fair Trading is the senior of the regulatory agencies - OFTEL, OFGAS and now OFWAT. The Director General of Fair Trading (DGFT) exercises powers under the Fair Trading Act 1973 and the Competition Act 1980. The Water Act 1989 contains provision for the DGFT to request the DG to exercise certain of the DGFT's functions under the Fair Trading Act relating to courses of conduct which are or maybe detrimental to customers of the water and sewerage undertakers. Certain of the DGFT functions under the Fair Trading Act and the Competition Act may be exercised by both DGFT and the DG in so far as they relate to water and sewerage services. The DG also has a duty to give information, advice, and assistance to the DGFT in relation to the functions of the water and sewerage undertakers.

2B. LEGISLATION

The Water Act 1989 is to be almost entirely replaced by the following Consolidation Acts which came into force on 1 December 1991:-

- the Water Industry Act 1991
- the Water Resources Act 1991
- the Statutory Water Companies Act 1991
- the Land Drainage Act 1991
- the Water Consolidation (Consequential Provisions) Act 1991

2C. CODES OF PRACTICE

Under the Water Act 1989 there are three codes of practice as follows:-

- Codes of practice with respect to environmental and recreational duties
- Codes of good agricultural practice
- Codes of practice with respect to the exercise by water companies of their powers to lay, inspect, maintain, adjust, repair or alter relevant pipes.

There are also three codes of practice under the Appointment and these are given in section 6I.

2D. LIST OF STATUTORY INSTRUMENTS

no.	Title	Made	In force
1147	The Water Supply (Water Quality) Regulations 1989	6 /07/1989	1 /09/1989
1148	The Surface Waters (Classification) Regulations 1989	6 /07/1989	1 /09/1989
1149	The Controlled Waters (Lakes and Ponds) Order 1989	6 /07/1989	1 /09/1989
1150	The Control of Pollution (Revocations) Regulations 1989	6 /07/1989	1 /09/1989
1151	The Control of Pollution (Consents for Discharges etc.) Secretary of State Functions) Regulations 1989	6 /07/1989	1 /09/1989
1152	The Water and Sewerage (Conservation, Access and Recreation)(Code of Practice) Order 1989	6 /07/1989	1 /09/1989
1154	The Director General of Water Services' Register (Inspection and Charges) Order 1989	6 /07/1989	1 /09/1989
1155	The Water Reorganisation (Pensions etc.) (Designated Persons) Order 1989	6 /07/1989	1 /09/1989
1156	The Trade Effluents (Prescribed Processes and Substances) Regulations 1989	6 /07/1989	1 /09/1989
1157	The Control of Pollution (Discharges by the National Rivers Authority) Regulations 1989	6 /07/1989	1 /09/1989
1158	The Control of Pollution (Radioactive Waste) Regulations 1989	6 /07/1989	1 /09/1989
1159	The Water Supply and Sewerage Services (Customer Service Standards) Regulations 1989	6 /07/1989	1 /09/1989
1160	The Control of Pollution (Registers) Regulations 1989	6 /07/1989	1 /09/1989
1161	The Water Reorganisation (Pensions etc.) Regulations 1989	6 /07/1989	1 /09/1989
1162	The Water Appointment (Monopolies and Mergers Commission) Regulations 1989	7 /07/1989	1 /09/1989
1186	The Reservoirs (Panels of Civil Engineers) (Reappointment) Regulations 1989	6 /07/1989	15/07/1989
1263	The Sludge (Use in Agriculture) Regulations 1989	24/07/1989	1 /09/1989
1378	The Rivers (Prevention of Pollution) Act 1951 (Continuation of Byelaws) Orders 1989	3 /08/1989	1 /09/1989
1379	The Water and Sewerage (Works)(Advance Payments) Regulations 1989	3 /08/1989	1 /09/1989
1380	The Water (Local Statutory Provisions) (Consequential Amendments) Order 1989	3 /08/1989	1 /09/1989
1381	The Water Reorganisation (Pensions etc.)(Amendment) Regulations 1989	3 /08/1989	1 /09/1989
1382	The Water Reorganisation (Pension etc.)(Designated Persons)(Amendment) Order 1989	3 /08/1989	1 /09/1989
1383	The Water Supply and Sewerage Service (Customer Service Standards)(Amendment) Regulations 1989	3 /08/1989	1 /09/1989
1384	The Water Supply (Water Quality)(Amendment) Regulations 1989	3 /08/1989	1 /09/1989
1461	The Companies Act 1985 (Modifications for Statutory Water Companies) Regulations 1989	8 /08/1989	1 /09/1989
1462	The Local Government Superannuation (water) Regulations 1989	8 /08/1989	1 /09/1989
1465	The Water Authorities (Successor Companies) Order 1989	8 /08/1989	9 /08/1989
1530	(C.51) The Water Authorities (Transfer of Functions) (Appointed Day) Order 1989	18/08/1989	1 /09/1989
1531	The Water Reorganisation (Holding Companies of Successor Companies) Orders 1989	18/08/1989	19/08/1989
1532	The Water reorganisation (Successor Companies) (Transfer of Loans) Order 1989	18/08/1989	1 /09/1989
1557	(c.52) The Water Act 1989 (Commencement No. 2 and Transitional Provisions) Order 1989	25/08/1989	1 /04/1990
1561	(c.53) (S.128) The Water Act 1989 (Commencement No. 3 (Scotland) Order 1989	28/08/1989	1 /09/1989
1588	The Local Government (Direct Labour Organisations) (Competition) Regulations 1989	2 /09/1989	1 /10/1989
1590	The Town and Country Planning General Development (Amendment) (No. 2) Order 1989	2 /09/1989	29/09/1989
1939	The Water (Pensions and Compensation) (Transfer of Liabilities) Regulations 1989	19/10/1989	17/11/1989
1968	The Water (Consequential Amendments) Regulations 1989	25/10/1989	27/11/1989
2017	The Water Reorganisation (Capital Allowances) Order 1989	1 /11/1989	15/11/1989
2018	The Water Reorganisation (Nominated Holding Companies) (Extinguishment of loans) Order 1989	1 /11/1989	15/11/1989
2144	The Colne Valley (Pipelining and Other Works) (Code of Practice) Order 1989	18/11/1989	18/11/1989
2278	The Water Act (Commencement No. 4) Order 1989	3 /12/1989	1 /04/1990
2286	The Surface Waters (Dangerous Substances) (Classification) Regulations 1989	4 /12/1989	1 /01/1990
2314	The Reservoirs Act 1975 (Application Fees) (Amendment) Regulations 1989	6 /12/1989	1 /01/1990
2479	The Water Undertakers (Rateable Values) Order 1989	22/12/1989	23/12/1989
36	The Bournemouth and District, South West, Tending Hundred and West Hampshire (Pipelining etc....	9 /01/1990	09/01/1990
72	The Internal Drainage Boards (Finance) Regulations 1990	22/01/1990	24/01/1990
118	The National Rivers Authority (Levies) Regulations 1990	29/01/1990	31/01/1990
119	The Water Supply (Water Quality) (Scotland) Regulations 1990	23/01/1990	1 /07/1990
120	(S.12) The Controlled Waters (Lochs and Ponds) (Scotland) Order 1990	23/01/1990	1 /05/1990
121	(S.13) The Surface Waters (Classification) (Scotland) Regulations 1990	23/01/1990	1 /05/1990
126	(S.15) The Surface Waters (Dangerous Substances) (Classification) (Scotland) 1990	29/01/1990	27/02/1990
173	The Drainage Rates (Forms) Regulations 1990	7 /02/1990	1 /03/1990
503	The Local Government Superannuation (Funds etc.) Regulations 1990	7 /03/1990	1 /04/1990
524	The Isles of Scilly (Water and Sewerage) (Miscellaneous Provisions) Order 1990	8 /03/1990	1 /04/1990
564	The General Drainage Charges (Forms) Regulations 1990	9 /03/1990	1 /04/1990
876	The Thames Water Utilities Limited (Pipelining and Other Works) (Code of Practice) Order 1990	26/03/1990	26/03/1990
1013	The Nitrate Sensitive Areas (Designation) Order 1990	26/04/1990	1 /06/1990
1083	The Water (Target Investment Limited) Order 1990	16/05/1990	11/06/1990
1128	The York Waterworks (Constitution and Regulation) Order 1990	24/05/1990	22/06/1990
1180	The Anglian, Hartlepool and Mid Kent (pipelining and Other Works) (Codes of Practice) Order 1990	25/05/1990	25/05/1990
1187	The Nitrate Sensitive Areas (Designation) (Amendment) Order 1990	6 /06/1990	7 /06/1990
1339	The Thames Water Utilities Limited (Local Statutory Provisions)(Consequential Repeals) Order 1990	28/06/1990	28/06/1990
1354	The Northumbria Regional Flood Defence Committee (Appointed Day) Order 1990	29/06/1990	29/06/1990
1355	The Southern Regional Flood Defence Committee (Appointed Day) Order 1990	29/06/1990	29/06/1990
1356	The South West Regional Flood Defence Committee (Appointed Day) Order 1990	29/06/1990	29/06/1990
1357	The Yorkshire Regional Flood Defence Committee (Appointed Day) Order 1990	29/06/1990	29/06/1990
1617	The Portsmouth Water (Constitution and Regulation) Order 1990	1 /08/1990	31/08/1990
1629	The Trade Effluents (Prescribed Processes and Substances) (Amendment) Regulations 1990	6 /08/1990	31/08/1990
1642	The Anglian Regional Flood Defence Committee(Appointed Day) Order 1990	13/07/1990	13/07/1990
1643	The Anglian Regional Flood Defence Committee Order 1990	13/07/1990	1 /08/1990
1644	The North West Regional Flood Defence Committee (Appointed Day) Order 1990	13/07/1990	13/07/1990
1645	The Severn-Trent Regional Flood Defence Committee (Appointed Day) Order 1990	13/07/1990	13/07/1990
1647	The Wessex Regional Flood Defence Committee Order 1990	13/07/1990	1 /08/1990
1658	The Mid Kent Water (Constitution and Regulation) Order 1990	27/07/1990	27/07/1990
1670	The Bristol, Rickmansworth, Sunderland and South Shields and Sutton (Pipelining and Other Works)etc.....	8 /08/1990	30/11/1990
31	The Cholderton (Pipelining and Other Works) (Code of Practice) Order 1991	7 /01/1991	7 /01/1991
324	The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991	22/01/1991	1 /09/1991
368	The Eastbourne, Newcastle & Gateshead and N Surrey (Pipelining and Other Works) (Codes of Practice) Order 1991	21/02/1991	21/02/1991
461	The North West (Pipelining and Other Works)(Code of Practice) Order 1991	27/02/1991	27/02/1991
1172	The Water Act 1989 (Commencement No.5) (Scotland) Order 1991	3 /05/1991	3 /05/1991
1294	The Lee Valley and South Staffordshire (Pipelining and Other Works) (Codes of Practice) Order 1991	21/05/1991	21/05/1991
1409	The Water (Compulsory Works Powers) (Notice) Regulations 1991	13/06/1991	17/07/1991
1479	The North Surrey Water Company (Constitution and Regulation) Order 1991	27/06/1991	01/08/1991
1596	The Essex (Constitution and Regulation) Order 1991	11/07/1991	06/08/1991
1597	The Bathing Waters (Classification) (Regulations 1991	11/07/1991	09/08/1991
1733	The Mid Southern Water Company (Constitution and Regulation) Order 1991	24/07/1991	20/08/1991
1837	The Water Supply (Water Quality) (Amendment) Regulations 1991	03/09/1991	01/01/1992

As at September 1991, see Water Bulletin for further updates

2E. EC DIRECTIVES

(i) Water for drinking

- 80/777/EEC on the approximation of the laws of the member states relating to the exploitation and marketing of natural mineral waters.
80/778/EEC relating to the quality of water intended for human consumption.

(ii) Wastewater

- 91/271/EEC concerning urban waste water treatment.

(iii) Quality for various uses

- 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water in member states.
76/160/EEC concerning the quality of bathing water.
78/659/EEC on the quality of freshwaters needing protection or improvement in order to support fish life.
79/869/EEC concerning the methods of measurement and frequencies of samples and analysis of surface water intended for the abstraction for drinking in the member states (reference methods for 75/440/EEC).
79/923/EEC on the quality required of shellfish waters.
91/???/EEC concerning the protection of fresh, coastal and marine waters against pollution caused by nitrates from diffuse sources.

(iv) Discharge of dangerous substances

- 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community.

This Directive has given rise to several 'Daughter Directives'.

- 82/176/EEC on limit values and quality objectives for mercury discharges by the chlor-alkali electrolysis industry.
83/513/EEC on limit values and quality objectives for cadmium discharges.
84/156/EEC on limit values and quality objectives for mercury discharges by sectors other than by chlor-alkali electrolysis industry.
84/491/EEC on limit values and quality objectives for discharges of hexachlorocyclohexane, in particular lindane.
86/280/EEC on limit values and quality objectives for discharges of certain dangerous substances included in List I in the Annex to Directive 76/464/EEC (covers DDT, PCP and CTC).
88/347/EEC amending Annex II to Directive 86/280/EEC relating to aldrin, dieldrin, endrin, isodrin (the 'Drins'), hexachlorobenzene (HCB), hexachlorobutadiene (HCBd), and chloroform.
90/415/EEC amending Annex II to Directive 86/280/EEC on limit values and quality objectives for discharges of certain dangerous substances included in list I of the Annex to Directive 76/464/EEC.
80/68/EEC on protection of groundwater against pollution caused by certain dangerous substances.

(v) Controls over industry

- 78/176/EEC on waste from the titanium dioxide industry.
82/883/EEC on procedures for surveillance and monitoring of the environments affected by wastes from the titanium dioxide industry (reference methods for 78/176/EEC).
83/29/EEC amending Directive 78/176/EEC.
87/217/EEC on prevention and reduction of environmental pollution by asbestos.
89/428/EEC on procedures for harmonizing the programmes for the reduction and eventual elimination of pollution caused by waste from the titanium oxide industry.

(vi) Controls over products

- 73/404/EEC on the approximation of the laws of the member states relating to detergents.
73/405/EEC on the approximation of the laws of the member states relating to methods of testing the biodegradability of anionic surfactants.
82/242/EEC amending Directive 73/404/EEC.
82/243/EEC amending Directive 73/405/EEC.
86/94/EEC amending Directive 73/404/EEC.

(vii) Sewage sludge disposal

86/278/EEC on the protection of the environment, and in particular of the soil, when sewage is used in agriculture.

(viii) Information exchange

77/795/EEC⁺ establishing a common procedure for the exchange of information on the quality of surface freshwater in the Community.

83/189/EEC⁺ on laying down a procedure for the provision of information in the field of technical standards and regulations.

86/ 85/EEC⁺ establishing a Community information system for the control and reduction of pollution caused by the spillage of hydrocarbons and other harmful substances at sea.

86/574/EEC⁺ amending 77/795/EEC.

88/346/EEC⁺ amending 86/85/EEC to include major inland waters.

(ix) Public procurement of works and supplies, and products and assessment

89/106/EEC on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products.

90/531/EEC on the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors.

90/683/EEC concerning the modules for the various phases of the conformity assessment procedures which are intended to be used in the technical harmonisation directives.

(x) Other

82/501/EEC on the major accident hazards of certain industrial activities.

87/217/EEC amending Directive 82/501/EEC.

88/610/EEC amending Directive 82/501/EEC.

85/337/EEC on the assessment of effects of certain public and private projects on the environment.

85/374/EEC on the approximation of the laws, regulations and administrative provisions of the member states concerning liability for defective products.

⁺ A 'Decision' rather than a 'Directive'.

2F. PROPOSED EC DIRECTIVES

COM(85)373 on dumping waste at sea.

COM(88)8 amending COM(85)373.

COM(85)733 on water quality objectives for chromium.

COM(88)29 amending COM(85)733.

COM(88)752 amending 80/778/EEC, 76/160/EEC and 79/869/EEC.

COM(89)303 on the establishment of the European Environment Agency and the European Environment Monitoring and Information Network.

COM(90)9 amending 76/464/EEC.

COM(90)85 amending 86/278/EEC.

