5.2 increase in standard charges '99/00(%)

	K	charge limit RPI+K+U[1] (RPI=3.7%) %	tarriff basket increase %	difference between charges limit and tariff basket increase %
Water & Sewerage Companies				
Anglian	1.5	4.5	0.0	4.5
Dŵr Cymru	0.5	3.5	3.5	0.0
North West	2.5	5.5	5.5	0.0
Northumbrian[2]	0.7	3.8	3.7	0.0
Severn Trent	0.5	3.7	3.5	0.2
South West[3]	1.0	4.0	4.0	0.0
Southern	4.0	10.0	7.0	3.0
Thames	0.5	3.5	3.5	0.0
Wessex	1.5	4.5	4.5	0.0
Yorkshire	2.5	5.9	5.9	0.0
WaSC average (weighted)	**1.4**	**4.7**	**4.0**	**0.8**
Water only Companies				
Bournemouth & West Hampshire	-0.5	2.5	2.5	0.0
Bristol	1.0	4.0	4.0	0.0
Cambridge	-2.0	1.2	1.0	0.2
Cholderton	0.0	3.5	3.5	0.0
Dee Valley[4]	-1.7	1.3	1.3	0.0
Essex & Suffolk	2.0	5.5	4.6	0.9
Folkestone & Dover	-0.5	2.5	2.5	0.0
Hartlepool	1.5	6.3	0.0	6.3
Mid Kent	1.0	4.0	4.0	0.0
North Surrey	2	7.2	4.4	2.8
Portsmouth[3]	-1.5	1.8	1.5	0.3
South East Water : Mid Southern	-1.0	2.0	2.0	0.0
South East	-1.0	2.0	2.0	0.0
South Staffordshire	-0.5	3.5	2.5	1.0
Sutton & East Surrey	-4.7	-1.7	-3.2	1.5
Tendring Hundred	-0.5	3.5	1.1	2.5
Three Valleys	2.5	5.5	5.5	0.0
York	0.0	3.3	3.0	0.3
WoC average (weighted)	0.4	3.7	3.2	0.5
Industry average (weighted)	1.3	4.6	3.9	0.8

Note: figures shown to one decimal place. Difference may not add due to rounding.
[1]U represents underspend in the charges limit in previous years. K + U is therefore the permitted increase in charges over and above inflation. (U is zero for all other companies).
[2]This is the revised K factor for Northumbrian Water following the Director's interim determination, published in September 1998.
[3]The price limits for South West and Portsmouth Water reflect the MMC's redetermination of the K factors set by the Director in 1994.
[4]From 1 April 1998, this company was formed by the merger of the former Chester Waterworks Company and Wrexham Water plc. The average annual price limits and K factor reflect the determination of a combined K factor for Dee Valley Water.

Source: Ofwat

5.3 main price indices used in the water industry

	RPI November	RPI annual average	COPI	CCI
Annual figures				
1989-90	118.5	117.4	99.25	105.00
1990-91	130.0	128.7	99.25	111.00
1991-92	135.6	134.9	91.25	110.00
1992-93	139.7	139.1	83.75	108.00
1993-94	141.6	141.5	82.25	108.00
1994-95	145.3	145.4	87.00	116.00
1995-96	149.8	150.1	95.25	119.00
1996-97	153.9	153.7	98.30	126.00
1997-98	159.6	158.8	106.50*	137.00
1998-99	164.4	163.8	111.00*	141.00**
Percentage changes on previous year (%)				
1990-91	9.7	9.6	0.0	5.7
1991-92	4.3	4.8	-8.1	-0.9
1992-93	3.0	3.1	-8.2	-1.8
1993-94	1.4	1.7	-1.8	0.0
1994-95	2.6	2.8	5.8	7.4
1995-96	3.1	3.2	9.5	2.6
1996-97	2.7	2.4	3.1	5.9
1997-98	3.7	3.3	8.3	8.7
1998-99	3.0	3.1	4.2	2.9

Note: some figures have been revised in this edition of Waterfacts
*Based on average of quarterly indices for financial year
**At the time of going to press this figure is provisional: figures are based on September 1999 update

PRICE INDICES – ENGLAND AND WALES

This table provides information on price indices that are used widely by the water industry in England and Wales.

The November RPI is used in the RPI+K price cap formula. The Annual Average RPI on a financial year basis is used to revalue financial information to a common price basis – ie in the annual financial performance report published by Ofwat.

The DETR's Construction Price Index (COPI) is an index covering a variety of construction sectors, not just water. At privatisation it was specified in companies' licences that this was the index to be used in checking whether construction price movements should trigger an interim determination – the process by which a company can appeal to Ofwat for a review of its K factor before the next periodic review – and in determining the size of the required adjustment. Subsequently some, but not all, companies have agreed with Ofwat to delete this part of the licence and have themselves taken on construction price risk.

The Capital Cost Index (CCI) is a water industry-specific index of capital price movements used by the companies to help manage their capital programmes. It is prepared for the companies by the Water Research Centre (WRc) and consultants, London Economics. The figures produced represent the movements in out-turn costs of a national sample of stylised projects.

5.4 average weekly cost of water and sewerage services to unmeasured domestic customers

	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00
£/week [1]	1.48	1.65	1.78	1.90	2.05	2.28	2.57	2.95	3.26	3.55	3.82	4.05	4.19	4.46	4.71	4.90

[1] Prices are in nominal terms

Source: Ofwat

5.5 rebates to customers in 1995/96, 1996/97, 1997/98, 1998/99 and 1999/2000 (£)

	1995-96		1996-97		1997-98		1998-99		1999-2000	
	Water	Sewerage	Water	Sewerage	Water	Sewerage	Water	Sewerage	Water	Sewerage
Anglian	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dwr Cymru	0.00	0.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
North West	3.25	3.25	3.25	3.25	5.00	5.00	3.25	3.25	3.25	3.25
Severn Trent	0.00	4.00	0.00	6.50	6.50	0.00	6.50	0.00	6.50	-
South West [1]	5.00	5.00	10.00		15.00		15.00		-	
Yorkshire	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[1] South West's rebate is on a per customer basis and not a per service basis.

Source: Ofwat

5.6 average unmeasured charges 1998/99 and 1999/2000 (weighted) £

	water supply		sewerage		TOTAL[1]	
	1998/99	1999/00	1998/99	1999/00	1998/99	1999/00
Water service companies						
Anglian[2]	142	142	183	188	325	335
Dŵr Cymru[2]	133	133	154	167	287	300
Northumbrian	103	101	126	142	229	243
North West[2]	102	105	133	144	235	249
Severn Trent[2]	104	114	118	117	222	231
Southern	107	114	153	165	260	279
South West	130	128	238	263	368	390
Thames	99	104	102	104	201	208
Wessex	127	133	144	151	271	284
Yorkshire[2]	113	119	122	132	236	251
Water supply companies						
Bournemouth & West Hampshire	100	105	-	-	-	-
Bristol	112	122	-	-	-	-
Cambridge	110	109	-	-	-	-
Cholderton	n/a	n/a	-	-	-	-
Dee Valley	123	121	-	-	-	-
Essex & Suffolk	125	133	-	-	-	-
Folkestone & Dover	121	127	-	-	-	-
Hartlepool	96	96	-	-	-	-
Mid Kent	144	149	-	-	-	-
North Surrey	121	128	-	-	-	-
Portsmouth	74	74	-	-	-	-
South East: Mid Southern	119	120	-	-	-	-
South East	169	171	-	-	-	-
South Staffordshire	82	86	-	-	-	-
Sutton & East Surrey	139	135	-	-	-	-
Tendring Hundred	166	166	-	-	-	-
Three Valleys	119	127	-	-	-	-
York	93	96	-	-	-	-
Weighted industry average	**117**	**121**	**147**	**157**	**263**	**277**
Northern Ireland[3]	-		-		-	
Scotland:						
~East Scotland	76	84	63	69	139	153
~North Scotland	85	94	63	70	148	165
~West Scotland	76	79	51	61	127	140

n/a = not available
[1]Totals may not add up due to rounding
[2]Figures include rebates ie, figures represent the actual charges to customers
[3]Northern Ireland unmeasured charges are not levied but are deemed to be recovered as an element of the regional rate
Mid Southern Water plc and South East Water Ltd have merged to form South East Water Ltd

Source: Water companies, Ofwat, Scottish Office, DoE (NI) Water Service

5.7 average household bill measured charges 1998/99 and 1999/2000 (weighted) £

	water supply		sewerage		TOTAL[1]	
	1998/99	1999/00	1998/99	1999/00	1998/99	1999/00
Water service companies						
Anglian[2]	90	87	121	112	211	199
Dŵr Cymru[2]	150	150	163	180	313	330
Northumbrian	87	90	118	134	205	224
North West[2]	86	85	128	129	214	214
Severn Trent[2]	114	108	110	101	224	209
Southern	93	97	138	147	231	244
South West[2]	93	92	153	162	246	253
Thames	95	95	102	101	197	196
Wessex	108	96	124	113	232	209
Yorkshire	78	82	84	85	162	167
Water supply companies						
Bournemouth & West Hampshire	87	90	-	-	-	-
Bristol	79	90	-	-	-	-
Cambridge	99	86	-	-	-	-
Cholderton	n/a	n/a	-	-	-	-
Dee Valley Water	81	79	-	-	-	-
Essex & Suffolk	108	105	-	-	-	-
Folkestone & Dover	90	92	-	-	-	-
Hartlepool	92	96	-	-	-	-
Mid Kent	119	124	-	-	-	-
North Surrey	110	112	-	-	-	-
Portsmouth	80	83	-	-	-	-
South East : Mid Southern	102	119	-	-	-	-
South East	119	126	-	-	-	-
South Staffordshire	73	78	-	-	-	-
Sutton & East Surrey	150	126	-	-	-	-
Tendring Hundred	101	107	-	-	-	-
Three Valleys	98	106	-	-	-	-
York	82	118	-	-	-	-
Weighted industry average	99	101	124	126	224	225
Northern Ireland	n/a	n/a	n/a	n/a	n/a	n/a
Scotland: West of Scotland	n/a	n/a	n/a	n/a	n/a	n/a
North of Scotland	n/a	n/a	n/a	n/a	n/a	n/a
East of Scotland	n/a	n/a	n/a	n/a	n/a	n/a

n/a = not available

[1] Totals may not add up due to rounding

[2] Figures include rebates ie. figures represent the actual charges to the customer

Mid Southern Water plc and South East Water Ltd have merged to form South East Water Plc .

Source: Water Companies, Ofwat, Scottish Office, DoE (NI) Water Service

5.8 measured charges for household customers 1999/2000 - water service companies

	WATER SUPPLY			SEWERAGE			
	volumetric charge p/m³	standing charge £/yr	average bill 99/00 £	volumetric charge p/m³	standing charge £/yr	rateable value charge p/£rv	average bill 99/00 £
Anglian - Standard [1]	75.95	24.00	87	110.62	12.00	-	112
Anglian - SoLow	107.95	0.00	-	126.62	0.00	-	-
Anglian - Plus [4]	35.95	64.00	-	56.62	66.00	-	-
Dŵr Cymru [2]	83.95	24.00	83	116.67	11.00	-	93
Northumbrian	-	-	-	50.44	76.00	-	134
~ Northumbrian	53.64	24.00	90	-	-	-	-
~ North East	-	-	-	-	-	-	-
North West [2]	67.00	25.00	85	57.40	11.00 + 67.00[3]	-	129
Severn Trent [2]	77.67	29.52	108	59.30	[4]	-	101
~ Zone 1	-	-	-	-	-	21.42	-
~ Zone 2	-	-	-	-	-	18.03	-
~ Zone 3	-	-	-	-	-	19.13	-
~ Zone 4	-	-	-	-	-	20.67	-
~ Zone 5	-	-	-	-	-	24.16	-
~ Zone 6	-	-	-	-	-	23.38	-
~ Zone 7	-	-	-	-	-	22.76	-
~ Zone 8	-	-	-	-	-	19.13	-
Southern	65.00	25.00	97	90.56	36.00	-	147
South West	78.80	19.80	92	175.45	9.72	-	162
Thames	61.59	19.00	95	48.74	41.00	-	101
Wessex	85.65	20.00	96	87.31	36.00	-	113
Yorkshire	80.90	24.00	82	93.01	20.00	-	85

Notes: The volumetric tariffs have been standardised to take account of different non-return to sewer assumptions for each company.

[1] Anglian has three tariff options available to measured household customers.

[2] Average bills given for these companies exclude customer rebates paid in 1999-2000.

[3] North West has a standing charge of £11 to recover customer-related costs and a fixed charge of £67 to recover surface water and highway drainage costs.

[4] Severn Trent does not have a meter standing charge for households. Property surface water costs are recovered through the rateable value charge.

Properties without a rateable value pay a charge related to property type: Flat/terrace ~ £18.60, Semi-detached ~ £37.32, Detached ~ £55.92

Source: Ofwat: Report on tariff structures and charges 1999-2000

5.9 measured charges for household customers 1999/2000- water supply companies

	volumetric charge p/m³	standing charge £/yr	average bill* 99/00 £
Bournemouth & West Hampshire	61.20	17.00	90
Bristol	67.60	22.00	74
Cambridge	60.60	23.90	84
Cholderton	82.60	20.60	126
Dee Valley:			81
~Chester	57.09	24.00	-
~Wrexham	69.38	24.00	-
Essex & Suffolk:		24.00	105
~Essex	69.20	-	-
~Suffolk	95.08	-	-
Folkestone & Dover	70.00	18.60	92
Hartlepool[2]- Standard	46.16	24.00	73
- SoLow	78.16	0.00	-
- Plus 4	21.16	47.00	-
Mid Kent[2] - Standard	74.75	19.40	129
- Low User	100.63	0.00	-
- Economy	44.16	50.00	-
North Surrey	70.80	21.00	112
Portsmouth[1]	43.80	24.00	83
South East: Mid Southern	65.25	15.00	119
South East:		15.00	126
~ Eastbourne	113.72	-	-
~ Mid Sussex	118.93	-	-
~ West Kent	95.06	-	-
South Staffordshire	56.69	15.56	78
Sutton & East Surrey:	-	-	126
~ East Surrey	64.00	24.00	-
~ Sutton	83.00	24.00	-
Tendring Hundred	106.00	25.00	115
Three Valleys[2] - Standard	62.78	20.00	106
- Social	40.00	43.00	-
York	52.10	24.00	118

* Forecasts
[1] These charges apply from 1 July 1999.
[2] Hartlepool and Mid Kent Water have three tariff options and Three Valleys Water has two options available to measure household customers.

Source: Ofwat and water companies

5.10 trade effluent charges 1999/2000

	Average regional strength		Apportionment of charge						Minimum
	Os mg/l	Ss mg/l	R p/m3	V p/m3	Bv p/m3	M p/m3	B' p/kg	S' p/kg	charge £
Anglian - Green	460	424	13.58	21.26	4.11	11.39	44.35	31.20	160.00
Anglian - Orange	460	424	13.21	20.68	4.00	11.08	43.15	30.38	160.00
Anglian - Blue	460	424	12.70	19.88	3.85	10.65	41.50	29.17	160.00
Anglian - Industrial	460	424	9.56	14.97	2.90	8.03	31.24	21.98	160.00
Dŵr Cymru	500	350	17.00	8.75	3.51	12.97	40.38	40.71	124.00
Northumbrian[1]	386	187	24.46	12.00	-	-	43.51	49.43	302.00
North West	360	235	12.60	10.20	1.40	9.70	28.70	33.00	132.00
Severn Trent[2]	351	343	15.57	14.68	-	-	25.00	19.08	107.61
Southern	452	512	24.26	17.70	2.87	3.11	51.70	31.25	180.00
South West	744	489	39.45	36.35	-	-	86.05	78.17	147.00
Thames	445	336	7.06	8.68	-	-	29.35	44.84	75.00
Wessex	802	313	21.38	13.83	-	-	28.11	35.21	190.00
Yorkshire[3]	905	314	23.60	23.27	-	-	25.25	41.43	233.00

Note:
[1]Northumbrian Water has a large user R charge of 16.39, where the volume of discharge exceeds 100,000m3.
[2]Severn Trent Water has a banded R charge, the first 49,999m3 is charged at the standard rate of 15.57/m3 ,
then >=50,000m3 to <250,000m3 is charged at 11.33/m3 and from 250,000m3 and above is charged at 9.10p/m3. It also has a banded V charge, the first 349,999m3harged at the standard rate of 14.68p/m3 and from 350,000m3 and above is charged at 12.36/m3.
A lower rate for B of 20.81p/kg and a higher charge for S of 22.97p/kg also applies where the average COD load exceeds 7,499kgs per day.
[3]Yorkshire has a banded R charge, the first 50,000m3 is charged at the standard rate of 23.60p per m3,
then > 50,000m3 to < 250,000m3 is charged at 13.05p per m3 and more than 250,000m3 at 8.9p per m3.

R = reception and conveyance
V = primary treatment (V for volumetric)
Bv = additional volume charge if there is biological treatment
M = treatment and disposal where effluent goes to a sea outfall (M for marine)
Ot = chemical oxygen demand (COD) of effluent after one hour quiescent settlement at ph 7
Os = COD of crude sewage after one hour quiescent settlement
St = total suspended solids (mg/litre) of trade effluent at ph 7
Ss = total suspended solids (mg/litre) of crude sewage
B' = B/Os, ie B corrected for average regional strength
S' = S/Ss, ie S corrected for average regional strength
B = biological oxidation of settled sewage
S = treatment and disposal of primary sludge

Charges for B and S are usually expressed in p/m3 relative to standard strength (concentration: usually expressed in mg/litre). Standard strengths vary from company to company. To maintain comparability, the charges shown here (B' and S') are corrected for standard strength and shown as p/kg.
Charges are calculated according to the Mogden formula: Charge = R + [(V + Bv) or M] + B(Ot/Os) + S(St/Ss)

Source: Ofwat: Report on tariff, structure and charges 1999-2000

TRADE EFFLUENT CHARGES

Businesses in England and Wales which discharge a trade effluent in a public sewerage system are charged for the reception and treatment of the effluent.