COM(90)297 on coordinating the laws, regulations and administration provisions relating to the application of Community rules on the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors.

COM (91)219 amending 85/374/EEC.

2G. ENVIRONMENTAL EUROPEAN COURT OF JUSTICE CASES

	1985	1986	1987	1988	1989	1990	1991	Total
Belgium	7	1	0	2	3	1	na	14
Denmark	1	0	0	0	0	0	na	1
France	2	0	0	4	2	2	na	10
FRG	2	0	0	4	4	1	na	11
Greece	1	0	2	0	2	0	na	5
Ireland	1	1	0	3	0	0	na	5
Italy	3	1	1	4	7	0	na	16
Luxembourg	1	1	0	2	1	0	na	5
Netherlands	1	0	1	1	1	0	na	4
Portugal	-	-	-	-	-	0	na	0
Spain	-	-	-	0	2	2	na	4
United Kingdom	0	0	0	0	1	1	na	2
Total	19	4	4	20	23	7	na	77

Source: Parliamentary Question 25.4.90

Note: best available information. 1989 and 1990 not complete

3. Indices and units

The Director General of Water Services uses the Retail Prices Index (RPI) when reviewing increases in charges. The November to November figures are used to compare the increases. The respective weightings in the RPI for gas, telecoms and water are 2.1%, 1.6% and 0.7% respectively. When considering "cost pass through" the DG will use the Producer Prices Construction Output Index (PPI). Investment expenditure repricing is performed using the PPI. An index specifically applied to the water industry, the Public Works Non-Roads Index (PWNRI), was used prior to 1989. Waterfacts 1989 gave details of the PWNRI.

3A. RETAIL PRICES INDEX

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1975	30.4	30.9	31.5	32.7	34.1	34.8	35.1	35.3	35.6	36.1	36.6	37.0
1976	37.5	38.0	38.2	38.9	39.3	39.5	39.6	40.2	40.7	41.4	42.0	42.6
1977	43.7	44.1	44.6	45.7	46.1	46.5	46.6	46.8	47.1	47.3	47.5	47.8
1978	48.0	48.3	48.6	49.3	49.6	50.0	50.2	50.5	50.7	51.0	51.3	51.8
1979	52.5	53.0	53.4	54.3	54.7	55.7	58.1	58.5	59.1	59.7	60.3	60.7
1980	62.2	63.1	63.9	66.1	66.7	67.4	67.9	68.1	68.5	68.9	69.5	69.9
1981	70.3	70.9	72.0	74.1	74.6	75.0	75.3	75.9	76.3	77.0	77.8	78.3
1982	78.7	78.8	79.4	81.0	81.6	81.9	81.9	81.9	81.9	82.3	82.7	82.5
1983	82.6	83.0	83.1	84.3	84.6	84.8	85.3	85.7	86.1	86.4	86.7	86.9
1984	86.6	87.2	87.5	88.6	89.0	89.2	89.1	89.9	90.1	90.7	91.0	90.9
1985	91.2	91.9	92.8	94.8	95.2	95.4	95.2	95.5	95.4	95.6	95.9	96.0
1986	96.2	96.6	96.7	97.7	97.8	97.8	97.5	97.8	98.3	98.5	99.3	99.6
1987	100.0	100.4	100.6	101.8	101.9	101.9	101.8	102.1	102.4	102.9	103.4	103.3
1988	103.3	103.7	104.1	105.8	106.2	106.6	106.7	107.9	108.4	109.5	110.0	110.3
1989	111.0	111.8	112.3	114.3	115.0	115.4	115.5	115.8	116.6	117.5	118.5	118.8
1990	119.5	120.2	121.4	125.1	126.2	126.7	126.8	128.1	129.3	130.3	130.0	129.9
1991	130.2	130.9	131.4	133.1	133.5	134.1	133.8	134.1	134.6	135.1		

3B. REPRICING TO 1990/91

Retail Prices Index

	index financial year	annual multiplier	outturn to 1990/91	November to November increase %
1974/75	28.8	1.287	4.467	
1975/76	35.9	1.246	3.585	25.2
1976/77	41.4	1.153	3.110	15.0
1977/78	47.2	1.140	2.728	13.0
1978/79	51.1	1.083	2.519	8.1
1979/80	59.2	1.158	2.175	17.4
1980/81	68.8	1.163	1.870	15.3
1981/82	76.8	1.114	1.677	12.0
1982/83	82.2	1.072	1.566	6.3
1983/84	86.0	1.046	1.497	4.8
1984/85	90.4	1.050	1.425	4.9
1985/86	95.7	1.059	1.345	5.5
1986/87	98.8	1.032	1.303	3.5
1987/88	102.7	1.040	1.253	4.1
1988/89	108.9	1.060	1.182	6.4
1989/90	117.4	1.078	1.097	7.7
1990/91	128.7	1.097	1.000	9.7

3C. PRODUCER PRICES CONSTRUCTION OUTPUT INDEX

	quarter 2	quarter 3	quarter 4	quarter 1	average
1975/76	43	45	46	46	45.00
1976/77	47	49	50	50	49.00
1977/78	51	52	53	54	52.50
1978/79	56	59	61	64	60.00
1979/80	67	74	77	82	75.00
1980/81	86	92	94	94	91.50
1981/82	94	93	92	91	92.50
1982/83	91	92	92	92	91.75
1983/84	92	93	93	94	93.00
1984/85	95	96	96	97	96.00
1985/86	99	101	103	104	101.75
1986/87	104	105	106	108	105.75
1987/88	110	113	115	119	114.25
1988/89	123	127	132	136	129.50
1989/90	140	144	145	147	144.00
1990/91	147	147	145	143	145.50

The basic regulation of increases in charges is by "RPI+K". Thus for a "basket" of items the overall charges can rise by K percentage points more than the annual rise in inflation. The "basket" covers unmeasured water supply and sewerage services, measured water supply and sewerage services as well as trade effluent. This covers the vast majority of WSC charges. "K" is fixed initially as in the table, but from 1991 can be varied to allow for "cost pass through". This is where certain costs will qualify for being passed through to the customer and the standard licence refers to these.

3D. WATER SERVICE COMPANIES "K"

	Original settings		1992/93 proposals	
	1990-95	1996-2000	K+U	Proposed
	%	%	%	%
Anglian Water	5.5	5.5	5.5	** 5.5
Northumbrian Water	7.0	3.0	7.0	6.0
North West Water	5.0	5.0	5.0	4.5
Severn Trent Water	5.5	2.0	5.5	4.5
Southern Water	* 5.5	0.0	6.1	4.7
South West Water	6.5	5.0	6.5	** 6.5
Thames Water	4.5	4.5	4.5	4.0
Dwr Cymru	6.5	5.5	6.5	5.0
Wessex Water	4.5	4.5	4.5	4.0
Yorkshire Water	3.0	3.0	3.6	2.8

* actually 5.5% for three years and 3.5% for two years

** Anglian and South West still to determine (September 1991)

U is the carry over from 1991/92

3E. WATER ONLY COMPANIES "K"

	Original 1992/93	K+U	Proposed 1992/93
Bournemouth and West Hampshire	12.0	13.5	10.0
Bristol	4.0	4.1	3.0
Cambridge	8.0	8.3	7.0
Chester	4.5	4.5	2.5
East Surrey	2.0	2.1	0.0
East Worcester	11.0	11.1	9.0
Essex	5.0	6.5	3.5
Folkestone and District	8.0	9.2	8.0
Hartlepool	3.5	3.6	3.6
Mid Kent	2.5	2.5	2.0
Mid Southern	10.0	10.0	6.5
North East Water	6.0	6.0	3.0
North Surrey	8.5	8.6	7.0
Portsmouth	5.5	5.5	3.5
South East Water	8.0	8.0	6.4
South Staffordshire	5.0	6.5	4.0
Suffolk	13.0	13.0	9.5
Sutton	8.5	8.5	7.5
Tendring Hundred	13.0	13.0	12.0
Three Valleys	4.0	4.0	4.0
Wrexham and East Denbighshire	15.0	22.3	8.5
York	3.0	3.6	1.9

U is the carry over from 1991/92

3F. UNITS USED IN TEXT WITH CONVERSION FACTORS

Length	1 inch	=	25.4	mm	(millimetre)	1 mm	=	0.0394	inch
	1 yard	=	0.914	m	(metre)	1 m	=	1.094	yard
	1 mile	=	1.609	km	(kilometre)	1 km	=	0.621	miles
Area	1 acre	=	0.4047	ha	(hectare)	1 ha	=	2.471	acre
	1 km ²	=	100	ha		1 km ²	=	0.336	sq. mile
Volume	1 gallon	=	4.546	litres		1 litre	=	0.220	gallons
	1000 gallons	=	4.546	m ³		1 m ³	=	220	gallons
Flow	1 mgd	=	4.546	Ml/d	(megalitres/day)	1 Ml/d	=	0.220	mgd
	1 mgd	=	4.546	tcmd	(1000m ³ /day)	1 tcmd	=	0.220	mgd
Weight	1 pound	=	0.454	kg	(kilogram)	1 kg	=	2.2046	lbs
	1 ton	=	1.016	tonnes		1 tonne	=	0.984	tons

4. Water supply

From November 1988 to September 1991 rainfall over eastern and south east England has been only about 80% of average resulting in low groundwater levels. In both 1989 and 1990 there were very dry spells over the whole of England and Wales in the spring and summer resulting in hosepipe bans covering a population of 20 million people. The early summer of 1991 was cooler and wetter, but the summer has become increasingly dry and warm and there are bans covering 6.5 million people by August 1991.

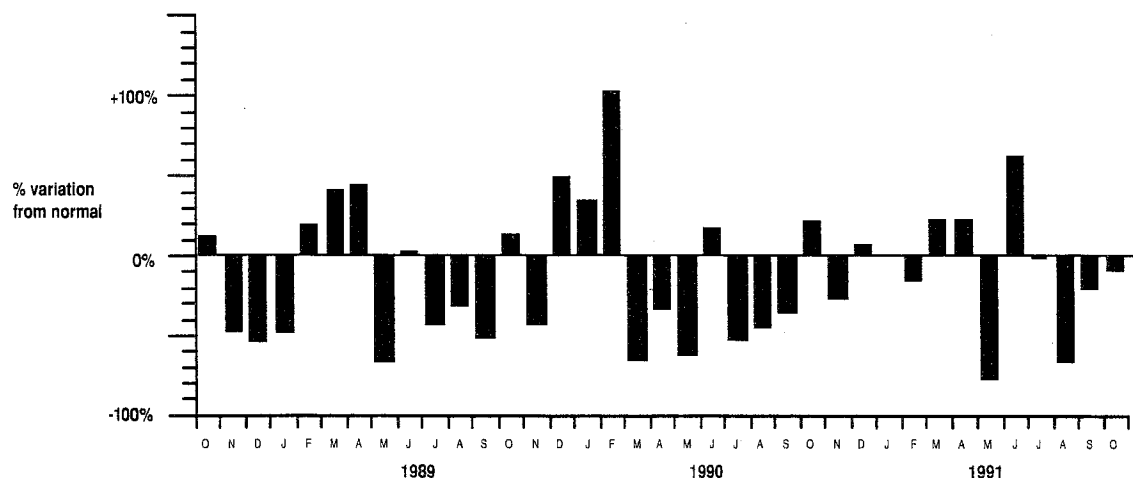
4A. MONTHLY RAINFALLS (MM)

	averages		1990				1991									
	1941-70	residual	Oct	Nov	Dec	total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Anglian	611	150	53	53	48	477	43	40	30	46	14	76	40	15	64	28
Northumbrian	879	450	110	54	109	849	68	92	99	42	18	76	48	40	43	76
North West	1217	750	168	72	142	1184	95	95	117	75	18	94	68	57	69	123
Severn Trent	773	300	88	52	92	696	72	45	57	65	11	74	73	21	53	55
Southern	787	310	102	63	63	665	94	37	50	57	18	115	96	14	51	48
South West	1194	680	129	100	112	1121	137	71	120	102	9	127	90	38	82	116
Thames	704	225	60	34	65	540	77	36	45	59	14	92	81	16	53	37
Dwr Cymru	1334	870	155	110	152	1209	139	84	117	119	11	103	91	50	76	143
Wessex	864	410	83	52	74	758	108	37	77	75	11	113	79	23	63	84
Yorkshire	818	380	90	47	121	779	72	78	67	47	15	74	41	24	47	61
England/Wales	912	460	102	70	97	807	86	55	73	72	15	100	72	30	65	75
Average 1941/70			83	97	90	912	86	65	59	58	67	61	73	90	83	83
Scotland			213	102	191	1844	153	83	127	123	43	121	92	67	129	147
Average 1941/70			148	142	156	1431	137	104	92	90	91	92	112	129	137	137
Northern Ireland	1095	640														
Average 1951/80			100	102	110	1026	103	69	71	63	69	71	79	92	97	97

rainfall data is from the Meteorological Office MORECS system

residual rainfall is that minus evaporation

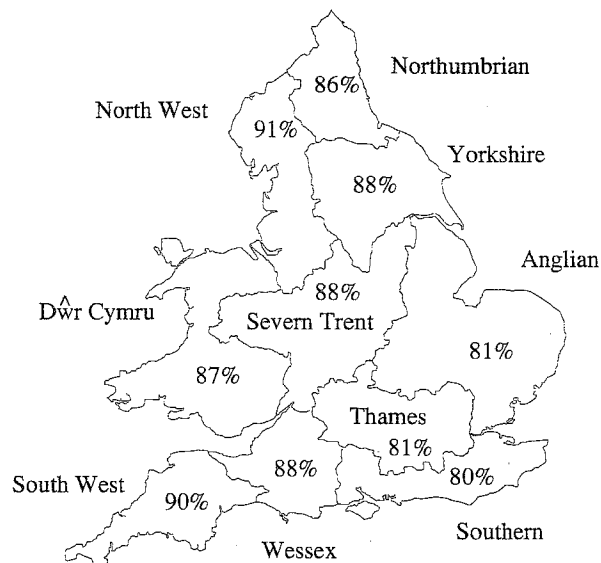
FIG 4A. RAINFALL FOR ENGLAND AND WALES - OCTOBER 1988 TO OCTOBER 1991



THE MAIN DRY SPELLS 1988-1991

Area	May-Sept 1989	March-May 1990	Nov 1988- March 1991
	%	%	%
Anglian	56	52	81
Northumbrian	27	59	86
North West	23	63	88
Severn Trent	55	39	88
Southern	41	39	80
South West	59	36	90
Thames	52	36	81
Dwr Cymru	45	41	87
Wessex	66	33	88
Yorkshire	27	45	82
England/Wales return period for E/W 1 in x years	300	100	25

Rainfall as % of long term average - Nov 1988 to March 1991



4B. WATER CYCLE

Each year over the Earth as a whole:-

	km ³
total volume	1,454,000,000
water evaporated from oceans	453,000
returning to oceans as rain, sleet and snow	12,000
carried over continents	41,000
evaporated from land surface	72,000
annual precipitation over land	113,000

Source: UNESCO Sources No.13

The volume of water and replenishment times on the Earth is estimated as:-

	%	replenishment
oceans	93.93	2,600 years
groundwater	4.12	5,000 years
glaciers	1.65	10,000 years
lakes	0.016	10 years
soil moisture	0.005	11 months
atmospheric vapour	0.001	10 days
rivers	0.0001	12 days

4C. LICENSED WATER ABSTRACTIONS

NRA Region	water supply		industry *		spray irrigation		agriculture including fish farming and watercress		CEGB
	surface	ground	surface	ground	surface	ground	surface	ground	
	MI/d	MI/d	MI/d	MI/d	MI/d	MI/d	MI/d	MI/d	
Anglian	1000	798	65	230	75	70	0	15	2
Northumbria	1082	103	23	17	0	0	0	0	0
North West	1642	288	896	186	3	1	34	6	56
Severn Trent	1506	915	260	182	56	25	14	10	3004
Southern	396	584	31	113	6	1	0	321	0
South West	476	55	92	18	3	1	0	29	72
Thames	1646	2288	402	136	2	4	117	79	106
Welsh	2275	77	536	30	5	1	102	11	8042
Wessex	382	455	118	27	6	2	5	159	0
Yorkshire	1748	173	261	70	9	20	3	4	269
England/Wales	12153	5736	2684	1009	165	125	275	634	11551

Source: NRA FACTS 1990 (data mostly for 1989/90)

* excluding water power (hydro electric), saline and tidal abstractions

Water is abstracted from rivers, reservoirs, lakes and groundwater for the purpose of supplying the public with potable water. The National Rivers Authority licenses abstractions of water by Water Service Companies, Water Companies, industry, agriculture and also private supplies. There are about 100,000 private supplies of which only about 200 supply more than 500 people. A few large industries which require water that is clean, but not treated to drinking water standards, receive non-potable supplies. Generally domestic supplies are not metered whereas industrial supplies (and some commercial) are metered. 99.2% of the population is supplied with public water supply.