Charges are calculated using the Mogden formula (see 5.11) which takes into account the way that a particular company's effluent differs from the normal, average effluent composition in the region.

5.11 water company trade effluent charging formula 1999/2000

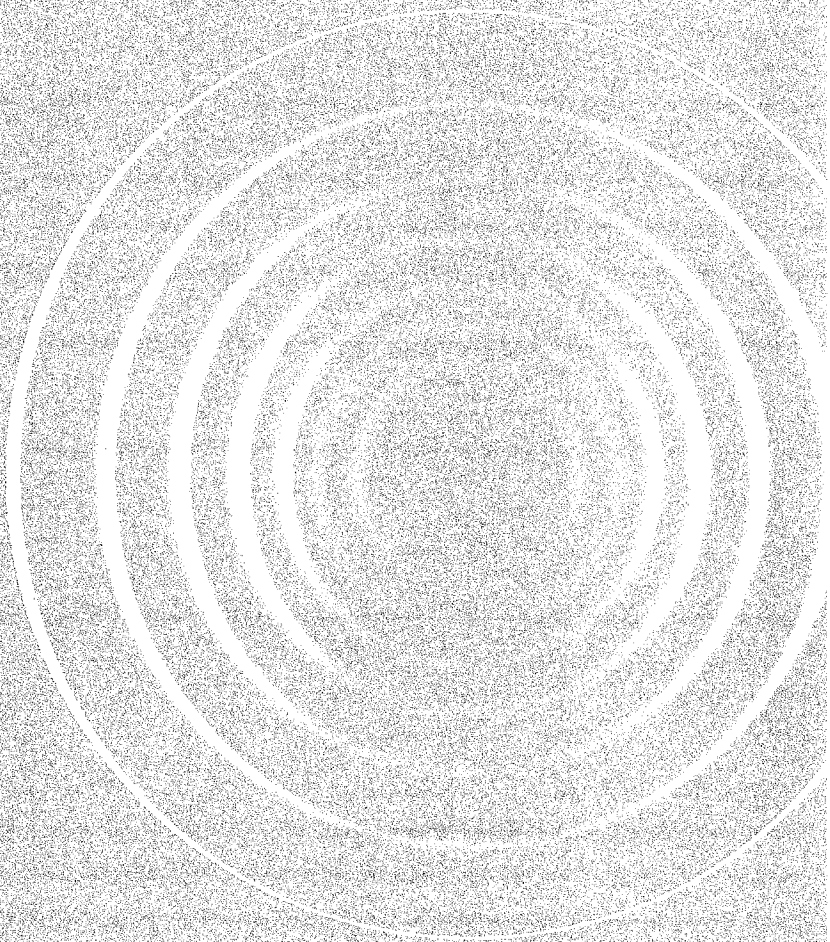
Water service company	Current charging formula
Anglian_	C = R + (V or Vb or Vm or M) + (Ot/Os) B + (St/Ss) S
Dŵr Cymru	C = R + V + Vb + (Ot/Os) B + (St/Ss) S
Northumbrian	C = R + V + (Ot/Os) B + (St/Ss) S
North West	C = R + M + V + B1 + (Ot/Os) B2 + (St/Ss) S
Severn Trent	C = R + V + (Ot/Os) B + (St/Ss) S
Southern	C = R + (V or Vb or Vm) + (Ot/Os) B + (St/Ss) S + M
South West	C = R +V (or Vm) + (Ot/Os) B + (St/Ss) S
Thames	C = R + V + (Ot/Os) B + (St/Ss) S
Wessex	C = R + V + (Ot/Os) B + (St/Ss) S
Yorkshire	C = R + P + (Ot/Os) B + (St/Ss) S
Scotland: North of Scotland	C = R + V + (Ot/Os) B + (St/Ss) S
East of Scotland	C = R + V + (Ot/Os) B + (St/Ss) S + Mo
West of Scotland	C = R + V + (Ot/Os) B + (St/Ss) S
Northern Ireland	C = R + V + (Ot/Os) B + (St/Ss) S

Ot = chemical oxygen demand (COD) of effluent after one hour quiescent settlement at ph7
St = total suspended solids (mg/litre) of trade effluent at ph7
B = biological oxidation of settled sewage
S = treatment and disposal of primary sludge
see table 5.10 for other abbreviations

Modifications to codes include:
Vb = V + Bv
Vm = M
M = Md + M
Mo = Monitoring Costs
P = the cost per cubic metre of the preliminary treatment of foul sewage (including such preliminary treatment as is appropriate to the circumstances of the receiving waste water treatment works in question).

Source: Water Companies

finance and investment



6.1 profit and loss accounts 1998/99 (£m) (CCA)

	Turnover of appointed business	Operating Costs	Operating income	Working capital adjustment	Operating Profit	Other income	Net interest	Financing Adjustment	Profit before tax	Tax	Profits after tax
Water Service Company											
Anglian	731.8	-472.0	3.6	0.2	263.1	0.6	-91.6	23.3	195.4	-42.3	152.6
Dwr Cymru	456.0	-343.2	0.4	1.3	114.5	2.0	-54.2	21.3	83.6	-8.9	74.7
Northumbrian	343.6	-185.9	-2.9	1.9	156.4	0.0	-33.6	11.8	134.6	-25.4	109.2
North West	941.8	-628.5	-3.5	2.9	312.7	2.2	-118.3	32.4	228.9	-89.6	139.3
Severn Trent	952.7	-597.5	2.4	2.9	360.6	1.0	-72.9	30.6	319.3	-111.0	208.3
Southern	433.8	-282.9	3.5	4.3	158.7	0.6	-51.4	12.5	120.4	-32.0	88.4
South West	265.8	-143.5	0.1	0.5	122.9	0.3	-32.6	9.7	100.4	-40.5	59.9
Thames	1,071.1	-689.2	11.5	7.6	401.0	0.0	-77.6	18.4	341.8	-75.1	266.7
Wessex	265.0	-134.8	-2.1	1.4	129.5	0.5	-28.8	7.3	108.5	-22.2	86.3
Yorkshire	580.9	-378.5	1.8	-1.5	202.7	1.4	-35.6	17.4	185.9	-18.0	167.9
Total water service cos	**6,042.5**	**-3,856.0**	**14.8**	**21.5**	**2,222.1**	**8.6**	**-596.6**	**184.7**	**1,818.8**	**-465.0**	**1,353.3**
Water supply companies											
Bournemouth and West Hants	25.80	-18.60	7.20	0.00	7.20	0.00	-0.90	0.30	6.60	-2.20	4.40
Bristol	64.80	-49.90	-0.80	0.30	14.60	0.10	-4.50	1.00	11.20	-1.20	10.00
Cambridge	15.26	-10.66	0.76	0.00	5.38	0.00	-0.99	0.32	4.71	-1.35	3.54
Cholderton	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dee Valley Water	17.79	-10.91	0.03	0.09	6.99	0.04	-0.23	0.01	7.27	-2.38	4.89
Essex & Suffolk	115.14	-80.40	2.16	-0.13	36.77	0.35	-9.51	2.95	30.57	-7.07	23.49
Folkestone & Dover	11.21	-8.39	0.12	0.04	2.99	0.00	-0.90	0.21	2.30	-0.41	1.89
Hartlepool	6.41	-4.52	0.07	-0.01	1.95	0.02	-0.18	-0.03	1.76	-0.74	1.02
Mid Kent	38.87	-23.44	-0.16	0.53	15.80	0.53	-3.22	0.62	13.73	-1.64	12.09
North Surrey	31.78	-21.34	0.02	0.16	10.62	0.57	-1.97	0.59	9.80	-1.89	7.91
Portsmouth	28.05	-19.38	0.16	0.14	8.98	0.13	-1.44	0.34	8.01	-2.08	5.93
South East	98.74	65.61	0.61	0.11	33.85	1.11	-10.65	1.81	26.12	-3.54	22.58
South Staffordshire	58.10	-47.10	-0.26	0.15	10.89	0.00	-1.19	0.48	10.18	-3.13	7.05
Sutton & East Surrey	42.2	-28.5	-0.4	-0.1	13.4	0.0	0.8	0.3	14.5	-4.8	9.7
Tendring Hundred	11.72	-7.14	0.04	0.05	4.66	0.28	-0.56	0.17	4.54	-1.20	3.34
Three Valleys	139.88	-99.48	-0.09	-0.41	40.72	1.36	-9.62	2.95	35.41	-11.23	24.18
York	9.28	-6.44	0.00	0.01	2.85	0.07	-0.42	0.15	2.65	-0.63	2.02
Total water supply cos	**715.0**	**-370.6**	**9.5**	**0.9**	**217.7**	**4.6**	**-45.5**	**12.2**	**189.4**	**-45.5**	**144.0**
TOTAL England and Wales	**6,757.5**	**-4,226.6**	**24.3**	**22.4**	**2,439.8**	**13.2**	**-642.1**	**196.9**	**2,008.2**	**-510.5**	**1,497.4**

n/a = not available

Note: totals may not add due to rounding

Source: Water companies

The UK water industry is investing heavily in new assets to ensure it complies with EC environmental and quality directives, and to replace ageing infrastructure and improve services to customers.

During the past five years the industry in England and Wales has invested around £16.55 billion, equivalent to about £318 for each of its 52 million customer households.

In 1998/99 investment in England and Wales reached a new record high of £3.7 billion, more than 54 % of turnover.

More than half was spent on wastewater, including £1.2 billion on new treatment plants alone, reflecting particularly the impact of the EC Urban Waste Water Treatment Directive. Water distribution was also a major target area with a total spend of £1.1 billion.

Given the great differences in the structure of the industry across the country, it is to be expected that the level of financial detail available will vary.

Information is most readily available on the water companies in England and Wales, reflecting the requirement of the Stock Exchange, the Companies Act and the regulatory process.

Further information about the companies in Table 6.1, 6.3 and 6.7 is provided on a current cost accounting basis.

6.2 income by turnover category 1998/1999 (£m)

	WATER SERVICES		SEWERAGE SERVICES				
	metered	unmetered	metered	unmetered	trade effluent	other	TOTAL
Water service companies							
Anglian	127.90	142.50	141.30	262.90	22.96	34.20	731.77
Dwr Cymru	64.10	142.80	34.20	173.50	8.70	32.70	456.00
Northumbrian	46.70	103.20	41.40	135.80	7.60	8.90	343.60
North West	136.80	246.60	177.30	317.30	43.30	20.40	941.80
Severn Trent	161.00	239.70	166.70	326.90	40.10	17.40	952.70
Southern	43.60	81.90	73.00	216.90	7.00	11.40	433.80
South West	40.60	65.20	42.10	109.60	4.60	3.70	265.80
Thames	153.60	273.60	159.20	434.80	23.80	26.10	1071.10
Wessex	35.70	48.60	43.20	123.20	6.70	7.60	265.00
Yorkshire	108.20	166.50	740.50	193.60	27.40	10.70	580.90
Total water service cos.	**918.20**	**1510.60**	**952.90**	**2294.50**	**192.16**	**173.10**	**6042.47**
Water supply companies							
Bournemouth & Hampshire	7.90	14.20	-	-	-	3.70	25.80
Bristol	17.40	42.50	-	-	-	2.10	62.00
Cambridge	6.78	8.38	-	-	-	0.10	15.26
Cholderton	n/a	n/a	-	-	-	n/a	n/a
Dee Valley	6.96	10.83	-	-	-	0.00	17.79
Essex & Suffolk	37.77	73.19	-	-	-	4.18	115.14
Folkestone & Dover	5.05	5.93	-	-	-	0.23	11.21
Hartlepool	n/a	n/a	-	-	-	n/a	n/a
Mid Kent	12.22	26.41	-	-	-	0.23	38.87
North Surrey	10.36	19.68	-	-	-	1.74	31.78
Portsmouth	7.49	19.69	-	-	-	0.87	28.05
South East	33.18	62.26	-	-	-	3.30	98.74
South Staffordshire	16.83	38.81	-	-	-	2.46	58.10
Sutton & East Surrey	10.09	30.98	-	-	-	1.11	42.17
Tendring Hundred	4.00	7.42	-	-	-	0.29	11.72
Three Valleys	35.96	101.75	-	-	-	2.17	139.88
York	2.16	6.70	-	-	-	0.42	9.28
Total water supply cos.	**214.15**	**468.73**	**-**	**-**	**-**	**22.90**	**705.79**
Total England and Wales	**1132.35**	**1979.33**	**952.90**	**2294.50**	**192.16**	**196.00**	**6748.26**

n/a = not available

Note: totals may not add up due to rounding

Source: Water companies

6.3 operating costs by category 1998/99 (£m) (CCA)

	Manpower costs	Other costs employment	Power	Rates	Sewerage agencies	Materials and consumables	Hired and contracted services	Infrastructure renewals	Depreciation (CC)	Other	TOTAL
Water service companies											
Anglian	69.2	2.4	25.9	27.4	0.0	19.2	79.5	17.3	157.2	73.8	471.9
Dŵr Cymru	42.8	2.0	16.9	17.5	9.1	19.9	29.2	33.1	96.8	76.0	343.3
Northumbria	35.9	3.1	11.7	12.6	0.0	8.7	21.0	20.1	51.8	21.0	185.9
North West	43.6	0.0	19.7	43.6	11.7	12.6	21.0	82.9	202.1	191.3	628.5
Severn Trent	132.9	n/a	31.5	36.6	17.5	29.7	53.2	65.3	181.2	49.5	597.4
Southern	41.3	0.0	13.6	13.6	0.0	6.5	27.0	19.7	122.9	38.3	282.9
South West	25.8	0.7	8.1	9.2	1.4	7.8	18.5	9.5	49.4	15.8	146.2
Thames	101.3	0.0	39.3	47.7	0.0	21.3	190.2	40.7	182.1	66.6	689.2
Wessex	18.9	1.7	8.1	8.0	0.0	9.0	15.0	10.7	49.7	13.7	134.8
Yorkshire	63.1	10.0	20.5	28.4	0.0	15.3	48.1	35.1	123.0	35.0	378.5
Total water services cos	**574.8**	**19.9**	**195.3**	**244.6**	**39.7**	**150.0**	**502.7**	**334.4**	**1,216.2**	**581.0**	**3,858.6**
Water supply companies											
Bournemouth & West Hampshire	5.5	0.0	1.1	1.6	0.0	1.2	2.6	1.1	4.0	1.5	18.6
Bristol	7.4	1.5	2.9	3.6	0.0	5.9	11.6	6.4	9.7	0.9	49.9
Cambridge	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.0
Cholderton	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.0
Dee Valley	2.0	0.2	0.8	0.7	0.1	0.6	1.2	1.6	2.7	0.9	10.8
Essex & Suffolk	17.6	1.0	4.7	5.2	0.0	5.2	11.5	6.2	15.6	13.4	80.4
Folkestone & Dover	2.0	-	0.5	0.6	-	0.3	1.3	0.5	1.8	1.4	8.4
Hartlepool	n/a	n/a	0.3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	-
Mid Kent	4.6	0.4	1.6	1.9	0.0	0.8	4.0	2.2	5.0	3.0	23.5
North Surrey	3.9	0.2	1.1	1.4	-	1.2	2.8	1.2	6.0	3.4	21.2
Portsmouth	5.7	0.1	0.8	1.9	1.3	1.4	2.0	3.3	1.8	1.1	19.4
South East	10.2	1.6	4.5	4.6	n/a	7.0	10.7	6.1	12.5	8.5	65.7
South Staffs	4.7	0.0	3.9	3.8	0.0	2.2	1.0	4.2	7.6	19.7	47.1
Sutton & East Surrey	6.1	0.4	1.8	2.0	-	2.6	5.3	3.1	6.1	1.1	28.5
Tendring Hundred	1.8	0.2	0.2	0.4	-	0.4	1.0	0.7	1.6	1.0	7.2
Three Valleys	20.9	-	6.1	7.5	-	3.4	16.7	11.2	19.2	14.5	99.5
York	2.0	0.0	0.3	0.5	-	0.6	0.2	0.3	1.2	1.4	6.4
Total water supply cos	**94.4**	**5.6**	**30.6**	**35.7**	**1.4**	**32.8**	**71.9**	**48.1**	**94.8**	**71.8**	**487.0**
Total England and Wales	**669.2**	**25.5**	**225.9**	**280.3**	**41.1**	**182.8**	**574.6**	**382.5**	**1,311.0**	**652.8**	**4,345.6**

n/a = not available

Note: totals may not add up due to rounding

Source: Water companies

6.4 capital expenditure by service 1998/99 (£m)