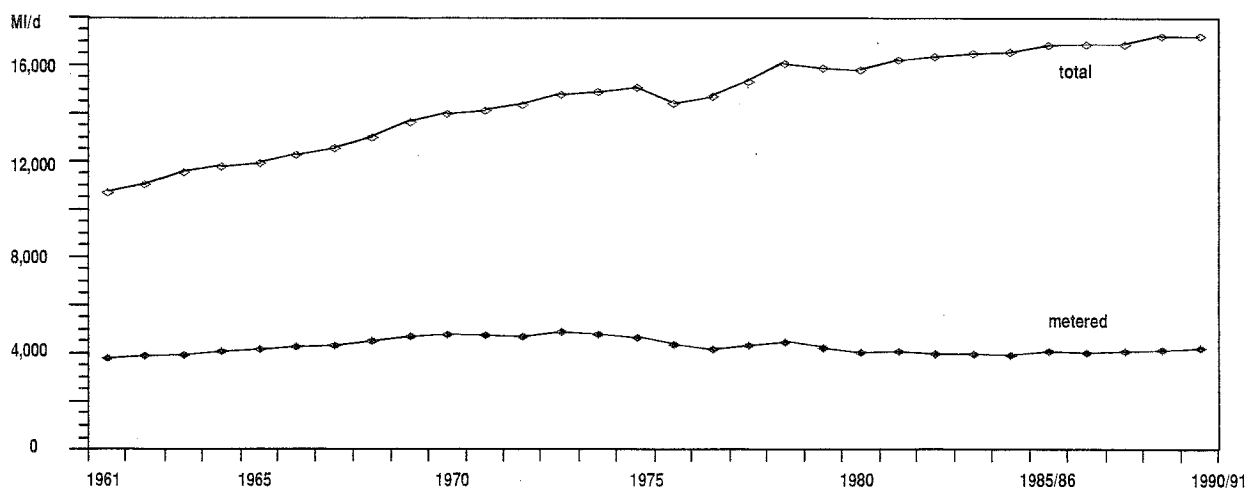
4D. PUBLIC WATER SUPPLIED 1974 TO 1990/91

	Resident population	Unmetered	Metered	Non-potable	*Total	Scotland	Northern Ireland	UK
	000s	MI/d	MI/d	MI/d	MI/d	MI/d	MI/d	MI/d
1974	49159	9555	4801	548	14904			
1975	49157	9907	4668	534	15109			
1976	49142	9519	4359	539	14417			
1977	49440	9961	4211	552	14724			
1978	49443	10407	4352	584	15343	2294	655	18292
1979	49508	10961	4490	643	16094	2301	685	19080
1980	49603	11083	4247	546	15876	2237	686	18799
1981	49634	11224	4029	561	15814	2262	663	18739
1982	49601	11548	4106	561	16215	2246	687	19148
1983/4	49654	11842	3996	516	16354	2233	691	19278
1984/5	49764	11956	3990	558	16504	2199	682	19385
1985/6	49924	12036	3965	575	16576	2198	678	19452
1986/7	50075	12195	4088	571	16854	2243	679	19776
1987/8	50243	12216	4059	604	16879	2194	680	19753
1988/9	50393	12177	4114	605	16896	2205	679	19780
1989/90	50562	12424	4135	714	17273	2248	674	20195
1990/91	50878	12549	4256	576	17381	2300	680	20361

* includes water only companies

Data for public water supply for 1961 to 1973 was given in WATERFACTS 1986

FIG 4D. PUBLIC WATER SUPPLIES 1961 TO 1990/91



4E. DROUGHT ORDERS

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Drought orders	116	0	17	0	2	0	13	5	82	0	0	0	1	74	65	24

Source: Parliamentary Question 6.11.91, 1991 data to November.

4F. PUBLIC WATER SUPPLIED IN 1990/91

	Un-metered	Metered potable	Non-potable	Total
	MI/d	MI/d	MI/d	MI/d
Anglian	860	331	40	1231
Northumbrian	279	157	234	670
North West	1770	638	77	2485
Severn Trent	1429	561	0	1990
Southern	517	181	7	705
South West	381	117	0	498
Thames	2248	547	0	2795
Dwr Cymru	807	240	148	1195
Wessex	292	131	6	429
Yorkshire	1043	382	0	1425
Total	9626	3285	512	13423
Water only companies	2926	968	64	3958
England and Wales	12549	4256	576	17381
Scotland	1651	630	19	2300
Northern Ireland	537	143	0	680
UK	14737	5029	595	20361

4G. PUBLIC WATER SUPPLY TO 2011

NRA region *	1990	2011
	MI/d	MI/d
Anglian	1839	2343
Northumbria	1114	1218
North West	2550	2446
Severn Trent	2398	2573
Southern	1324	1577
South West	493	598
Thames	4032	4723
Welsh	1216	1417
Wessex	861	1135
Yorkshire	1457	1587
England & Wales	17284	19617

* regions include water only companies in contrast to 4F

Source: NRA 'Demand and resources of water undertakers in England & Wales.' March 1991. (includes water only companies)

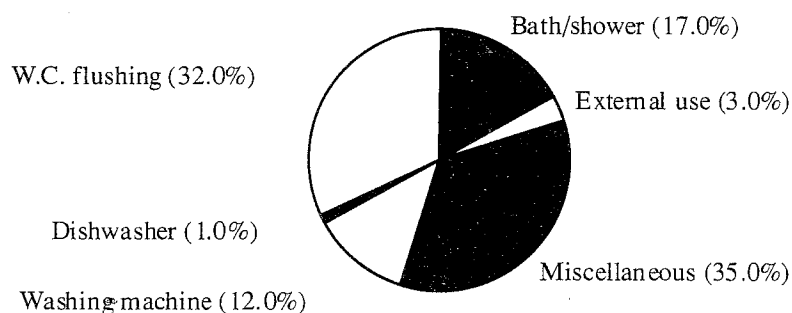
In *WATERFACTS 1986* there was a summary of water used in manufacturing various common products such as bread, coffee, cars etc. In *WATERFACTS 1987* information on household water use by household size and socio-economic group was presented, extracted from *Components of household water demand* and available from the WSA. The data is based on studies in the late 1970s since when there has been a rise of about 2 litres/day in average household consumption to about 140 litres/head/day in 1991.

In *WATERFACTS 1984* information was given on quantities of water used for drinking by type of drink.

4H. WATER USE APPLIANCE OWNERSHIP AND USE

	Ownership level %	Use per day per household	Litres per use		%
Washing machine	85	0.75	110	External use	3
Dishwasher	10	0.8	55	Clothes washing machine	12
Bath	95	0.6	80	Luxury appliances	1
WC	99	10.5	9.5	Toilet flushing	32
Shower	25	0.55	35	Bathing and showering	17
Sprinkler, hosepipe	na	na	na	Miscellaneous	35
Total of 140 litres/head/day					100

FIG 4H. AVERAGE HOUSEHOLD WATER USE



4I. MISCELLANEOUS

A shower uses about 5 litres/minute and a sprinkler can use 1m³/hour.

3% of household use is for drinking use, that is about 10 litres/day per household.

The water industry brochure published in 1989 gave the following figures for industrial water use.

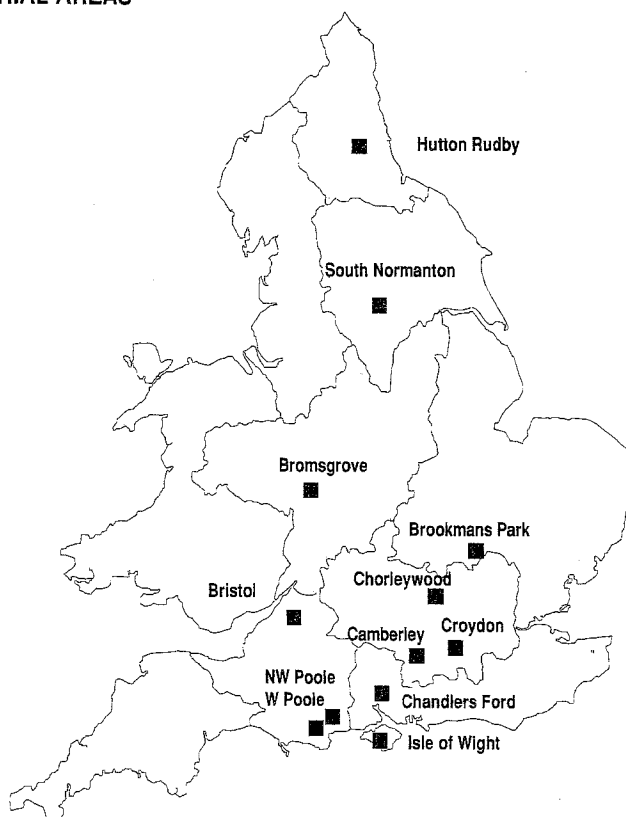
It takes typically about	454	litres to produce 1 ton of ready mixed concrete.
	4,546	litres to produce 1 ton of steel.
	30,000	litres to build the average car.
	8	pints to brew a pint of beer.

4J. METERING TRIALS

It should be noted that by April 2000 the Water Service Companies will need to develop a replacement system for charges to currently non-metered customers; after April 2000 rateable values will not be available for computing water charges. New domestic properties are now having water meters installed.

The areas designated for metering experiments are shown below. Full details are given in *National Metering Trials - Second Interim Report* July 1990, available from the Water Services Association, £10. About 57,000 properties of which about 48,000 are on the Isle of Wight.

FIG 4J. METERING TRIAL AREAS



4K. DRINKING WATER QUALITY COMPLIANCE 1990 (WITH WATER QUALITY REGULATIONS 1989)

Total no. of water supply zones 2536

parameter	total no. of determinations	no. of determinats. not complying	% of determinats. complying	no. of zones in which regulatory requirement has not been met	% of zones in which regulatory requirement comply	no. of zones covered by undertakings *
iron	73635	2226	97.0	751	70.4	2358
nitrate	40509	1117	97.2	79	96.9	135
lead	58759	1598	97.3	593	76.6	2342
individual pesticides	540007	11269	97.9	na	na	na
coliforms	168940	3423	98.0	**231	**90.9	145
PAH	14041	194	98.6	102	96.0	212
manganese	61226	708	98.8	245	90.3	1146
aluminium	58593	542	99.1	258	89.8	743
odour	30180	134	99.6	82	96.8	14
taste	29978	109	99.6	80	96.8	14
turbidity	72198	177	99.8	137	94.6	1373
faecal coliforms	168890	412	99.8	315	87.6	101
colour	66332	56	99.9	41	98.4	721
all other parameters	982540	5887	99.4	na	na	na
Total of all parameters	2365828	27852	98.8	na	na	na

* an undertaking requires the Company to take steps to comply with the standard

** the 95% compliance rule applies

The Drinking Water Inspectorate produced its first annual report in 1991 and it contained the information for England and Wales in the table above. The report included tables for each individual company and the most significant parameters below were summarised for the whole country.

There are about 60 parameters that are tested for (although in a few cases one parameter may cover a number of closely related substances). From 1 July 1990 the water companies have been required to provide a drinking water register where information can be examined by members of the public.

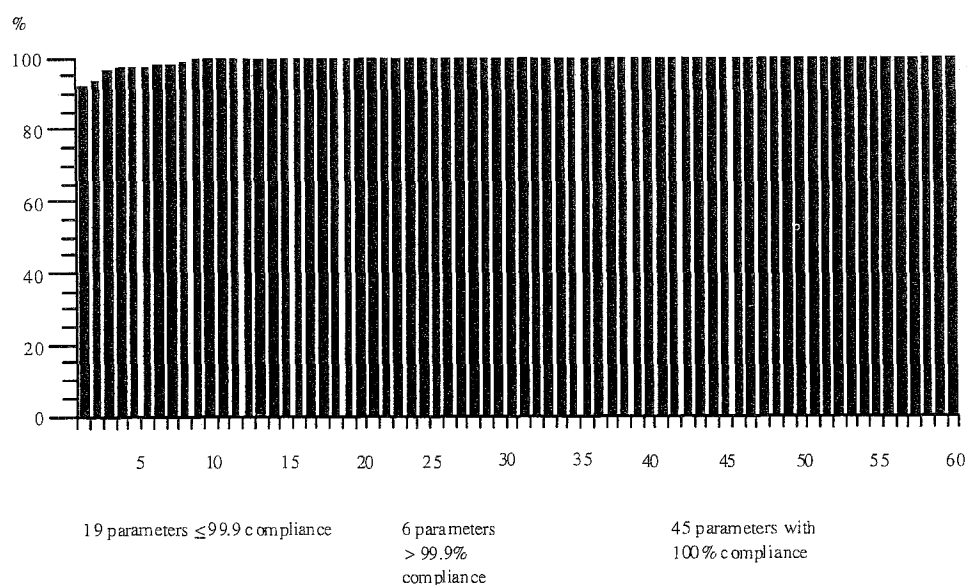
The duty placed on water companies to supply wholesome water is extremely demanding. To fulfil their duty, water companies must meet quality standards at all times and in all zones which they supply. Forty two standards allow no latitude. If monitoring reveals a concentration or value of a parameter in a sample to be exceeding one of the standards, even by a small margin, the water supplied must be regarded as unwholesome at the time the sample was taken and the record will show that the sample did not comply with the regulations. Similarly, the record will show that the zone from which the sample was taken has not complied fully throughout the year with that standard.

Many of the standards have been set to secure aesthetic quality which means that the water will not have an unpleasant taste, odour or appearance. Other standards, set specifically for health reasons, usually incorporate wide margins of safety. Hence, an occasional excursion above a standard is not indicative, necessarily, that health has been endangered or that water is unfit to drink. Thus, however trivial a breach of the regulations may be, it will appear on the record, indicating that the water supplied was unwholesome.

Figure 4k shows the results for one company of its drinking water sampling programme 1990. Each bar represents one of the substances (or parameters) for which water is tested, for example nitrate or lead or magnesium. The length of the bar represents how far the samples complied with the standards required for that parameter. 100% compliance means that all the samples, taken in every supply zone throughout the company's area met the required standard for that substance.

Each water company will show a similar high level of general compliance, although the distribution of the parameters will differ. Full details for all companies are shown in the Chief Inspector's report.

FIG 4K. DRINKING WATER COMPLIANCE



4L. FLUORIDATION

Districts in England where artificial fluoridated water was received in 1988:-

all population in the district
North West Durham
Gateshead
Newcastle
Bassetlaw
Sandwell
Walsall
Solihull
North Birmingham
East Birmingham
Central Birmingham
West Birmingham
South Birmingham

some of the population in the district	
East Cumbria	Doncaster
West Cumbria	Dudley
Durham	Wolverhampton
South West Durham	Worcester
Northumberland	Bromsgrove and Redditch
North Tyneside	North Warwickshire
Grimsby	South Warwickshire
Scunthorpe	Rugby
Huddersfield	Coventry
Chester	Mid Staffordshire
Crewe	East Staffordshire
North Derbyshire	Oxford
South Derbyshire	Wycombe
North Lincolnshire	North Bedfordshire
South Lincolnshire	South Bedfordshire
Central Nottingham	South West Hertfordshire

4M. NITRATE SENSITIVE AREAS

percentage of total holding

	premium	0-25	25-75	75-100
1. Sleaford (Lincolnshire)	85	380	290	200
2. Branston Booths (Lincolnshire)	95	380	290	200
3. Ogbourne St George (Wiltshire)	55	380	290	200
4. Old Chalford (Oxfordshire)	55	330	265	200
5. Egford (Somerset)	55	380	290	200
6. Boughton (Nottinghamshire)	75	280	240	200
7. Wildmoor (Hereford and Worcs)	70	280	240	200
8. Wellings (Staffs and Shropshire)	65	280	240	200
9. Tom Hill (Staffordshire)	70	280	240	200
10. Kilham (Humberside)	55	330	265	200

10 areas have been designated as nitrate sensitive areas (NSAs), (subject to Commission clearance under article 93,3 of the Treaty of Rome), and that intensive advisory campaigns should be conducted in a further nine areas.

Payments will be made to those farmers in nitrate sensitive areas who voluntarily undertake to observe restrictions on their agricultural practices. These payments will vary depending on the nitrate sensitive area in line with overall differences in the costs of compliance between different areas.

Farmers who participate in the basic scheme will in addition be able to enter the premium scheme, by converting some or all of their arable land to various forms of grassland. Payments will vary depending on the nitrate sensitive area (since overall assessments of the costs of compliance differ), the option chosen, and the proportion of a farmer's land affected (since the latter affects the fixed cost savings). The premium scheme requirements will help to protect the environment generally and promote conservation.

Premium rates (which are paid in addition to basic rates) will be adjusted, in relation to those shown above, as follows:

For unfertilised grazed grass	£30/ha less
For grass with up to 100 kg N/ha	£110/ha less
For grass and woodland	£100/ha less

For the latter, payments under the farm woodland scheme should also apply.

Intensive pig and poultry farmers will receive individually assessed payments towards the cost of additional storage (pig farmers only) and/or transport requirements calculated against number of livestock.

The advisory areas will be as follows:

1. The Swells (Gloucestershire)
2. Bircham and Fring (Norfolk)
3. Hillington, Gayton and Congham (Norfolk)
4. Sedgeford (Norfolk)
5. Fowlmere (Cambridgeshire)
6. Far Baulker (Nottinghamshire)
7. Dotton and Colaton (Devon)
8. Cringle Brook (Lincolnshire and Leicestershire)
9. Bourne Brook (Warwickshire)

All farms in the advisory areas will be visited by an ADAS officer and encouraged voluntarily to follow practices designed to reduce the risk of nitrate leaching at little or no cost to themselves or even a small benefit.

Source: Parliamentary Question 3.4.90

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5. Sewerage, sewage and sludge disposal

The EC Urban Waste Water Treatment Directive lays down minimum standards of treatment for municipal wastewater and the disposal of sewage sludge. It requires secondary treatment of municipal wastewater as a minimum, except in areas designated as less sensitive, when primary treatment alone may be permitted. However, if an area is designated as sensitive, nutrient removal may be required. The Directive specifically requires the elimination of sewage sludge dumping at sea. The Government announced on 5 March 1990 that sea disposal of sludge would be phased out by 1998 subject to the resolution of planning procedures and replacement scheme designs.

5A. SEWERAGE AND SEWAGE TREATMENT BY POPULATION

	Population connected to sewer		Served by STWs			septic	connected to sea outfalls	
	000s	% connected	primary %	secondary %	tertiary %	tanks %	short %	long %
Anglian	5540	93	8	70	13	7	6	3
Northumbrian	2602	98	39	36	0	1	22	2
North West	6730	98	10	65	6	>0	18	1
Severn Trent	8270	97	2	67	28	>0	0	0
Southern	4280	95	17	47		5	4	26
South West	1282	88	8	47		0	33	
Thames	11481	98	0	82	16	2	0	0
Dwr Cymru	3096	93	5	46	4	<1	45	
Wessex	2400	93	23	48	10	7	7	5
Yorkshire	4595	97	2	71	15	5	>0	7
England & Wales	50276	96	8	65	14	4	6	4
Scotland	4916	94	24	44	2	3	5	
Northern Ireland	1150	81				17		
UK	54000	95				4		

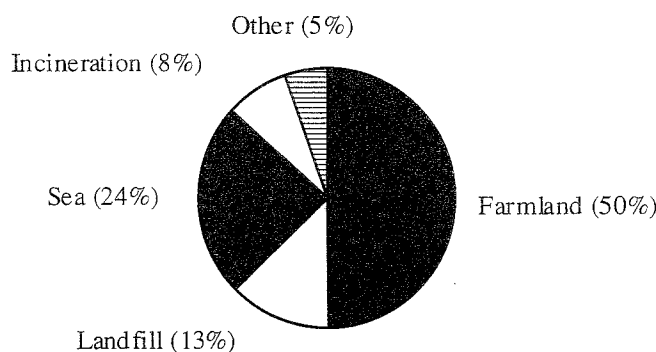
5B. DISPOSAL OF SEWAGE SLUDGE 1990

	Farmland	Landfill	Sea	Incinerator	Other	Total
000s of tonnes dry solids						
Anglian	106	3	12	0	0	121
Northumbrian	3	13	14	0	1	31
North West	32	20	57	8	6	123
Severn Trent	95	35	0	32	0	162
Southern	35	14	8	8	0	65
South West	7	1	2	0	0	10
Thames	91	1	108	0	38	238
Dwr Cymru	24	0	3	0	6	33
Wessex	26	2	13	0	0	41
Yorkshire	54	33	8	26	0	121
England and Wales	473	122	225	74	51	945
%	50%	13%	24%	8%	5%	100%
Scotland	16	11	62	1	10	100
Northern Ireland	12	4	11	0		27
UK	501	137	298	75	61	1072
%	47%	13%	28%	7%	5%	100%

The disposal of sludge from sewage works is strictly controlled :

- disposal to landfill is becoming restricted due to the lack of available local sites;
- disposal of sewage sludge at sea is controlled by licences issued by MAFF who monitor the effect on dumping grounds and set the licence conditions accordingly;
- disposal of sewage sludge to agricultural land is undertaken in accordance with guidelines issued by the former NWC/DoE Standing Committee on the Disposal of Sewage Sludge. These have superseded the implementation of the Directive 86/278/EEC 'Use of sewage sludge in agriculture' which was notified on 12 June 1986 and member states implemented the Directive by June 1989.

FIG 5B. SLUDGE DISPOSAL



5C. DISPOSAL OF SEWAGE SLUDGE TO SEA (WET TONNES)

Thousand tonnes (wet weight)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Anglian	202	211	175	156	138	85	215	162	267	299	262	
Northumbrian	16	46	262	280	372	482	464	500	457	510	500	
North West	1654	1730	1693	1642	1299	1283	1499	1541	1624	1629	1646	
Severn Trent							1	2	2	3	1	
Southern	343	301	267	290	202	232	292	289	243	236	296	
South West	120	135	126	145	131	147	135	124	130	125	107	
Thames	5000	5030	4920	4620	4150	4200	4240	4543	3638	4083	2610	
Dwr Cymru	71	81	62	65	54	47	53	60	54	55	62	
Wessex	287	312	266	255	176	260	206	197	184	218	244	
Yorkshire	243	130	92	83	91	78	88	112	95	109	101	
Scotland	1030	2030	1800	1720	1790	1940	2000	1870	1950	1950	1950	1946

Source: Parliamentary Question 27.4.90

5D. LOCAL AUTHORITY SEWERAGE ARRANGEMENTS

Section 15 of the Water Act 1973 imposed a duty on water authorities to endeavour to make arrangements, subject to rights of termination, to discharge certain of their sewerage functions (excluding sewage treatment and disposal and trade effluent) through district councils in their area. Under the provisions of the 1989 Water Act, sewerage arrangements existing at vesting continue to have effect. The arrangements may be varied only by agreement and may be brought to an end by agreement or by either party giving reasonable notice. Sewerage undertakers may not give any such notice which expires before 1 April 1992.

WATERFACTS 88 listed the sewerage agencies that transferred during the lifetime of the water authorities.

5E. DISCHARGE CONSENTS

NRA region	Total consents	Sewage treatment works	WSC sewage treatment works
Anglian	26887	921	710
Northumbria	4198	225	179
North West	946	378	378
Severn Trent	10272	1820	813
Southern	938	273	273
South West	9625	720	610
Thames	4663	6396	395
Welsh	7396	941	729
Wessex	9100	320	272
Yorkshire	11989	988	346
England & Wales	86014	12982	4705

Source: 'NRA Facts 1990'

5F. SEWAGE TREATMENT WORKS CONSENTS

NRA region	Number					Number tested					Number complied with consent				
	1986	1987	1988	88/89	89/90	1986	1987	1988	88/89	89/90	1986	1987	1988	88/89	89/90
Anglian	782	760	775	788	710	774	754	748	788	710	465	494	540	577	613
Northumbria	196	182	178	181	179	196	182	178	181	179	159	155	152	157	167
North West	458	448	441	439	378	458	448	441	439	378	396	393	398	397	363
Severn Trent	773	753	808	810	813	762	742	751	785	786	583	582	639	689	753
Southern	282	274	273	463	463	282	274	271	463	463	228	235	230	280	268
South West	226	226	232	na	610	188	219	228	na	384	133	154	161	na	313
Thames	374	382	378	400	410	374	379	378	400	410	307	309	318	350	388
Welsh	803	764	710	753	729	668	611	650	753	729	556	503	543	407	533
Wessex	272	272	272	272	272	272	270	272	272	272	236	241	255	258	260
Yorkshire	380	360	360	346	346	380	351	354	346	346	292	277	293	298	317
England & Wales	4546	4421	4427	4452	4910	4354	4230	4271	4427	4657	3355	3343	3529	3413	3996

% compliance

77%	79%	83%	77%	86%
-----	-----	-----	-----	-----

Data is for WSC sewage treatment works

1986 to 1988 data from 'Digest of Environmental Statistics'. 1988/89 and 1989/90 data from 'NRA Facts'.

As a result of Part II of the Control of Pollution Act of 1974, ("COPA II"), brought into force in 1984, sewage treatment works are granted consents by the Department of the Environment to discharge effluent (treated water) to a watercourse. For each consent, limits may be set for three principal parameters:

- for "suspended solids" - that is to say turbidity caused, for example, by silt
- for bio-chemical oxygen demand ("BOD") - the extent to which organic matter in the water draws out oxygen
- for ammonia - which is toxic to fish.

The NRA now charges £350 for determining a new or revised consent, or £50 for a smaller discharge application. Currently there are no charges for discharges to controlled waters, but in June 1991 the NRA issued their consultation paper 'Proposed scheme of charges in respect of discharges to controlled waters'.

River quality surveys in future will be conducted by the National Rivers Authority who will also record the number of pollution incidents. The table below gives the river quality for the last two river quality surveys. The next survey will be for 1990.

5G. RIVER QUALITY SURVEYS

(i) England and Wales

Freshwater rivers/canals	1980 survey		1985 survey		Estuaries	1980 survey		1985 survey	
	km	%	km	%		km	%	km	%
Class					Class				
1A Good	13830	34	13470	33	A Good	1870	68	1860	68
1B Good	14220	35	13990	34	B Fair	620	23	650	24
2 Fair	8670	21	9730	24					
3 Poor	3260	8	3560	9	C Poor	140	5	130	5
4 Bad	640	2	650	2	D Bad	110	4	90	3
Total	40630	100	41390	100	Total	2730	100	2730	100

(ii) Scotland and Northern Ireland

Northern Ireland									
Scotland					Northern Ireland				
rivers only					rivers only				
1985					1985				
survey					survey				
Class	km	%	km	%	Class	km	%	km	%
1A Good	45713	95	204	15	A Good	na	na	99	84
1B Good			954	69	B Fair	na	na	0	0
2 Fair	1822	4	157	11					
3 Poor	283	1	75	5	C Poor	na	na	20	16
4 Bad	167	0	0	0	D Bad	na	na	0	0
Total	47985	100	1390	100	Total	na	na	119	100

5H. RIVER QUALITY 1989/90

NRA region	Class 1A good km	Class 1B good km	Class 2 fair km	Class 3 poor km	Class 4 bad km	Total km
Anglian	360	2192	1543	333	25	4453
Northumbria	1730	722	284	44	5	2785
North West	2442	829	1463	921	245	5900
Severn Trent	893	2574	2493	629	89	6678
Southern	545	731	656	187	18	2137
South West	420	998	1002	330	37	2788
Thames	1592	1473	597	169	0	3831
Welsh	2407	1456	663	255	21	4802
Wessex	600	782	784	90	19	2275
Yorkshire	2267	2114	860	641	152	6034
England & Wales	13256	13871	10345	3599	611	41683
Total 1988/89	13592	13771	9918	3591	621	41493

Source: 'NRA Facts 1990'. Includes rivers and canals

5I. ESTUARIAL QUALITY 1989/90

NRA region	Class A	Class B	Class C	Class D	Total
	good	good	fair	poor	
	km	km	km	km	
Anglian	317	124	36	2	479
Northumbria	51	47	21	16	135
North West	221	102	60	69	452
Severn Trent	18	46	13	0	77
Southern	317	52	13	0	382
South West	324	25	0	0	349
Thames	49	62	0	0	111
Welsh	316	88	8	0	412
Wessex	43	65	3	0	111
Yorkshire	49	36	18	0	103
England & Wales	1705	647	172	87	2611
Total 1988/89	1705	647	172	87	2611

Source: 'NRA Facts 1990'.

5J. POLLUTION INCIDENTS REPORTED

NRA region	Total		Serious		Prosecutions	
	1988/89	1989/90	1988/89	1989/90	1988/89	1989/90
Anglian	1441	1731	94	102	17	18
Northumbria	695	792	23	41	2	5
North West	3664	3478	729	525	45	47
Severn Trent	5282	6004	686	805	40	35
Southern	1581	1760	34	40	10	12
South West	2666	2588	538	506	59	50
Thames	3045	3573	1047	660	25	10
Welsh	2275	1814	139	245	62	54
Wessex	1776	2521	73	149	22	44
Yorkshire	2125	2464	230	180	25	34
Total	24550	26725	3593	3253	307	309

Source: 'NRA Facts 1990'.

5K. POLLUTION INCIDENTS BY CATEGORY 1989/90

	Total	Serious	Successful prosecutions
Industrial chemicals	1909	327	71
Organic industrial wastes	672	88	23
Agricultural Pesticides/Fertilisers	112	19	1
Organic farm wastes	2744	602	151
Oil	5850	681	27
Sewage treatment works	2882	525	5
Sewage other	3489	318	1
Other	9067	693	30
Total	26725	3253	309

Source: 'NRA Facts 1990'.

Sewage treatment and sewage include many non-WSC owned. See tables 5E, 5F

In an answer to a parliamentary question on 25 January 1990, the Minister stated that 'We have already announced a £1.4billion (£1.2b for England and Wales) capital investment programme over the next 10 years as a result of which we expect over 95% of our bathing waters to meet the directive's standards by the mid-1990s and to achieve full compliance within 10 year'. An additional £1.5 billion investment programme to treat all sewage before discharge was announced on 5 March 1990.

There are 407 bathing waters designated in England and Wales. Prior to 1987 there were only 27 bathing waters designated. Compliance has been assessed on the directive's rules where at least 20 samples have been analysed. In other cases, provided that at least 12 samples have been analysed, the water was assumed to comply where not more than one sample failed the numerical standards.