	Water resources	Water treatment	Water distribution	Water management	Sewerage	Sewerage treatment	Sewerage management	TOTAL
TOTAL UK								
Water service companies								
Anglian	5.2	12.6	111.1	23.7	53.6	116.9	23.7	346.8
Dŵr Cymru	1.1	10.9	52.4	11.1	97.3	101.6	5.2	279.6
Northumbrian	1.5	4.8	37.1	3.5	43.6	88.0	7.4	185.9
North West	7.0	31.3	138.3	22.1	139.6	155.9	24.0	518.2
Severn Trent	16.9	39.9	156.7	55.0	143.1	162.5	40.4	614.5
Southern	5.4	5.8	39.0	4.6	112.0	154.2	18.5	339.5
South West	1.3	4.7	29.7	7.4	11.9	46.1	4.1	105.2
Thames	11.6	19.7	224.2	27.2	53.5	141.9	29.5	507.6
Wessex	1.9	4.7	32.1	6.9	19.4	67.0	11.3	143.3
Yorkshire	28.2	42.6	77.1	18.1	29.8	163.4	18.1	377.3
Total water services cos	**80.1**	**177.0**	**897.7**	**179.6**	**703.8**	**1,197.5**	**182.2**	**3,417.9**
Water supply companies								
Bournemouth & West Hampshire	0.2	1.9	5.7	1.9	-	-	-	9.7
Bristol	0.4	0.6	17.1	2.6	-	-	-	20.7
Cambridge	0.1	0.3	5.3	0.5	-	-	-	6.2
Cholderton	n/a	n/a	n/a	n/a	-	-	-	n/a
Dee Valley	0.1	1.4	3.5	0.6	-	-	-	5.6
Essex & Suffolk	3.1	5.4	24.9	4.4	-	-	-	37.8
Folkestone & Dover	0.1	0.1	2.1	0.5	-	-	-	2.8
Hartlepool	0.2	0.0	0.2	0.0	-	-	-	0.4
Mid Kent	2.0	2.6	14.9	3.0	-	-	-	22.5
North Surrey	0.1	1.7	6.8	0.6	-	-	-	9.2
Portsmouth	0.7	2.1	5.0	0.7	-	-	-	8.5
South East	1.2	1.5	26.2	3.7	-	-	-	32.6
South Staffordshire	1.0	0.5	13.4	2.9	-	-	-	17.8
Sutton & East Surrey	0.3	4.2	7.7	1.3	-	-	-	13.5
Tendring Hundred	0.1	0.2	2.1	0.3	-	-	-	2.7
Three Valleys	0.1	5.2	37.4	4.9	-	-	-	47.6
York	0.0	0.7	1.2	0.1	-	-	-	2.0
Total water supply cos	**9.6**	**28.4**	**173.6**	**28.1**	**-**	**-**	**-**	**239.6**
Total England and Wales	**89.7**	**205.4**	**1,071.3**	**207.7**	**703.8**	**1,197.5**	**182.2**	**3657.5**

Data for Scotland and Northern Ireland is not available
n/a = not available
Note: Totals may not add up due to rounding.

Source: Water companies

6.5 total capital expenditure 1992/3 to 1998/99 (£m)

	92/93	93/94	94/95	95/96	96/97	97/98	98/99	TOTAL
UK	**3384**	**3206.6**	**2886.8**	**2914.9**	**3522.3**	**3945.79**	*	**19860.39**
Water service companies								
Anglian	326.7	371.5	300.6	283.7	350.1	372.17	346.8	2351.57
Dwr Cymru	201	180.5	197.3	219.3	253	277.3	279.6	1608
Northumbrian[1]	129.3	104.2	88.6	103	166.4	249.17	185.9	1026.57
North West	489.5	423.6	373.7	436.5	499.9	498.62	518.2	3240.02
Severn Trent[2]	569.1	460.1	426.5	365.4	466.2	558.4	614.5	3460.2
Southern	114.7	152.2	157.1	139.8	188.7	284.9	339.5	1376.9
South West	205	204.9	159	108.5	161.7	166.82	105.2	1111.12
Thames	400.4	390.8	326.7	375.2	443.8	507.91	507.6	2952.41
Wessex	130.2	115.1	91	87.8	98.3	128.1	143.3	793.8
Yorkshire	303.1	220.8	188.6	230.4	355.7	343.9	377.3	2019.8
Total water service cos	**2869**	**2623.7**	**2309.1**	**2349.6**	**2983.8**	**3387.29**	**3417.9**	**19940.39**
Water supply companies								
Bournemouth & West Hampshire					8.7	11.9	9.7	30.3
Bristol					18.2	28.4	20.7	67.3
Cambridge					3.8	5.0	6.2	15
Dee Valley					5.4	5.7	5.6	16.7
Cholderton					n/a	n/a	n/a	0
Essex & Suffolk					41.2	49.2	37.8	128.2
Folkestone & Dover					6	4.1	2.8	12.9
Hartlepool					1.5	1.0	0.4	2.9
Mid Kent					13.3	11.4	22.5	47.2
North Surrey					13.1	17.5	9.2	39.8
Portsmouth					9	9.2	8.5	26.7
South East					34.5	36.9	32.6	104
South Staffordshire					20.1	25.4	17.8	63.3
Sutton & East Surrey					8.2	8.5	13.5	30.2
Tendring Hundred					3.5	4.3	2.7	10.5
Three Valleys					46.5	54.4	47.6	148.5
York					3.5	3.3	2.0	8.8
Total water supply cos	**220**	**238.9**	**220.7**	**224.2**	**236.5**	**276.2**	**239.6**	**1656.1**
Total England and Wales	**3089**	**2862.6**	**2529.8**	**2573.8**	**3220.3**	**3663.49**	**3657.5**	**21596.49**
Scotland	**230.4**	**262**	**259.9**	**238.2**	**225.7**	**282.3**	**n/a**	**1498.5**
Northern Ireland	**64.6**	**82**	**97.1**	**102.9**	**76.3**	**n/a**	**n/a**	**422.9**

n/a = not available

[1] data for Northumbrian 1992-95 has been revised to take into account the merger with North East Water

[2] data for Severn Trent 1992-95 has been revised to take account of adopted assets and assets acquired at nil cost

Note: totals may not add up due to rounding

* As no data for Scotland and Northern Ireland total UK is not applicable

Source: Water companies, EA, Scottish Office, DoE (NI) Water Service

6.6 ten year investment included in price limits (£m)

	average annual[1] 1995/96 to 1999/00	capital expenditure[2] 2000/01 to 2004/05
Water service companies		
Anglian	280	280
Dwr Cymru	190	222
Northumbrian*	154	146
North West	460	603
Severn Trent	380	391
Southern	240	217
South West	100	145
Thames	440	435
Wessex	100	153
Yorkshire	300	291
Total water service cos	**2,644**	**2,883**
Water supply companies		
Bournemouth & West Hampshire	7	10
Bristol	14	25
Cambridge	2	4
Cholderton	n/a	n/a
Dee Valley	3	5
Essex & Suffolk	37	34
Folkestone & Dover	3	6
Hartlepool	1	n/a
Mid Kent	11	17
North Surrey	10	8
Portsmouth	7	10
South East	36	36
South Staffordshire	13	22
Sutton & East Surrey	9	13
Tendring Hundred	3	3
Three Valleys	34	44
York	2	3
Total water supply cos	**192**	**240**
Total England and Wales		
~ annual average	**2,836**	**3,123**
~ five year total	**14,180**	**15,615**

Notes:

n/a = not available

Totals may not add due to rounding.

[1] Figures are at 1993/94 prices and do not include any allowance for possible movements in capital expenditure prices relative to RPI.

Figures show expenditure allowed for by the Director General in making his determinations. It is for companies to determine how objectives are achieved, and the actual level and balance of expenditure required. In the case of South West Water and Portsmouth Water, the MMC allowed some extra investment in its determination but no adjustment has been made to the

[2] Capital Expenditure is gross of grants and contributions for new development. Figures are at May 1999 price level.

*Figures include North East Water.

6.7 total fixed assets at 31 March 1999 - net book values (£m) (CCA)

	Water Service			Sewerage service			
	Infrastructure assets	Operational assets	Other tangible assets	Infrastructure assets	Operational assets	Other tanglible assets	TOTAL
Water service companies							
Anglian	3,916.0	890.3	143.4	9,120.1	1,515.6	79.1	15,664.5
Dwr Cymru	5,524.1	747.7	42.0	6,232.6	1,155.8	34.8	13,737.0
Northumbrian	2,997.7	340.9	9.9	4,663.3	661.7	13.6	8,687.1
North West	11,067.5	1,173.8	125.9	19,962.3	2,266.7	266.0	34,862.2
Severn Trent	5,568.2	1,240.0	132.5	17,808.1	2,125.6	107.1	26,981.5
Southern	2,184.0	418.2	37.7	9,229.8	1,180.3	89.3	13,139.3
South West	2,247.0	424.0	32.0	2,546.5	705.7	30.2	5,985.4
Thames	5,590.0	1,855.5	23.0	28,358.5	2,374.5	31.5	38,233.0
Wessex	2,095.8	268.8	14.3	5,888.7	737.9	24.6	9,030.1
Yorkshire	5,582.5	959.5	191.9	8,134.7	1,214.4	275.2	16,358.2
Total water service companies	**46,772.8**	**8,318.7**	**752.6**	**111,944.6**	**13,938.2**	**951.4**	**182,678.3**
Water supply companies							
Bournemouth & West Hampshire	331.5	66.2	8.8	-	-	-	406.5
Bristol	1,219.0	183.1	2.1	-	-	-	1,404.2
Cambridge	243.2	28.5	6.7	-	-	-	278.4
Cholderton	n/a	n/a	n/a	-	-	-	n/a
Dee Valley	246.2	35.3	1.5	-	-	-	283.0
Essex & Suffolk	1,053.5	392.3	23.2	-	-	-	1,469.0
Folkestone & Dover	158.4	22.3	0.5	-	-	-	181.2
Hartlepool	103.0	12.7	1.4	-	-	-	117.1
Mid Kent	501.2	102.8	2.7	-	-	-	606.7
North Surrey	401.0	84.1	1.9	-	-	-	487.0
Portsmouth	379.2	68.8	1.8	-	-	-	449.8
South East	1,515.4	327.5	4.1	-	-	-	1,847.0
South Staffordshire	966.0	99.4	9.8	-	-	-	1,075.2
Sutton & East Surrey	494.6	89.3	4.2	-	-	-	588.1
Tendring Hundred	163.0	32.0	0.6	-	-	-	195.6
Three Valleys	1,839.9	386.1	0.2	-	-	-	2,226.2
York	132.4	41.0	0.9	-	-	-	174.3
Total water supply companies	**9,747.5**	**1,971.4**	**70.4**				**11,789.3**
Total England and Wales	**56,520.3**	**10,290.1**	**822.9**	**111,944.6**	**13,938.2**	**951.4**	**194,467.5**