5L. BATHING WATER QUALITY (DIRECTIVE 76/160/EEC)

Compliance with Directive

NRA Region	1987		1988		1989		1990		1991	
	pass	total	pass	total	pass	total	pass	total	pass	total
Anglian	18	28	19	28	23	28	27	29	29	33
Northumbria	9	19	9	19	20	32	21	32	21	33
North West	10	30	6	33	11	33	10	33	10	33
Severn Trent	0	0	0	0	0	0	0	0	0	0
Southern	38	65	27	65	45	65	48	66	45	67
South West	96	109	92	109	113	132	118	133	105	133
Thames	0	2	0	2	3	3	3	3	2	3
Welsh	28	47	37	48	40	48	35	50	45	51
Wessex	32	38	30	38	31	38	39	39	36	39
Yorkshire	20	22	21	22	18	22	17	22	19	22
England and Wales	251	360	241	364	304	401	318	407	312	414

% compliance	70% (56%)*	66%	76%	78%	75%
--------------	------------	-----	-----	-----	-----

Scotland	19	23	12	23	16	23	12	23	15	23
Northern Ireland			14	16	16	16	15	16	15	16
UK			267	403	336	440	351	446	343	453
% compliance	70% (56%)*		66%		76%		79%		75%	

* there were changes in definitions in 1987 - 56% represents the equivalent figure in 1988 terms

5

5M. COMPLIANCE FOR COLIFORMS IN 1988 BATHING SEASON

% of samples failing	total coliforms		faecal coliforms	
	no.	%	no.	%
0	266	66	191	47
0 to 5	54	13	77	19
5+ to 10	29	7	50	12
10+ to 15	12	3	21	5
15+ to 20	19	5	15	4
20+	23	6	49	12
Total	403	100	403	100

Source: DoE evidence to House of Commons Environment Committee, September 1989. UK beaches in 1988

5N. POPULATION SERVED BY OUTFALLS

	Long outfalls		Short outfalls		Total	
	no.	population millions	no.	population millions	no.	population millions
England	27	2.137	344	5.155	371	7.292
Wales	6	0.142	54	1.044	60	1.186
Scotland	11	1.650	108	0.555	119	2.205
Northern Ireland	2	0.335	39	0.169	41	0.504
UK	46	4.264	545	6.923	591	11.187

Source: DoE evidence to House of Commons Environment Committee, September 1989

5O. COASTAL AND ESTUARIAL DISCHARGES BY TREATMENT IN UK

	Coastal		Estuarial	
	no.	population millions	no.	population millions
None	38	1.128	17	1.339
Preliminary	61	3.195	36	2.308
Primary	11	0.504	35	3.682
Secondary	2	0.033	63	8.667
UK	102	4.860	151	15.996

Note: for discharges serving more than 10,000 people

Source: DoE Survey, March 1990

5P. POLLUTION ENTERING THE SEA

All potential pollutants (% contribution)	
Run-off and land-based discharges	44
Atmosphere	33
Maritime transportation	12
Dumping (including waste water and industrial)	10
Offshore production	1

Source: UN 'State of the Marine Environment'. Report and Studies No.39 1990

6. Charges and customers

6A. NUMBERS OF CUSTOMERS 1991

	Unmeasured supply				Measured supply			
	households		non-households		households		non-households	
	water	sewerage	water	sewerage	water	sewerage	water	sewerage
	000s	000s	000s	000s	000s	000s	000s	000s
Anglian	1402	1913	40	42	17	21	89	69
Northumbrian	451	1045	14	72	1	2	10	18
North West	2555	2538	92	80	14	14	141	115
Severn Trent	2555	2993	69	279	62	68	167	167
Southern	801	1487	14	24	75	78	43	48
South West	543	499	24	23	14	14	59	27
Thames	2862	4453	139	182	60	70	119	169
Dwr Cymru	989	1030	37	49	31	29	65	43
Wessex	399	856	10	27	11	14	41	36
Yorkshire	1665	1756	52	60	17	16	68	53
WSCs	14222	18570	491	838	302	326	802	745
Water Cos	4790		138		56		221	
England / Wales	19012	18570	629	838	358	326	1023	745
Scotland	na	na	127	75	na	na	54	na
Northern Ireland	568	na	30	na	0	0	38	na
UK			786				1115	

6B. AVERAGE CHARGES

(i) Household water services bills *

	1980/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92
£/week	1.00	1.15	1.29	1.38	1.48	1.65	1.78	1.90	2.05	2.28	2.57	2.95

(ii) Measured water charge

	1980/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92
p/m ³	18.1	20.1	22.1	22.8	23.5	25.8	27.6	29.3	31.9	35.2	40.4	47.2

* for water and sewerage services combined

FIG 6B. AVERAGE WATER SERVICE BILLS

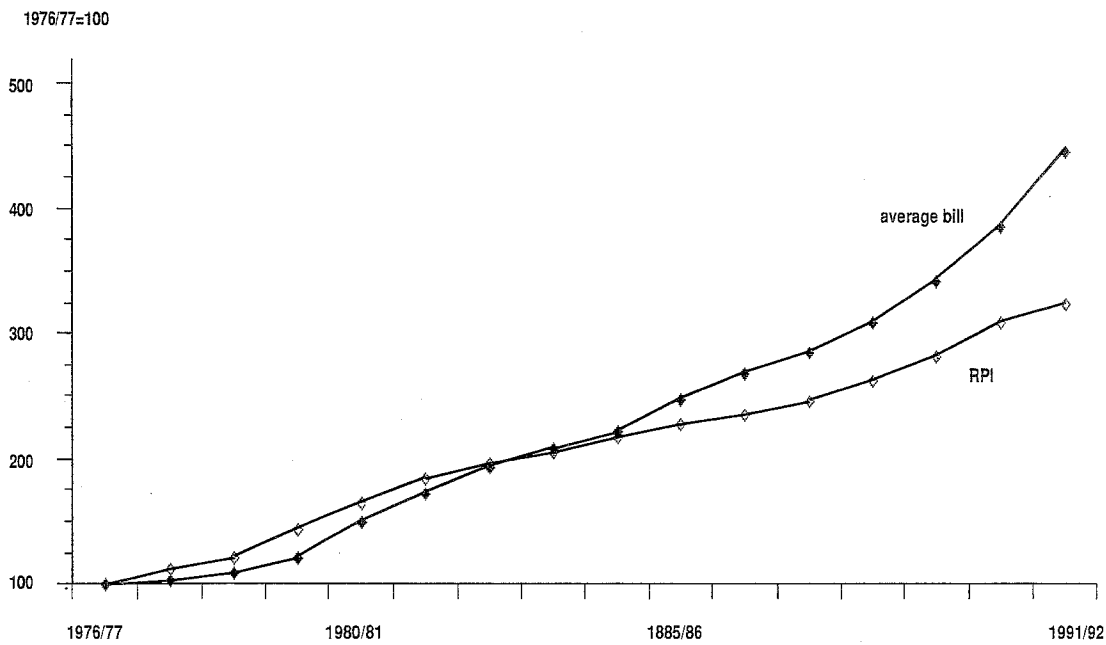
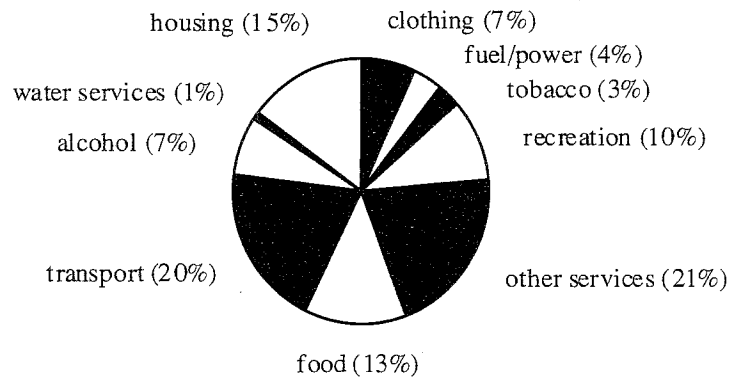


FIG 6C. HOUSEHOLD EXPENDITURE



6

6C. MISCELLANEOUS

£1 will buy 2 litres of **bottled** water
 £1 will buy 3,000 litres of **tap** water

1 litre of **bottled** water costs 50.00p
 1 litre of **tap** water costs 0.03p

1m³ of **tap** water costs £0.30
 1m³ of **bottled** water costs £ 500

1 pint of water costs 0.02 pence, 1 pint of milk costs 30 pence and 1 pint of beer might cost you £1.50

6D. AVERAGE CHARGES 1991/92

Average household bill

Measured supply

	water supply		sewerage		total			
	90/91	91/92	90/91	91/92	90/91	91/92	90/91	91/92
	£	£	£	£	£	£	p/m³	p/m³
Anglian	78.34	93.79	96.67	110.65	175.01	204.44	40.91	48.46
Northumbrian	56.59	66.05	65.50	75.98	122.09	142.03	33.21	38.74
North West	58.00	66.62	66.33	75.95	124.33	142.57	40.00	46.40
Severn Trent	53.39	61.29	66.78	76.50	120.12	137.79	41.80	48.15
Southern	57.69	66.38	82.33	96.17	140.12	162.55	35.60	40.70
South West	71.17	82.56	93.84	109.32	165.01	191.88	44.40	51.10
Thames	58.17	66.31	56.15	64.29	114.32	130.60	31.48	37.33
Dwr Cymru	89.71	104.28	78.25	90.93	167.96	195.21	45.62	54.30
Wessex	68.65	80.09	85.19	96.07	153.84	176.16	44.90	53.81
Yorkshire	70.07	80.50	65.15	73.99	135.22	154.49	41.20	47.40
Weighted average	63.52	73.51	70.30	81.00	133.82	154.51	40.44	47.20
Water Companies	57.23							

6E. TRADE EFFLUENT CHARGES 1991/92

Average regional strength

Apportion of charge

	Os	Ss	R	V	VB	VM	M	B'	S'	minimum charge £
	mg/l	mg/l	p/m³	p/m³	p/m³	p/m³	p/m³	p/kg	p/kg	
Anglian	476	379	6.14	9.62	1.86	4.77	5.16	23.74	13.91	71.00
Northumbrian	386	187	11.84	5.90	0.00	0.00	0.00	25.52	26.74	150.00
North West	379	241	6.60	5.40	0.70	0.00	5.00	15.04	16.59	63.00
Severn Trent	384	323	9.08	8.33	0.00	0.00	0.00	25.28	16.62	82.70
Southern	452	512	13.89	10.14	1.65	7.52	7.52	29.58	17.87	71.00
South West	739	497	18.96	19.59	0.00	0.00	3.37	41.88	45.19	72.00
Thames	445	335	4.98	6.11	0.00	0.00	0.00	21.66	36.66	50.00
Dwr Cymru	500	350	5.70	4.60	1.83	4.87	7.00	21.22	21.40	65.00
Wessex	1192	243	5.11	8.15	0.78	4.70	8.88	22.56	34.19	110.00
Yorkshire	971	321	13.07		0.00	0.00	0.00	14.08	24.89	120.00

Total average charge is for average strength effluent. Trade effluents are charged using the following formula

$C = R + ([V + VB] \text{ or } VM \text{ or } M) + B(Ot/Os) + S(St/Ss)$ where:

C = total charge for trade effluent treatment

R = reception and conveyance charge

V = volumetric and primary treatment cost/m³

VB = additional charge/m³ where there is a biological treatment

VM = treatment and disposal charge for sea outfalls

M = treatment and disposal charge for designated long sea outfalls

Ot = the chemical oxygen demand (COD) of effluent after one hour quiescent settlement at pH7

Os = COD of crude sewage after one hour quiescent settlement

B = biological oxidation cost/m³ of settlement sewage

St = total suspended solids (mg/litre) of the trade effluent at pH7

Ss = total suspended solids (mg/litre) of crude sewage

S = treatment and disposal costs of primary sludges/m³ of sewage

Yorkshire minimum charge is £12 if no sampling needed

Thames has a system of standing charges

6F. INFRASTRUCTURE CHARGES

	1990/91		1991/92	
	water	sewerage	water	sewerage
	£	£	£	£
Anglian	479	597	503	629
Northumbrian	111	240	120	247
North West	198	338	212	362
Severn Trent	498	356	532	380
Southern	365	485	378	492
South West	654	557	705	599
Thames	403	337	382	314
Dwr Cymru	259	332	275	351
Wessex	551	983	611	1090
Yorkshire	529	626	534	632

Section 79 of the Water Act 1989 enables water and sewerage undertakers to levy charges to cover the cost of additional infrastructure required to meet the demands of new customers. These charges are payable on the provision of new supplies or sewerage services for domestic purposes and are in addition to the long standing arrangements for the provision of local infrastructure through requisitioning payments and connection charges.

6G. DISCONNECTIONS FOR NON PAYMENT OF CHARGES

	1990/91		1990/91	1989/90	1988/89	1987/88	1986/87
	domestic	non-domestic	total	total	total	total	total
Anglian	415	46	461	380	1880	1586	2268
Northumbrian	460	158	618	558	870	480	300
North West	889	129	1018	969	779	775	858
Severn Trent	286	123	409	1079	1101	932	1000
Southern	351	187	538	813	1354	1164	1152
South West	210	9	219	245	100	324	404
Thames	7	9	16	14	935	1594	576
Dwr Cymru	1305	92	1397	1342	1117	2067	950
Wessex	2	0	2	14	83	32	0
Yorkshire	1492	141	1633	1068	999	560	293
WSCs	5417	894	6311	6482	9218	9187	7400
Water only companies	2256	657	2913	3531	6037	na	na
England and Wales	7673	1551	9224	10013	15255	na	na

Source: OFWAT

6H. CUSTOMER COMPLAINTS TO CSC 1990/91

Customer Service Committee Region	no. of complaints	% of total	complaints per 100,000 customers
Anglian	411	8.9	13.3
Northumbrian	273	5.9	16.0
North West	608	13.3	20.8
Severn Trent	1069	23.1	27.3
Southern	380	8.2	15.2
South West	165	3.6	25.0
Thames	552	11.9	8.2
Dwr Cymru	375	8.1	28.6
Wessex	262	5.7	17.1
Yorkshire	532	11.5	25.8
Total	4,627	100	

Source: OFWAT annual report. The complaints are not those directly to the companies

6I. CODES OF PRACTICE AND GUARANTEED STANDARDS SCHEME

The licence of Appointment requires each company to produce codes of practice on the following under conditions G, H, and I respectively.

- Customer relations with the CSCs
- Disconnections
- Leakage

The codes are available for each company.

There is also for each company a guaranteed standards scheme laid down in statutory instruments 1159 and 1383. Under the scheme customers are entitled to a payment or credit when a company fails to maintain certain minimum standards of service to domestic premises. Again, details are available from each company.

7. Investment, finance and assets

Each year there are annual accounts for the plcs, the WSCs and the appointed business, the latter being regulated by OFWAT. In the following sections the data is for the appointed business except where stated.

7A. TURNOVER AND PROFIT 1990/91

	Anglian	North-umbrian	North West	Severn Trent	South-ern	South West	Thames	Dwr Cymru	Wessex	York-shire	Total
	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M
Turnover of plc	460.6	167.0	598.5	627.0	251.2	143.8	835.5	293.0	166.9	388.9	3932.4
appointed business	452.5	150.9	570.9	608.6	242.4	138.6	676.4	285.3	158.1	384.8	3668.5
non-appointed	1.1	16.7	-	-	7.4	1.6	-	2.3	-	-	29.1
Operating costs	284.5	120.9	387.0	408.0	161.3	88.8	479.1	191.2	100.8	279.0	2500.6
Other income	2.7	0.0	6.5	0.0	3.4	0.1	26.9	1.2	0.0	2.2	43.00
Operating profit	170.7	30.0	190.4	200.6	84.5	51.5	224.2	95.3	57.3	108.0	1212.5
Net interest	17.3	-4.4	30.4	46.3	-31.6	33.0	-11.7	31.8	-1.3	9.0	118.8
Profit sharing				-2.1							-2.1
Profit before tax	153.4	25.6	220.8	244.8	52.9	84.5	212.5	127.1	56.0	117.0	1294.6
Tax	0.0	3.4	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	5.0
Profit after tax	153.4	29.0	220.8	244.8	52.9	84.5	214.1	127.1	56.0	117.0	1299.6
Extraordinary items	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.7
Profit	153.4	29.0	220.8	244.8	52.9	84.5	214.8	127.1	56.0	117.0	1300.3

Turnover of the water only companies in 1990/91 was £510 million

7B. TURNOVER AND OPERATING PROFIT BY SERVICE 1990/91

	Anglian	North-umbrian	North West	Severn Trent	South-ern	South West	Thames	Dwr Cymru	Wessex	York-shire	Total
	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M
Water services	196.1	51.4	271.8	257.0	78.1	68.0	293.9	165.2	53.4	196.2	1631.1
Sewerage services	256.4	99.5	299.1	351.0	164.3	70.6	377.6	120.1	104.6	188.6	2031.8
Other	0.0	0.0	0.0	0.6	0.0	0.0	4.9	0.0	0.1	0.0	5.6
Total	452.5	150.9	570.9	608.6	242.4	138.6	676.4	285.3	158.1	384.8	3668.5

(ii) Operating profit

	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M
Water services	45.6	6.5	45.9	65.0	12.8	13.0	48.8	48.2	11.3	34.0	331.1
Sewerage services	122.4	19.1	144.5	137.7	71.7	38.4	148.4	47.1	46.0	74.0	849.3
Other	2.7	0.0	0.0	-2.1	0.0	0.0	0.1	0.0	0.0	0.0	0.7
Total	170.7	25.6	190.4	200.6	84.5	51.4	197.3	95.3	57.3	108.0	1181.1

INFRASTRUCTURE ACCOUNTING

Accounts of the 10 water authorities of England and Wales for the financial year ended 31 March, 1989 were based on a major change in accounting policy. This change has been called infrastructure accounting and was intended to ensure that the accounting treatment of capital expenditure items is more appropriate than in the past. It was accepted not only by the 10 water authorities, but also by the government and the authorities' accountants.

Infrastructure accounting is based upon a new classification of water authority assets. These have been divided into:

- (a) **Ordinary assets** - which are capitalised and depreciated over their estimated asset lives in the conventional way.
- (b) **Infrastructure assets** - which are usually underground assets and comprise a network of:

Water mains, sewers, impounding and raw water storage reservoirs, dams, sea outfalls

The significance of infrastructure assets in Water Service Company balance sheets varies considerably. On a historical cost accounting basis they comprise, on average, approximately 50% of balance sheet asset values and on a current cost basis, approximately 75%

Expenditure on the network of infrastructure assets, previously classified as capital expenditure, is divided into 2 categories:

(a) **Infrastructure maintenance expenditure** - required to maintain the network and to ensure it continues to operate at existing levels. Such expenditure is charged to the profit and loss account annually.

(b) **ENGE Expenditure** - relating to:

Enhancements - expenditure to enhance the network of assets.

New demand - expenditure to cater for new demand.

Growth - expenditure to cater for growth in existing demand.

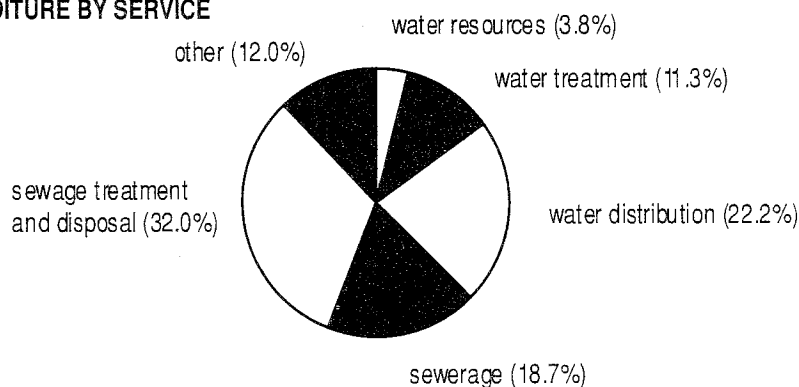
Efficiency - expenditure which reduces costs or increases income and thereby improves the efficiency of the network.

Such capital expenditure, aimed at improving rather than just maintaining the network, is capitalised.

Neither category of infrastructure expenditure is depreciated. This is justified on the grounds that the network has no finite life but must be maintained indefinitely. As a result, a policy of depreciation over a fixed asset life is not considered appropriate. It is replaced by the annual revenue charge for maintenance expenditure.

Finally, there is one further small complication. This relates to infrastructure maintenance expenditure undertaken to maintain assets which, by normal standards, should have been undertaken long previously. This is called "backlog expenditure" and it is capitalised in the same way as ENGE expenditure, not written off to the profit and loss account. Clearly this will affect different Water Service Companies in different ways.

FIG 7A. CAPITAL EXPENDITURE BY SERVICE



7C. TURNOVER BY INCOME CATEGORY 1990/91

	Water supply		Sewerage		Trade effluent	Other	Total
	metered	unmetered	metered	unmetered			
	£M	£M	£M	£M	£M	£M	£M
Anglian	57.0	116.3	37.2	195.4	13.5	33.1	452.5
Northumbrian	20.2	27.1	21.2	71.5	3.7	7.2	150.9
North West	92.5	158.5	19.9	246.8	27.6	25.6	570.9
Severn Trent	91.9	148.2	32.2	280.9	29.9	25.5	608.6
Southern	27.2	47.0	30.5	124.9	4.7	8.1	242.4
South West	21.7	42.2	15.4	52.1	2.6	4.8	138.8
Thames	65.2	199.7	60.5	287.5	19.8	43.7	676.4
Dwr Cymru	50.4	94.8	24.8	88.2	4.7	22.4	285.3
Wessex	21.4	29.1	19.4	79.9	3.7	4.6	158.1
Yorkshire	60.6	125.2	44.2	124.8	18.4	11.6	384.8
Total	508.1	998.1	305.3	1552.0	128.6	186.6	3668.7

data for appointed business

7D. OPERATING COSTS BY CATEGORY 1990/91

	Anglian	North-umbrian	North West	Severn Trent	South-ern	South West	Thames	Dwr Cymru	Wessex	York-shire	Total
	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M
Manpower costs	53.0	16.5	83.3	99.4	35.0	25.9	143.0	48.7	24.1	64.5	593.4
other employment	3.8	1.5	7.0	5.2	2.1	1.8	9.9	3.6	1.2	6.2	42.3
Power	22.0	4.8	21.0	27.0	11.6	6.7	38.9	13.7	7.8	17.7	171.2
Rates	22.6	5.7	34.7	29.4	9.1	6.7	41.4	13.5	6.0	23.7	192.8
Sewerage agencies	8.8	5.3	18.9	16.4	8.5	3.3	26.7	8.9	4.9	8.4	110.1
Materials and consumables	26.7	7.4	19.7	24.7	12.1	7.1	27.9	22.0	9.6	16.7	173.9
Hired and contracted	23.6	9.5	15.6	30.5	9.7	8.3	85.4	18.4	10.3	15.3	226.6
Infrastructure renewals	36.7	15.4	89.4	45.0	14.2	5.1	25.5	17.5	12.1	35.2	296.1
Depreciation	33.5	13.3	33.4	47.6	22.4	9.7	38.5	21.8	16.8	39.1	276.1
Other	53.8	41.5	64.0	82.8	36.6	12.7	41.9	23.1	8.0	52.2	416.6
Total	284.5	120.9	387.0	408.0	161.3	87.3	479.1	191.2	100.8	279.0	2499.1

data for appointed business

7E. CAPITAL EXPENDITURE BY SERVICE 1990/91

Total investment

	£M	%
Water resources	85.7	3.8
Water treatment	258.6	11.3
Water distribution	509.1	22.2
Sewerage	428.9	18.7
Sewage treatment and disposal	732.4	32.0
Other	275.6	12.0
Total	2290.3	100.0

7F. TOTAL INVESTMENT EXPENDITURE 1985/86 TO 1990/91

Old series

Total investment

	1985/86 £M	86/87 £M	87/88 £M	88/89 £M	89/90 £M	90/91 £M
Anglian	106.0	123.0	140.7	141.3	192.0	221.6
Northumbrian	39.3	36.9	39.4	41.4	65.9	98.4
North West	163.0	184.3	201.6	216.9	269.4	408.0
Severn Trent	119.8	149.3	159.7	206.9	262.2	394.7
Southern	62.6	65.6	71.2	89.8	125.5	132.6
South West	36.1	37.2	46.7	51.6	80.2	120.0
Thames	108.8	127.1	169.8	184.5	260.8	413.4
Dwr Cymru	54.4	61.7	67.8	89.8	105.3	160.0
Wessex	49.1	59.4	72.8	74.5	100.0	96.6
Yorkshire	94.6	126.7	142.5	148.8	188.2	250.2
Total	833.7	971.2	1112.2	1245.5	1649.5	2295.5
Water only Companies	75.4	77.7	88.2	99.8	111.3	196.0
NRA	-	-	-	112.0	131.0	
Scotland	95.9	104.6	99.5	112.4	128.5	
Northern Ireland	25.2	25.8	25.3	25.2	27.7	33.0
UK	1030.2	1179.3	1325.2	1594.9	2048.0	

7G. TOTAL FIXED ASSETS AT 31 MARCH 1991 (NET BOOK VALUES)

	Anglian	North-umbrian	North West	Severn Trent	South-ern	South West	Thames	Dwr Cymru	Wessex	York-shire	Total
	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M	£M
Land and buildings	6.1	16.0	40.8	529.0	253.1	14.8	635.2	19.2	164.4	314.1	1992.7
Infrastructure assets	698.2	358.1	913.0	947.2	352.3	255.7	802.0	340.1	274.5	415.4	5356.5
Other	871.1	256.6	870.4	327.0	162.2	239.4	302.8	420.1	157.8	479.3	4086.7
Total	1575.4	630.6	1824.2	1803.2	767.6	509.9	1740.0	779.4	596.7	1208.8	11435.8

7H. TEN YEAR EXPENDITURE PROGRAMMES TO 31 MARCH 2000 (AT NOVEMBER 1989 PRICES)

	Water supply			Sewerage			Other	Total
	resources	treatment	distribution	sewers	treatment	outfalls		
	£M	£M	£M	£M	£M	£M	£M	£M
Anglian	40	380	1000	690	850	190	310	3460
Northumbrian	10	65	220	235	195	95	65	885
North West	235	425	1230	1110	710	255	315	4280
Severn Trent	90	750	1010	810	1000	0	420	4080
Southern	95	45	230	225	385	275	75	1330
South West	35	90	315	300	240	215	95	1290
Thames	320	640	660	985	895	0	310	3810
Dwr Cymru	30	265	550	355	205	120	230	1755
Wessex	70	50	230	510	280	45	90	1275
Yorkshire	170	350	540	510	520	30	300	2420
Total	1095	3060	5985	5730	5280	1225	2210	24585
Water only companies	2110							2110

Source: The prospectus. Does not include additional £1.5 billion expenditure for extra treatment for coastal discharges

7I. MAIN ASSETS OF THE WATER SERVICE COMPANIES

	Anglian	North-umbrian	North West	Severn Trent	Southern	South West	Thames	Dwr Cymru	Wessex	York-shire	Total
Reservoirs											
supply (impounding)	15	20	168	40	4	36	24	91	15	110	523
service/water towers	452	123	410	700	221	440	291	920	360	482	4399
Treatment works											
water	167	35	186	205	115	57	124	211	115	150	1365
sewage - total	1086	423	642	1048	376	497	395	870	356	637	6330
primary only	24	81	155	60	32	19	0	86	2		459
primary + secondary	741	342	476	736	361		270	735	294		3955
p + s + tertiary	321	0	11	252	82	4781	125	49	60		5681
Underground assets											
mains - WSCs km	31568	8744	37280	38500	11850	13200	30588	23460	10115	29500	234805
Companies km	10810	8020	0	7111	12360	0	20326	1879	8554	924	69984
sewers km	27309	12871	34894	54067	24300	8100	82645	16530	13414	26500	300630
Pumping stations											
sewage	3815	444	1170	2251	1640	550	2000	1260	1080	1215	15425
water	236	79	432		106		290	570	305	457	2475
Storm overflows	1186	1381	2375	3333	617	1031	2404	1800	1497	2095	17719
Sea & estuarial outfalls	55	**44	97	9	43	156	0	132	32	26	550
long outfalls	4	1	2	0	16				5	1	29

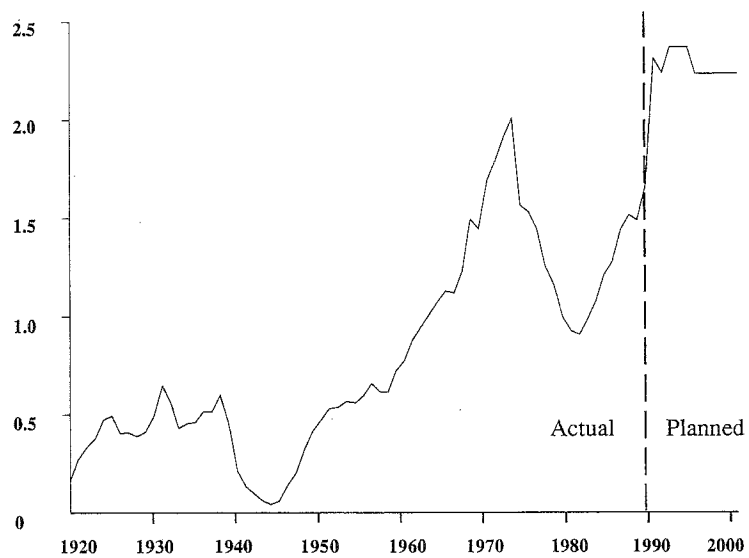
Storm overflows number are those identified.

Scotland has 345 supply reservoirs, 615 water and 1146 sewage works. There are 45,095 km of mains and 27,534 km of sewers and 787 sea and estuarial outfalls

Northern Ireland has 57 supply reservoirs, 105 water and 925 sewage treatment works. There are 20972 km of mains and 9700 km of sewers

** sea only

FIG 7H. INVESTMENT 1920 TO 2000 (AT NOVEMBER 1989 PRICES)



Note: Prospectus data, excludes the £1.5 billion extra future expenditure on meeting wastewater to sea requirements

8. Manpower

8A. MANPOWER

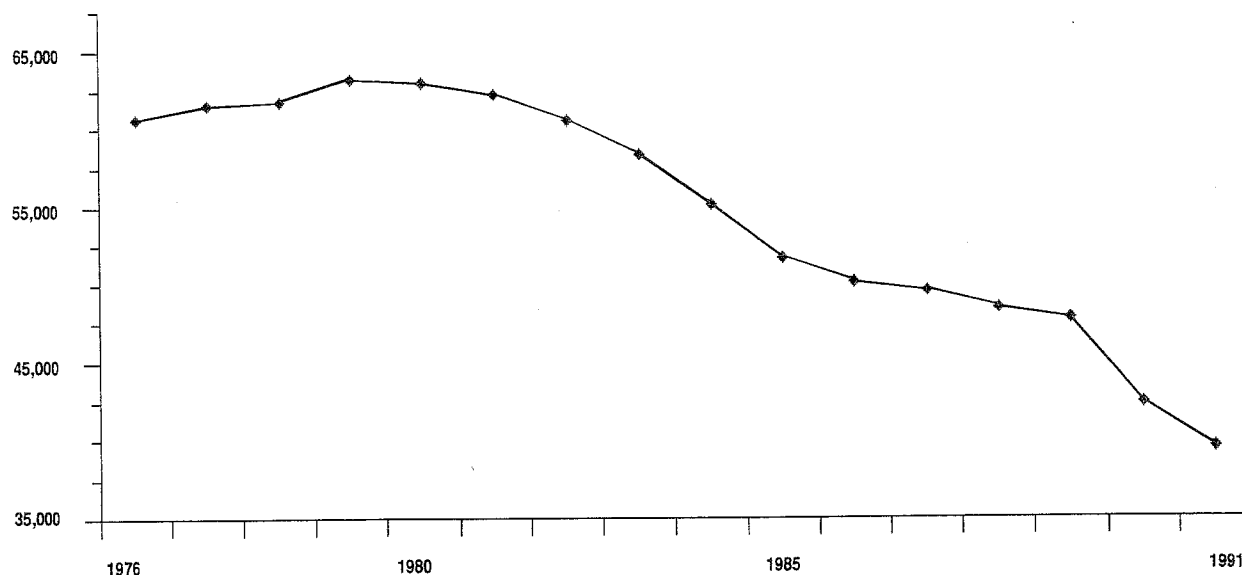
Full-time equivalent employees at March 31