Data for Northern Ireland and Scotland is not available
n/a = not available
Note: totals may not add due to rounding

Source: Water companies

6.8 infrastructure improvements for the industry in England and Wales

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Total length of water main new, renewed or relined (km)	6,761	6,028	6,153	5,723	6,897	7,419	7,059
Total length of sewers - new or renewed (km)	1,778	1,501	1,362	1,369	1,741	n/a	1,871
Number of communication pipes replaced	253,245	215,582	193,879	208,657	233,936	249,404	261,191
Number of lead communication pipes replaced	-	-	-	-	-	1,393	132,247
Sea outfalls abandoned	21	41	20	n/a	42	57	54
New sea outfalls commissioned	8	8	6	n/a	3	3	2

Note: These totals exclude figures for Cholderton
n/a = not available

Source: Water companies

6.9 infrastructure improvements for the industry in England and Wales

	Details						Sewer Condition					
	Water Mains New renewed or relined km)	Number of communication pipes replaced	Numberof lead communication pipes replaced	**Sewers** new or renewed (km)	Sea outfalls abandoned	New sea outfalls commissioned	**Critical** New	Replaced	Renovated	**Non-Critical** new	Replaced	Renovated
TOTAL UK	**7,707**	**263,291**	**135,572**	**2,057**	**65**	**2**	**355**	**88**	**224**	**1,248**	**n/a**	**63**
Water service companies												
Anglian	555	18,395	8,784	162	1	0	8	5	12	142	7	4
Dwr Cymru	516	19,486	13,800	71	9	0	31	13	5	10	8	4
Northumbrian	344	19,968	-	64	26	2	28	1	35	60	2	24
North West	948	48,549	46,607	222	0	0	23	25	54	98	10	13
Severn Trent	858	54,118	22,200	790	0	0	148	23	1	576	40	2
Southern	195	8,209	1,330	103	-	-	18	1	2	85	9	11
South West	172	6,850	4,179	45	16	0	19	0	0	25	0	0
Thames	1,398	13,142	1,600	151	n/a	n/a	19	13	70	63	n/a	n/a
Wessex	196	4,570	1,188	109	2	0	15	3	8	83	4	1
Yorkshire	698	14,232	7,553	154	0	0	38	4	0	106	3	4
Total water service co's	**5,880**	**207,519**	**107,241**	**1,871**	**54**	**2**	**347**	**88**	**188**	**1,248**	**83**	**63**
Water supply companies												
Bournemouth & Hants	33	4,237	-	-	-	-	-	-	-	-	-	-
Bristol	157	6,652	5,940	-	-	-	-	-	-	-	-	-
Cambridge	22	305	194	-	-	-	-	-	-	-	-	-
Cholderton	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dee Valley	22	2,150	214	-	-	-	-	-	-	-	-	-
Essex & Suffolk	113	8,599	7,320	-	-	-	-	-	-	-	-	-
Folkestone & Dover	24	894	6	-	-	-	-	-	-	-	-	-
Hartlepool	6	16	16	-	-	-	-	-	-	-	-	-
Mid Kent	142	2,274	154	-	-	-	-	-	-	-	-	-
North Surrey	41	1,700	42	-	-	-	-	-	-	-	-	-
Portsmouth	40	4,735	2,449	-	-	-	-	-	-	-	-	-
South East	255	4,372	556	-	-	-	-	-	-	-	-	-
South Staffordshire	60	2,597	1,484	-	-	-	-	-	-	-	-	-
Sutton and East Surrey	55	1,066	640	-	-	-	-	-	-	-	-	-
Tendring Hundred	20	839	309	-	-	-	-	-	-	-	-	-
Three Valleys	178	13,001	5,447	-	-	-	-	-	-	-	-	-
York	11	235	235									
Total water supply cos	**1,179**	**53,672**	**25,006**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total England & Wales	**7,059**	**261,191**	**132,247**	**1,871**	**54**	**2**	**347**	**88**	**188**	**1,248**	**83**	**63**
East Scotland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
North Scotland	n/a	n/a	3,065									
West Scotland	648	2,100	260	186	11	0	8	-	36	-	142*	-
Total Scotland	648	2,100	3,325	186	11	0	8	0	36	0	n/a	0
Northern Ireland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

n/a = not available

Note: totals may not add up due to rounding

* includes new and replaced

Source: Water companies

6.10 main assets 1998/99

	Sources reservoirs impounding	boreholes	river abstractions	service/ water towers	Water treatment works	Sewage treatment works preliminary	primary	secondary	tertiary	Total	Underground assets mains-km	sewers-km	Pumping stations sewage	water	Storm overflows	Outfalls Long	Short	Total sea & estuarial
TOTAL UK	**666**	**1,584**	**602**	**6,919**	**2,252**	**n/a**	**n/a**	**n/a**	**n/a**	**9,260**	**397,401**	**354,066**	**20,719**	**5,628**	**16,704**	**n/a**	**n/a**	**1,099**
Water service cos																		
Anglian	1	150	12	409	163	11	24	732	308	1,075	34,865	36,727	4,188	275	1,045	9	0	9
Dwr Cymru	84	69	74	745	116	70	201	518	127	916	26,628	17,377	1,624	668	1,743	11	59	70
Northumbrian	13	40	5	268	58	4	90	289	12	395	16,550	15,114	573	242	1,592	22	4	26
North West	112	134	59	493	147	34	145	422	48	649	40,602	39,668	1,570	568	1,972	3	31	34
Severn Trent	4	153	13	568	168	0	17	648	339	1,004	41,960	52,885	2,688	930	1,944	0	0	0
Southern	4	116	12	234	104	24	20	185	164	393	13,263	20,729	1,975	108	1,001	13	11	24
South West	15	18	31	369	40	62	52	345	193	652	14,839	8,536	639	156	852	12	50	62
Thames	0	109	14	258	96	0	0	243	111	354	31,580	77,753	2,432	194	447	0	0	0
Wessex	13	120	5	387	128	9	18	247	91	365	11,104	15,257	1,314	219	976	7	8	15
Yorkshire	105	99	10	440	116	0	87	431	94	612	29,786	29,617	1,466	508	1,652	7	15	22
Total water service cos	**351**	**1,008**	**235**	**4,171**	**1,136**	**214**	**654**	**4,060**	**1,487**	**6,415**	**261,177**	**313,663**	**18,469**	**3,868**	**13,224**	**84**	**178**	**262**
Water supply cos																		
Bournemouth & Hants	0	10	3	25	7	-	-	-	-		2,754	-	-	24	-	-	-	-
Bristol	4	16	1	143	23	-	-	-	-		6,550	-	-	104	-	-	-	-
Cambridge	0	26	0	34	24	-	-	-	-		2,173	-	-	14	-	-	-	-
Cholderton	n/a	n/a	n/a	n/a	n/a	-	-	-	-		n/a	-	-	n/a	-	-	-	-
Dee Valley	6	4	5	43	8	-	-	-	-		1,971	-	-	44	-	-	-	-
Essex & Suffolk	2	28	9	94	30	-	-	-	-		8,406	-	-	93	-	-	-	-
Folkestone & Dover	0	26	0	18	20	-	-	-	-		1,044	-	-	11	-	-	-	-
Hartlepool	2	11	-	-	2	-	-	-	-		517	-	-	4	-	-	-	-
Mid Kent	1	53	0	63	27	-	-	-	-		4,167	-	-	51	-	-	-	-
North Surrey	0	2	3	24	5	-	-	-	-		2,490	-	-	28	-	-	-	-
Portsmouth	0	20	1	39	2	-	-	-	-		3,229	-	-	34	-	-	-	-
South East	5	68	8	175	256	-	-	-	-		9,815	-	-	270	-	-	-	-
South Staffordshire	1	26	2	35	28	-	-	-	-		5,722	-	-	46	-	-	-	-
Sutton and East Surrey	1	37	2	39	11	-	-	-	-		3,369	-	-	74	-	-	-	-
Tendring Hundred	0	9	1	-	2	-	-	-	-		911	-	-	6	-	-	-	-
Three Valleys	0	87	5	53	92	-	-	-	-		11,268	-	-	165	-	-	-	-
York	0	0	1	6	1	-	-	-	-		980	-	-	-	-	-	-	-
Total water supply cos	**22**	**423**	**41**	**791**	**538**	**-**	**-**	**-**	**-**		**65,366**	**-**	**-**	**968**	**-**	**-**	**-**	**-**
Total England & Wales	**373**	**1,431**	**276**	**4,962**	**1,674**	**214**	**654**	**4,060**	**1,487**	**6,415**	**326,543**	**313,663**	**18,469**	**4,836**	**13,224**	**84**	**178**	**262**
East Scotland	56	12	36	262	72	n/a	n/a	n/a	n/a	303	12,233	9,474	423	101	612	7	39	46
North Scotland	74	75**	149	842	291	677*	24	316	22	1,039	18,233	7,422	666	252	310	21	540	561
West Scotland	115	12	137	363	137	417*	13	136	19	585	18,219	13,300	401	169	1,305	5	121	126
Total Scotland	**245**	**99**	**322**	**1,467**	**500**	**n/a**	**n/a**	**n/a**	**n/a**	**1,927**	**48,685**	**30,196**	**1,490**	**522**	**2,227**	**33**	**700**	**733**
Northern Ireland	**48**	**54**	**4**	**490**	**78**	**313**	**166**	**190**	**249**	**918**	**22,173**	**10,207**	**760**	**270**	**1,253**	**n/a**	**n/a**	**104**