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1991
Anglian	6951	6744	6700	6560	5826	5549	5264	5184	5102	5068	3629
Northumbrian	2384	2309	2151	2077	1919	1759	1636	1523	1459	1463	1195
North West	9300	9120	8782	8629	8278	8166	8055	8134	7936	7766	6839
Severn Trent	11107	10886	10502	10182	9720	9269	8908	8493	8174	7890	7054
Southern	4256	4101	3948	3720	3494	3336	3183	3160	3162	3185	2284
South West	2489	2450	2276	2255	2194	2023	2008	2003	1958	1938	1976
Thames	11993	11945	11753	11227	10321	9089	8896	9152	9210	9321	7316
Dwr Cymru	5656	5736	5677	5424	5179	4709	4746	4845	4618	4406	3486
Wessex	2465	2398	2291	2266	2182	2050	1994	1925	1891	1907	1755
Yorkshire	6415	6522	6506	6010	6054	5835	5472	5254	4981	4959	4074
WSCs	63016	62211	60586	58350	55167	51785	50162	49673	48491	47903	39608
Water Companies	8602	8641	8369	8190	8010	7821	7340	7101	6865	6768	7000
NRA *											7298
Scotland	6166	6318	6226	6121	6144	6129	6155	6270	6194	6094	6229
Northern Ireland	3095	2892	2708	2605	2524	2518	2510	2605	2552	2507	2598
UK	80679	80062	77889	75266	71845	68253	66167	65649	64102	63272	62733

* The NRA was set up in 1989 and most of the staff transferred from the water authorities

The 1991 figures are a mixture of average over the year 1990/91 and those at 31 March 1991

FIG 8A. MANPOWER



9. International

9A. WATER SUPPLY 1988/89

	resident population *	% urban	% connected	water abstracted	ground water for public supply	house- hold	average household water household use	household water price 1.1.87
	000s		000s	MI/d	%	**%	l/head/day	\$/m ³
Austria	7707	56	58	1178	96	64	145	0.68
Belgium	9869	70	98	1915	67	65	108	0.87
Denmark	5239	84	92	1005	98	67	190	0.37
Finland	4945	60	81	1255	49	53	151	0.56
France	56123	73	99	15890	70	71	159	0.72
Greece	8481	66			40			
Hungary	10672	53	94	2720	10	62	205	0.23
Ireland	3841	55			25			
Italy (1984)	58410	72	91	17535	91	75	220	0.22
Luxembourg	369	57	99	125	66	67	176	0.58
Netherlands	14826	86	100	3155	67	82	167	0.78
Norway	4203	43						
Portugal	12261	43			94			
Spain	39580	62	96	11340	20	68	126	0.28
Sweden	8369	83	87	2700	49	66	194	0.43
Switzerland	6446	57	99	3135	75	64	264	0.49
UK	56600	90	99	20465	35	62	136	0.50
West Germany	59622	84	98	13670	89	75	145	0.99

** England and Wales households not measured, so based on 140 litres/head.day.

\$1.00 - £1.87 at 1.1.87

Source: IWSA and * WHO 'International drinking water supply and sanitation decade' April 1990

9B. POPULATION SERVED BY SEWAGE TREATMENT WORKS

1990

	1970 %	1975 %	1980 %	1985 %	none %	primary %	secondary %	tertiary %
Belgium	3.8	5.5	22.9		55	45	0	0
Denmark	54.3	70.6		90.0	5	25	65	5
France	40.0		61.5	63.7	60	40	0	0
West Germany	61.8	74.8	81.8	86.5	0	11	81	8
Greece			0.5		82	18	0	0
Ireland			11.2		30	15	54	1
Italy	14.0		30.0		na	na	na	na
Luxembourg	28.0		81.0	83.0	8	8	84	0
Netherlands		45.0	68.0	81.0	15	7	75	3
Portugal	3.1	6.0	10.0	12.0	55	20	23	2
Spain		14.3	17.9	29.0	74	17	9	0
UK			82.0	83.0	0	10	80	10

Source: WHO 'International drinking water supply and sanitation decade'. April 1990 for 1990 data

Source: 'OECD Environmental Data - compendium 1987' for 1970 to 1985 data

9C. SEWAGE CONNECTIONS AND VOLUMES

	% population served by sewage works	% connected sewer	Total	No. of sewage works serving >100,000
Belgium	25	58	292	13
West Germany	86	91	8456	137
Denmark	92	94	1805	18
France	50	65	7805	
Greece	10	40	26	2
Ireland	25	66	530	2
Italy			3783	102
Luxembourg	76	96	324	1
Netherlands	88	92	485	64
Portugal	37	38	166	
Spain	9		1595	
UK	83	96	7645	102
England & Wales	83	96	6524	

Source: Commission of EC. 'Updating of statistical data about sewage works', Feb 1990. Most data for 1988.

9D. RIVER QUALITY

		% of river lengths in each class					
		date of survey	1A	1B	2	3	4
Belgium		1975-79	35	21	17	16	11
Denmark	(estimate)	1986	80			20	
France		1985	8	26	60	6	
West Germany		1985	6.5	38	40	14	1.5
Greece	(estimate)		20	40	20	15	5
Ireland		1980/81	84		14		2
Italy	(no survey)						
Luxembourg		1984	47	25	13	11	4
Netherlands		1978	12	65	18	4	1
UK							
England & Wales		1985	33	34	24	9	2
Scotland		1980	95		4	0.5	0.5
Northern Ireland		1985	15	69	11	5	0

Source: 'Survey of European River Quality', P. Newman

9E. QUALITY OF BATHING WATER 1983-86 (% CONFORMING WITH EC DIRECTIVE)

	Sea water				Fresh water			
	1983	1984	1985	1986	1983	1984	1985	1986
Belgium	13.3	26.7	26.7	50.0	65.1	70.2	73.5	77.1
West Germany								
Denmark	77.9	77.0	83.6	76.6		in sea		
France	76.4	80.0	83.7	85.7	64.8	77.7	78.7	79.4
Ireland	50.0	71.4	100.0	85.7				
Italy				61.3				37.2
Luxembourg								
Netherlands	84.8	84.8	87.8	90.6		100.0	100.0	100.0
UK				44.1				

There are some differences in coverage and interpretation between countries and this has made direct comparisons rather difficult although the Commission is putting on pressure for comprehensive returns.

Source: 'Quality of bathing water 1983-86' published by the Commission of the European Communities in 1988.

9F. BATHING WATER QUALITY 1989/90

		no. of districts	no. of sampling points	no. of points complying	% complying
Belgium	1990 sea	12	39	35	90
	1990 fresh	50	59	51	86
	sea + fresh	62	98	86	88
Denmark	1989 sea + fresh	178	1370	1224	89
Germany	1989 sea + fresh	917	1668	1213	73
Greece	1990 sea + fresh	282	689	446	65
Spain	1989 sea	314	1096	876	80
	1989 fresh	141	184	104	57
	sea + fresh	455	1280	980	77
France	1989 sea	625	1751	1478	84
	1989 fresh	1620	1972	1473	75
	sea + fresh	2245	3723	2951	79
Ireland	1989 sea		67	64	96
Italy	1989 sea	592	3833	3205	84
	1989 fresh	262	615	373	61
	sea + fresh	854	4448	3578	80
Luxembourg	1990 fresh	12	20	15	75
Netherlands	1990 sea+ fresh	410	410	338	82
Portugal	1989 sea	70	210	183	87
UK	1990 sea	371	446	345	77

9G. SLUDGE DISPOSAL 1990

	Agriculture %	Landfill %	Incineration %	Sea %	Total '000s dry tonnes per annum
Belgium	80	18	2	0	35
West Germany	32	56	10	0	2500
Denmark	50	25	25	8	130
France	na	na	na	na	700
Greece	15	85	0	0	200
Ireland	23	28	0	49	23
Italy	32	67	2	1	800
Luxembourg	50	50	0	0	15
Netherlands	53	29	10	8	280
Portugal	11	28	0	61	25
Spain	na	na	na	na	300
UK	41	15	3	28	1075

Source: WHO 'International drinking water supply and sanitation decade'. April 1990

Source: 'Proceedings of WSA Workshop on the proposed EC Directive concerning municipal waste water treatment' May 1990

9H. LARGEST PRIVATE WATER UTILITIES

	UK rank	European rank	Market capital £M	Turnover £M	Profit £M	Employees
British Telecom	1	2	18565	12315	2302	247912
British Gas	8	14	9542	7983	1051	80481
Compagnie Generale des Eaux		46	8491	17393	520	153901
Lyonnaise des Eaux		131	3634	3822	247	31295
Thames	94	254	1139	611	179	7790
North West	97	275	1056	511	75	7100
Severn Trent	100	287	997	544	129	7298
Anglian	109	313	884	401	86	4328
Yorkshire	145	433	599	354	57	4591
Southern	172		466	225	60	2790
Welsh	177		453	255	39	3711
South West	193		383	121	45	1712
Wessex	225		306	147	27	1639
Northumbrian	275		202	150	10	1404
Total UK water			6495	3319	707	42363

Source: Financial Times 11.1.91. BT and British Gas included for comparison

9I. EUROPEAN AND INTERNATIONAL ORGANISATIONS

EUREAU

EUREAU is a non-profit organisation within the framework of the European Communities with the following objectives:-

- to promote and develop jointly the study of all scientific, technical, economic, administrative and legal problems concerning the catchment, treatment and supply of water in the member countries of the European Communities.
- to identify, propose, encourage and take all necessary steps in the context of the general interest for the solution of these problems and the implementation of such solutions.
- to represent the common interests of its members to the public or private Community organisations responsible for dealing with problems concerning the catchment, treatment and supply of water.
- to make the European Communities aware of these problems.

The EC countries are full members, the UK is represented by the Water Services Association and Austria and Switzerland are associate members.

From 1 January 1990, the committee structure (requiring two UK representatives to be appointed to each Commission) will be:-

Commission I:	Water resources, Treatment and Quality
Commission II:	Standardisation and Certification
Commission III:	Legislation and Economics

EUROPEAN INSTITUTE FOR WATER

Founded under the auspices and with the help of the Commission of the European Communities, this is a professional institute which obtains soundings and ideas from the legislator to the user for new water quality directives (dealing with both clean and dirty water) and also the implementation of and proposals for changing existing directives.

Meetings of the European Institute for Water are structured as seminars and designed so that written conclusions and recommendations are produced which could be of use to the Commission of the European Communities.

The Water Services Association has a seat on the Administrative Council.

CEN (COMITE EUROPEAN DE NORMALISATION)

Standardisation activity at the European level is dealt with by CEN (European Committee for Standardisation) and CENELEC (European Committee for Electrotechnical Standardisation). Together these bodies make up the Joint European Standards Institution (ESI). The aim of European standardisation is the harmonisation of standards on a Europe-wide basis in order to facilitate the exchange of goods and services by eliminating barriers to trade which might result from requirements of a technical nature.

The national standardisation institutes of 18 countries support CEN (the 12 EC and the 6 EFTA countries), the British Standards Institution is the UK representative. The Water Services Association has several representatives on various specialist committees. ESI adopt international standards as European Standards wherever possible. Many British Standards and international standards are identical.

INTERNATIONAL WATER SUPPLY ASSOCIATION (IWSA)

The International Water Supply Association was formed in 1947. Seventy eight countries are in full corporate membership and about 700 associate and individual members in 105 countries participate in its activities which are aimed at improving knowledge of public water supplies and promoting the exchange of information among all those with responsibility for and interest in water supply. There is a British Committee which has representatives from each of the Water Service Companies as well as other UK bodies.

EUROPEAN WATER POLLUTION CONTROL ASSOCIATION

Established in 1981 as a non-governmental organisation registered in Bonn. Activities are aimed at advancing knowledge in water protection and in furthering interaction and collaboration between countries in the technical and scientific practice of water management. Its membership is mainly professional bodies and the UK member is IWEM.

INTERNATIONAL ASSOCIATION ON WATER POLLUTION, RESEARCH AND CONTROL (IAWPRC)

The association is set up to promote the professional advancement of the science and practice of water pollution control. There is a UK committee which has two Water Services Association representatives.

10. Maps and publications

WATER RELATED PUBLICATIONS

1. THE UK WATER INDUSTRY - CHARGES FOR WATER SERVICES 1991/92

2. THE UK WATER INDUSTRY - COSTS OF WATER SERVICES

Published by the Centre for the Study of Regulated Industries (CRI), which is a special unit of the Public Finance Foundation (PFF), which in turn was founded by the Chartered Institute of Public Finance and Accountancy (CIPFA).

The publication is sponsored by the Office of Water Services (OFWAT) and the advisory panel includes the Water Services Association, the Water Companies Association, DoE - Northern Ireland and the Scottish Office Environment Department.

The charges publication was produced in June 1991 (ISBN 0 85299 502 4, 50 pages) and is available from:

Public Finance Foundation, 3 Robert Street, London WC2N 6BH, tel: 071-895-8823, fax: 071-895-8825.

The costs publication is due early in 1992.

3. NRA FACTS 1990

Issue 1 was produced in July 1991 and the seventy page document costs £5 from the National Rivers Authority.

There are tables of information on water resources, pollution control, flood defence, fisheries, recreation, conservation and navigation.

4. DIGEST OF ENVIRONMENTAL STATISTICS

The 1990 issue, number 13 in the series, includes a water quality chapter including sewage treatment works compliance, river quality, pollution incidents and bathing water surveys.

The 120 page book (ISBN 0-11-752415-8) is published by HMSO, price £13.50.

Water Service Companies

North West Water Limited

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fax 0925-233368

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Great Sankey
Warrington WA5 3LW

Severn Trent Water Limited

tel 021-722-4000

fax 021-722-4800

2297 Coventry Road
Sheldon
Birmingham B26 3PU

Dŵr Cymru Cyfyngedig

tel 0874-623181

fax 0874-624167

Plas-y-Ffynnon
Cambrian Way
Brecon
Powys LD3 7HP

South West Water Services Limited

tel 0392-219666

fax 0392-434966

Peninsula House
Rydon Lane
Exeter EX2 7HR

Northumbrian Water Limited

tel 091-384-4222

fax 091-384-1920

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Pity Me
Durham DH1 5EZ

Yorkshire Water Services Limited

tel 0532-448201

fax 0532-443071

West Riding House
67 Albion Street
Leeds LS1 5AA

Anglian Water Services Limited

tel 0480-433000

fax 0480-433055

Ambury Road
Huntingdon PE18 6NZ

Thames Water Utilities Limited

tel 0734-593333

fax 0734-593203

Nugent House
Vastern Road
Reading RG1 8DB

Southern Water Services Limited

tel 0903-264444

fax 0903-262100

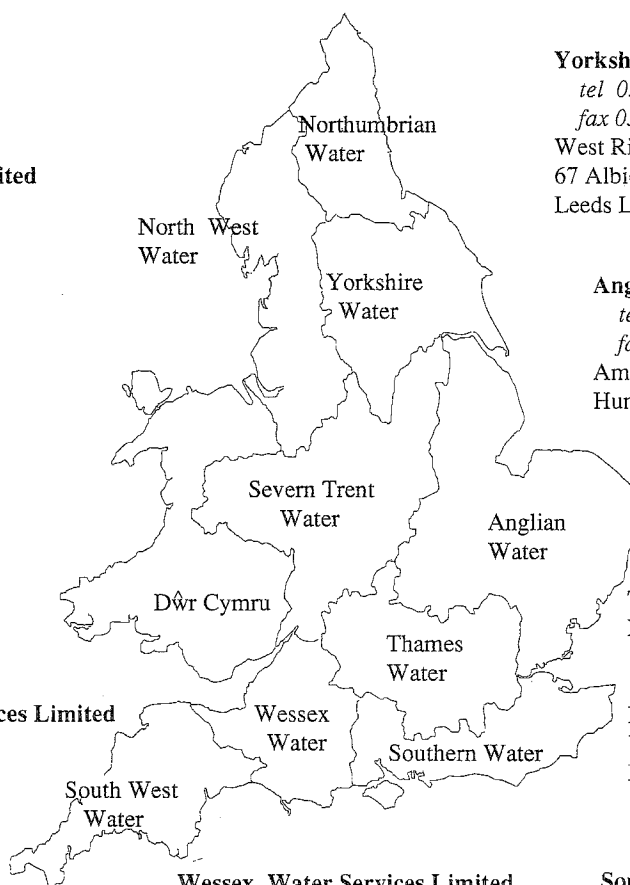
Southern House
Yeoman Road
Worthing BN13 3NX