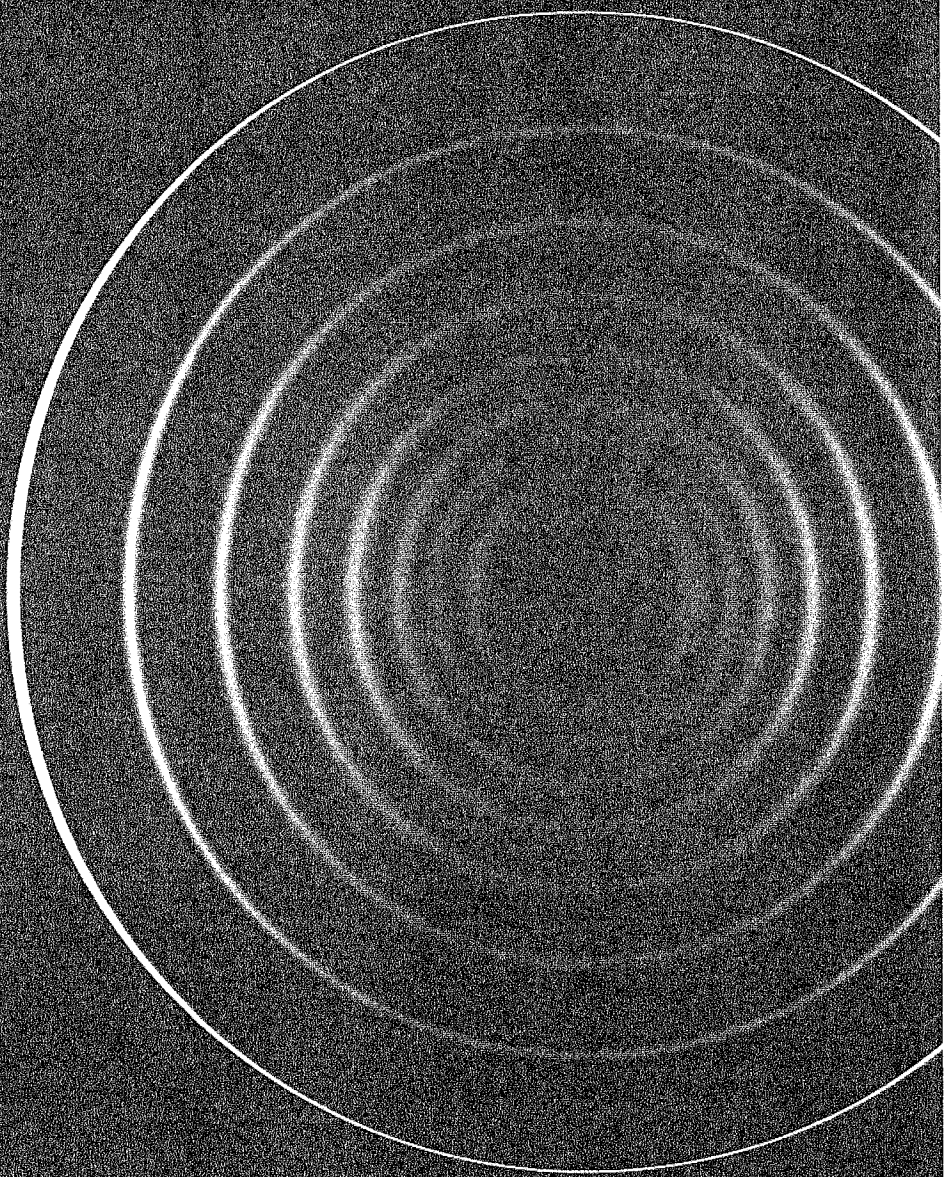
n/a = not available

* includes septic tanks

** 12 boreholes and 63 springs

Source: Water companies

staffing



7.1 staffing

Full time equivalent employees at March 31

	1993	1994	1995	1996	1997	1998	1999
Total UK	**54,908**	**53,742**	**52,610**	**49,359**	**46,031**	**45,358**	**44,224**
Water service companies							
Anglian	3,970	3,942	4,815	4,281	4,204	4,103	4,118
Dŵr Cymru	3,437	3,352	3,329	3,172	2,350	2,026	1,775
Northumbrian	1,317	1,370	1,377	1,850	1,672	1,809	1,698
North West	5,571	5,571	5,471	4,697	3,866	4,107	4,216
Severn Trent	7,196	6,757	6,324	5,862	5,653	5,320	5,228
Southern	2,428	2,453	2,371	2,243	1,961	2,371	2,279
South West	2,144	2,141	2,084	1,815	1,755	1,731	1,693
Thames	7,216	6,772	6,485	6,119	5,562	5,449	5,408
Wessex	1,871	1,771	1,582	1,431	1,396	1,312	1,403
Yorkshire	3,813	3,930	3,373	3,091	3,109	3,082	2,678
Total water service cos	**38,963**	**38,059**	**37,211**	**34,561**	**31,528**	**31,310**	**30,496**
Water supply companies							
Bournemouth & Hants	252	248	235	222	232	243	250
Bristol	575	563	495	474	483	486	584
Cambridge	179	174	169	169	155	174	181
Chester	64	66	65	69	63	-	-
Cholderton	3	3	3	3	3	3	3
Dee Valley[1]	-	-	-	-	-	127	123
East Surrey	211	213	211	-	-	-	-
Essex & Suffolk	751	776	769	730	702	742	735
Folkestone & Dover	121	120	118	111	107	100	95
Hartlepool	68	68	67	63	61	59	53
Mid Kent	441	350	357	476	440	326	329
Mid Southern	318	302	283	280	283	-	-
North East[2]	728	701	676	-	-	-	-
North Surrey	177	173	173	176	191	189	180
Portsmouth	325	316	304	289	281	270	270
South East	460	407	380	356	347	625	572
South Staffordshire	703	657	650	597	603	605	593
Sutton	155	159	153	-	-	-	-
Sutton and East Surrey[3]	-	-	-	333	278	278	268
Tendring Hundred	103	97	91	86	88	94	93
Three Valleys	961	953	929	869	853	986	900
Wrexham	116	115	107	94	98	-	-
York	93	94	93	89	85	72	75
Total water supply cos	**6,804**	**6,555**	**6,328**	**5,486**	**5,353**	**5,379**	**5,304**
Scotland:	**6,608**	**6,665**	**6,653**	**7,004**	**6,890**	**6,463**	**6,179**
North of Scotland	-	-	-	1,940	1,947	1,883	1,767
East of Scotland	-	-	-	2,096	2,055	1,895	1,770
West of Scotland	-	-	-	2,968	2,888	2,685	2,642
Northern Ireland	**2,533**	**2,463**	**2,418**	**2,308**	**2,260**	**2,206**	**2,245**

[1]Dee Valley Water was formed by the merger of Chester and Wrexham in 1998
[2]North East Water became part of Northumbrian Water in 1996
[3]Sutton and East Surrey water companies merged in 1996
n/a = not available