Wessex Water Services Limited

tel 0272-290611

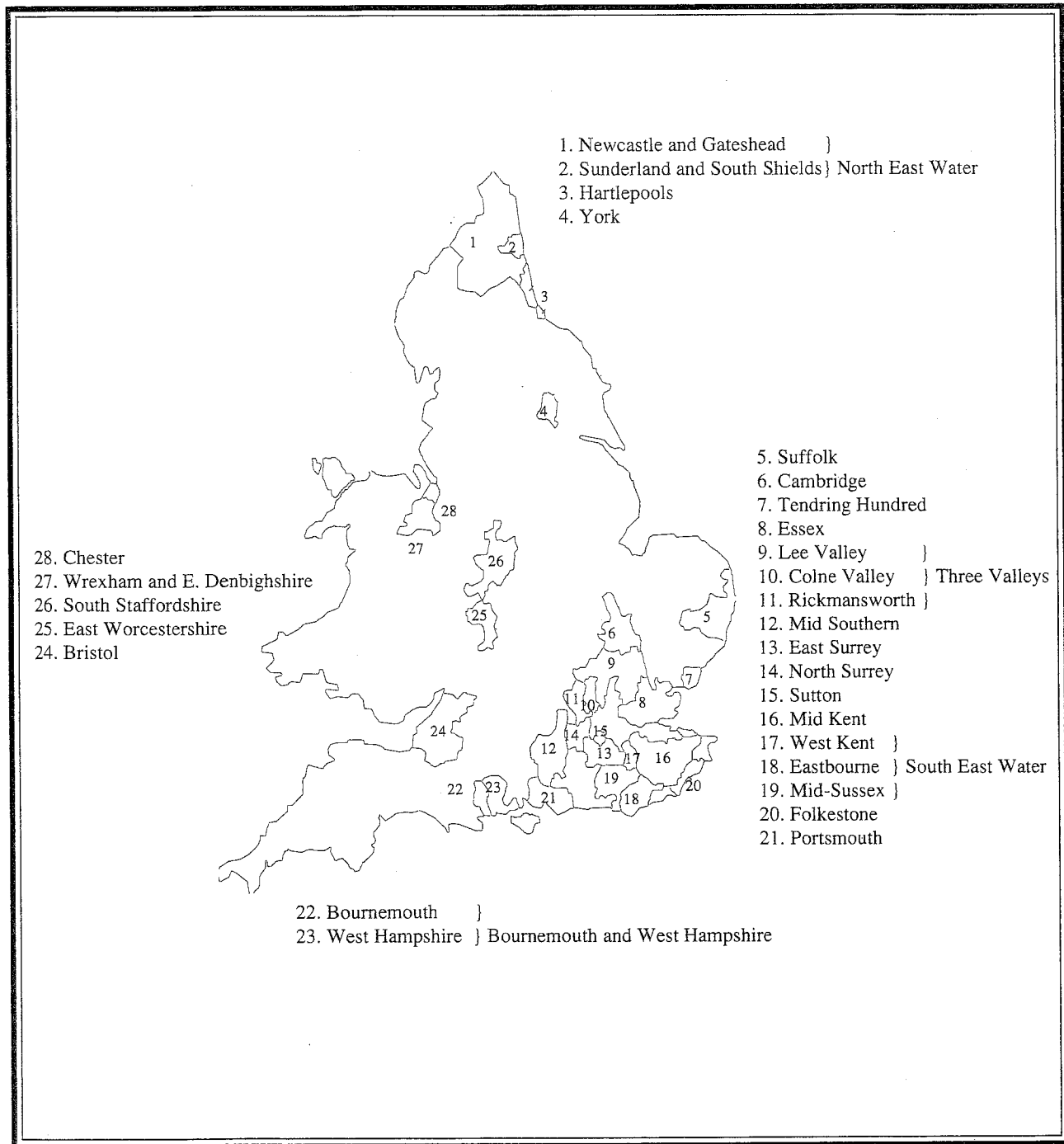
fax 0272-293137

Wessex House
Passage Street
Bristol BS2 0JQ



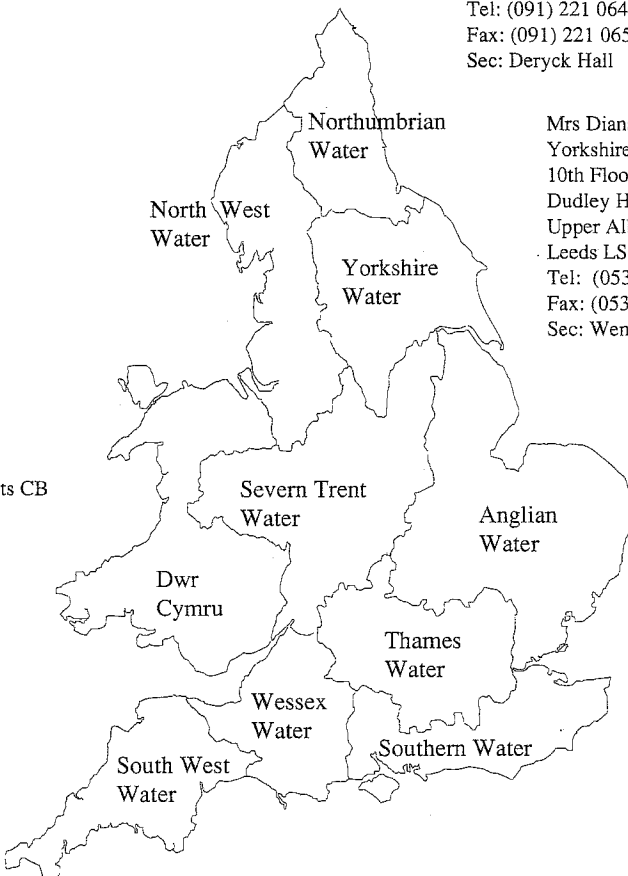
Water Companies

The companies bracketted are the amalgamations since 1989.



OFWAT Customer Service Committees (CSC)

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tel: 021-625-1300 fax: 021-625-1400



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Severn Trent CSC
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Fax: (071) 735 6855
Sec: Elizabeth Mitsching

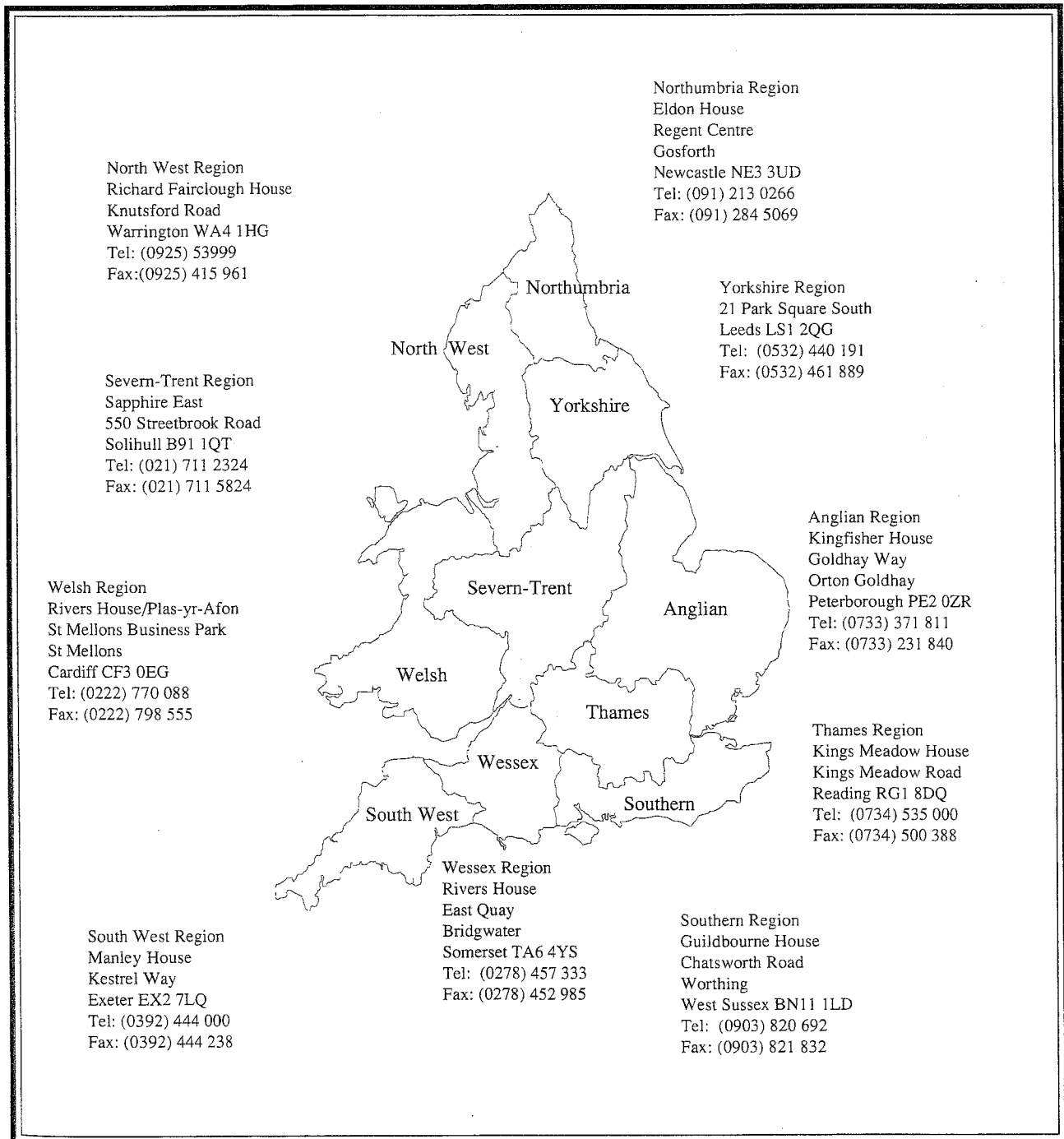
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Fax: (071) 735 6855
Sec: Elizabeth Mitsching

For each CSC the chairman and secretary are given.

National Rivers Authority

Head Office, Rivers House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD
Tel: 0454-624400, fax 0454-624409

London Office, 4th Floor, Rivers House, 30-34 Albert Embankment, London SE1 7TL
Tel: 071-820-0101 Fax: 071-820-1603



Water Services Association Publications

Form G90

General conditions of contract for water industry plant contracts

Published 1990, 45 pages, price £7.50

Form P

Standard amendments to the model form of conditions of contract for process plants suitable for lump sum contracts in the United Kingdom, 1981 Edition ('Red book'), as published by the Institution of Chemical Engineers.

Published August 1991, price £10

The water map

Water industry map of England and Wales

Published 1990, Price £10

Waterfacts '90 and Waterfacts '89

Brings together basic statistics, including water supply, charges, income and expenditure, manpower as well as describing the structure and regulation of the water industry.

Published 1990, 1989, 60 pages, price £5 each

Water Services Association - Annual report and accounts

Latest published edition 1990

Proceedings of sewage sludge disposal routes workshop

Proceedings of the workshop in Brussels in July 1991 which was organised by the Water Services Association with Federgasacqua and Syndicat Professionel des Distributeurs d'Eau.

Published 1991, 85 pages, Price £25

Proceedings of Water Services Association workshop on proposed EC directive concerning municipal waste water treatment (May 1990)

Practitioners' forum for discussion of proposed EC directive. Report contains country situation and technical papers as well as summaries of discussions.

Published 1990, 144 pages, price £10

The water heritage

Historic conservation and the water industry - industrial archaeology report and management guidelines. Don't be put off by the long introductory title; this report is a fascinating study of what is worth preserving in the water industry and how to do it.

Published 1987, 42 pages, price £5

Number one

A history of number one Queen Anne's Gate, for nine years the headquarters of the National Water Council, and now the headquarters of the Water Services Association.

Published in 1980, 124 pages, price £7.50

National metering trials - Second interim report

Prepared by the Water Research Centre under guidance of the National Metering Trials Co-ordinating Group with contributions from those Water Service plc's and Companies involved.

Published in 1990, 90 pages, price £10

Operational guidelines for the protection of drinking water supplies

Provides guidelines on good operational practice for the protection of the quality of drinking water supplies.

Published in 1988, 25 pages, price £4

Actions to minimise the effect of pollution incidents affecting river intakes for public water supplies

Prepared by the Water Authorities Association and Water Companies Association in consultation with Government officials. The report considers the adequacy of present emergency procedures, the protection of water supplies and the assessment of health risks. It also makes recommendations.

Published 1984 (reprinted 1991), 18 pages, price £1

International water statistics 1970-1986

Gives detailed statistics for the main European countries, a description of the water supply industry and a series of papers on important issues.

Published 1988, 160 pages, price £13.50

Gases in tunnelling - Guidance notes on strategies and safety - a report of the joint working party
Abbeystead Explosion (HSE Report), published for the Water Industry Forum for Health and Safety by the Water Authorities Association.

Published April 1986, 123 pages, price £8

Guide to the microbiological implications of emergencies in the water services

Guide refers to the necessity to establish liaison with health authorities; intended as a guide to water industry staff who have to deal with emergencies.

Published December 1985, 20 pages, price £1.50

Water supply hygiene - (NWC OTP No 2)

This paper with the secondary title 'Safeguards in the operation and management of public waterworks in England and Wales,' was issued by the National Water Council in collaboration with, and the approval of, the Department of the Environment, the Welsh Office, the Department of Health and Social Security and the Public Health Laboratory Service. It gives guidance about hygiene and the extent to which common staff and plant can be used without in any way impairing the very high standards of drinking water quality which have been established.

Published 1979, 22 pages, price £1

Safe working in sewers & sewage works (H&S guidelines no 2)

Revised version of 'Safety in sewers and at sewage works' published by Institution of Civil Engineers (in collaboration with the old Ministry of Housing and Local Government), and it now takes account of the Health and Safety at Work etc. Act 1974 and its implications for employers and employees.

Published 1979, 60 pages, price £4.00

Respiratory protective equipment (H & S guidelines no 3)

A comprehensive summary of types of equipment available, how it should be maintained; and the type of training necessary for those required to use it.

Published 1979, 36 pages, price £3.00

Manual of sewer condition classifications (STC No 24)

This manual - produced by the Standing Technical Committee on Sewers and Water Mains - provides a common language for people who survey sewers: the research engineer or scientist, the local engineer, and the closed circuit TV technician. 48 colour photographs.

Published 1980, 46 pages, price £6

Sewer and water mains records (STC No 25)

In the past there has not been sufficient emphasis on the need for adequate records of sewers and water mains, concludes this report by the Standing Technical Committee on Sewers and Water Mains. It provides an essential foundation for the design, construction, operation and maintenance of sewerage and water mains systems. 40 pages of typical data forms.

Published 1980, 100 pages, price £7.50

Leakage: control, policy and practice (STC No 26)

The Technical Working Group on Waste of Water has developed a procedure which can be used to determine the most appropriate method of leakage control for any water system, and also the degree of effort required. It is a major development, which provides a standard procedure with a firm economic and factual foundation, upon which leakage control policies can be based.

Published 1980 (reprinted 1985), 152 pages, price £5

Principles of laying water mains

Produced by the Water Authorities Association's Sewers and Water Mains Committee, the booklet highlights in cartoon pictorial form good technical practices which if followed will produce a well-engineered, economic job.

Published 1985, 24 pages, price £1

Principles of laying sewers

Companion to above, follows the same style giving serious instructions to achieve a well-engineered and economic finished job.

Published 1985, 24 pages, price £1

Flexible joints for gravity sewers (NWC OTP No 3)

Written by R P Hardy (a senior engineer with John Taylor and Sons, the UK firm of public health consultants), the report provides information on the various forms of 'flexible' joints for sewer pipes sealed with a ring made from an elastomeric (rubber-like) material.

Published 1979, 22 pages, price £1

Publications are available from WSA Publications, St. Peter's House, Hartshead, Sheffield S1 1EU

tel: 0742 737331

Please make cheques out to the Water Services Association

Prices include postage and packing