Source: Water companies, Scottish Office, DoE (NI) Water Service

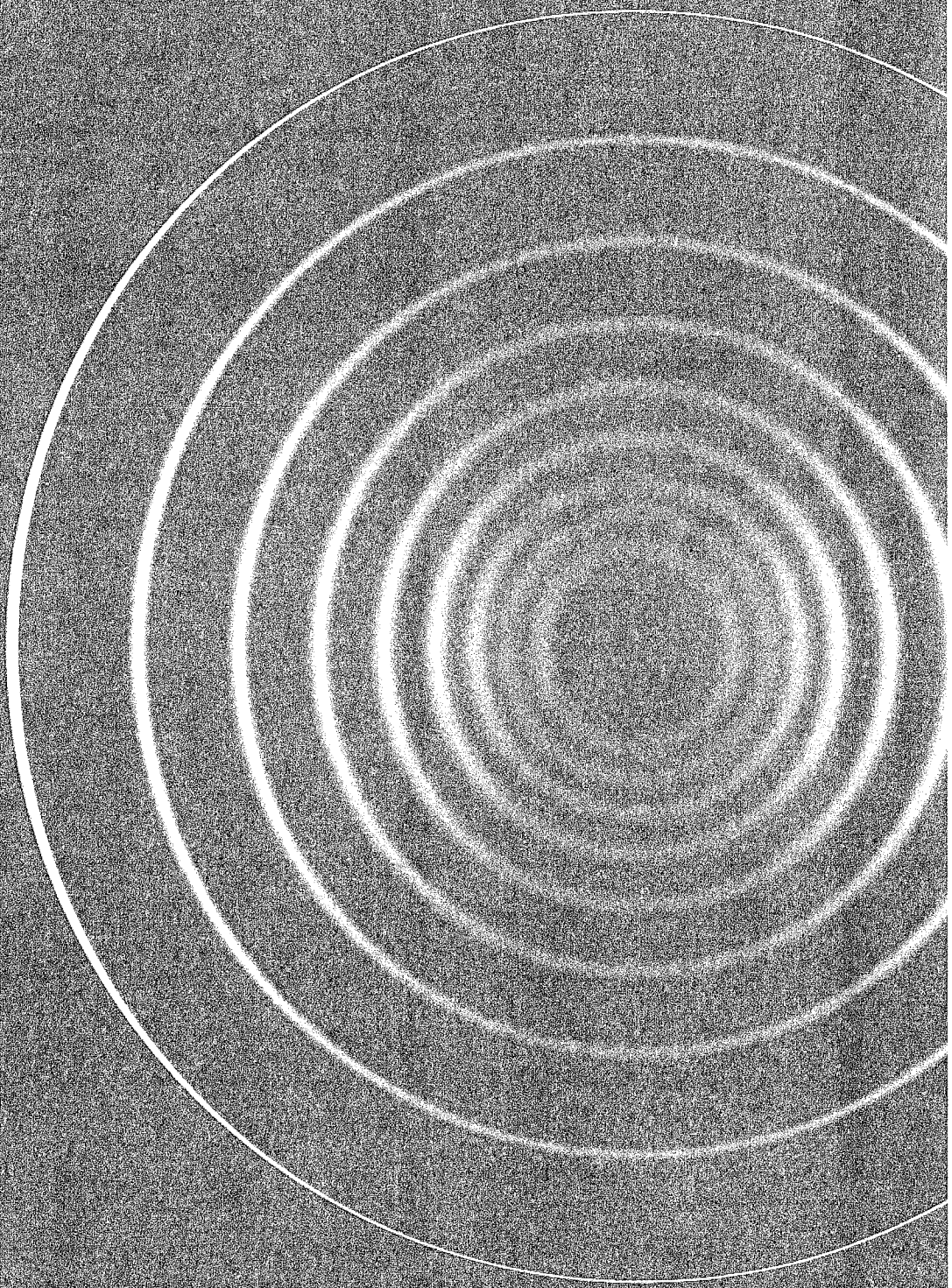
Staffing levels in the industry fell again in 1999 by more than 1,100 to a total of 44,224. It brings the total reduction in staffing levels (measured in full time equivalents) to more than 8,300 over the previous four years. Much of the change has occurred within the private sector companies in England and Wales where staff numbers have fallen by nearly 18 % over the period 1995-99.

A major factor in the reduction is the greater use of outsourcing: putting work once handled in-house out to contractors to improve efficiency. In the case of multi-utility companies, this has included the transfer of staff to new facilities management companies set up to undertake support functions.

But outsourcing has not only affected traditional areas such as property management and information technology. It now includes activities such as accounting services and call centre management.

Over the same period four year period (1995-99), Northern Ireland Water Service staff numbers fell over 7%, from 2,418 to 2245, while the Scottish water sector reported a similar 7% fall.

international



The International Water Association (IWA) is a new organisation resulting from the coming together of two well-established international organisations. It is a non-profit membership organisation. Its mission is to promote best practice and exchange of latest skills, techniques and knowledge of all aspects of water management; to disseminate this worldwide by all possible means including meetings, publications, expert networks and electronic media; to engage in advocacy and exchange of ideas with major agencies, promote public awareness and to provide a means whereby all the different types of organisations and professions in the water sector can exchange information.

Between them, the International Water Services Association (IWSA) and the International Association on Water Quality (IAWQ) have over 80 years' experience. Among their members are the leaders of the water and waste water sectors in all countries of the world, as well as many who are recognised international authorities. The IWA has over 9,000 members.

The Statistics and Economics Committee of the IWSA published a statistical leaflet for the world Congress in Buenos Aries in 1999. Extracts from tables from this leaflet appear in Tables 8.1 – 8.4.

8.1 abstractions for water according to source (million m^3)

	True ground water		Spring water		Surface water		Total water abstraction	
	1980	1997	1980	1997	1980	1997	1980	1997
Austria	287	322	320	325	5	5	612	652
Belgium	435	468	0	0	217	270	652	738
Denmark	362	455	0	0	3	2	365	457
Finland	-	240	-	0	-	176	-	416
France	-	3360	-	0	-	2290	-	5650
Germany[1]	4180	3648	570	408	1890	1568	6640	5624
Hungary	297	342	60	290	443	26	800	658
Italy	3290	3975	2535	2385	892	1590	6717	7950
Luxembourg	2	2	27	29	16	16	45	47
Netherlands	667	794	0	0	337	475	1004	1269
Spain	684	1000	0	124	2426	4848	3110	5972
Sweden	239	221	0	0	716	702	955	923
UK	1910	n/a	0	n/a	5060	n/a	6970	7895

n/a = not available
[1]Includes former GDR

Source: Statistics and Economics Committee IWSA September 1999

8.2 water delivery (million m^3), sewer connection & sewage treated

	Household and small business		Industry and others		Total delivery		Inhabitants (millions)		Supply rate %	Sewer connection rate %	Sewage treated %
	1980	1997	1980	1997	1980	1997	1980	1997	1997	1997	1997
Austria	365	424	225	244	590	628	7.55	8.08	90.0	76.0	100.0
Belgium	366	428	208	151	574	579	9.85	10.17	98.0	71.0	36.0
Denmark	285	250	166	129	451	397	5.13	5.28	95.0	95.0	95.0
Finland	n/a	258	n/a	96	n/a	354	n/a	5.15	88.0	79.0	100.0
France	2085	3210	1120	1140	3205	4350	53.88	58.40	99.0	-	-
Germany_	3857	3966	2020	1015	5870	4961	78.27	82.05	99.0	93.0	97.0
Hungary	387	380	376	180	763	560	10.71	10.14	99.0	48.0	43.0
Italy	3945	4700	1295	1200	5240	5900	56.43	57.56	98.0	89.0	25.0
Luxembourg	24	27	10	13	34	39	0.36	10.42	99.0	98.0	97.0
Netherlands	733	948	192	188	925	1136	14.14	15.70	100.0	98.0	99.0
Spain	2146	2037	794	1335	2940	3372	37.43	39.67	97.0	66.0	-
Sweden	516	526	298	194	814	720	8.31	8.85	87.0	86.0	98.0
UK	3160	_[2]	2070	_[2]	5230	6959	56.31	59.01	99.0	96.0	97.0

Note: Figures relate to public water supply

[1] Includes former GDR

[2] UK figures are only available for measured and unmeasured supplies. Although metered supplies account for the majority of Industry and Others, it also includes some small businesses and households.

Source: Statistics and Economics Committee IWSA September 1999

8.3 specific water consumption (litres/capita/day)

	Household and small business		Industry and others		Total	
	1980	1997	1980	1997	1980	1997
Austria	155	160	100	77	255	237
Belgium	104	118	59	42	163	160
Denmark	165	136	96	70	261	206
Finland	-	155	-	97	-	252
France	109	151	58	54	167	205
Germany_	139	130	52	34	191	164
Hungary	110	104	107	49	217	153
Italy	211	228	69	58	280	286
Luxembourg	183	172	76	81	259	253
Netherlands	142	166	37	43	179	209
Spain	157	145	58	95	215	240
Sweden	195	188	120	69	315	257
UK	**154**	_[2]	**100**	_[2]	**254**	**324**

[1] Includes former GDR

[2] UK figures are only available for measured and unmeasured supplies. Although metered supplies account for the majority of Industry and Others, it also includes some small businesses and households.

Source: Statistics and Economics Committee ISWA September 1999

8.4 comparison of annual water charges (200m³/year) June 1998

	Town/City	Annual charge (ECU)	GDP per capita (ECU)
Austria	Vienna	267.5	22,495
Belgium	Brussels	272.6	21,295
Denmark	Copenhagen	303.6	28,290
Finland	Helsinki	136.5	20,215
France	Paris	156.5	21,015
Germany	Berlin	350.2	21,930
Greece	Athens	155.1	8,472
Hungary	Budapest	57.4	2,836
Italy	Rome	49.6	17,462
Luxembourg	Luxembourg	288.5	31,119
Netherlands	Amsterdam	183.6	20,304
Norway	Oslo	84.8*	29,556
Portugal	Lisbon	174.2	8,348
Spain	Madrid	145.8	11,822
Sweden	Stockholm	137.6	22,714
Switzerland	Berne	239.6	31,912
UK	**London**	**112***	**18,684**

n/a = not available
* = un-measured

Source: Statistics and Economics Committee ISWA September 1999

8.5 quality of bathing water 1990-1998

COMPLIANCE WITH COLIFORM PARAMETRES OF EC DIRECTIVE

	Sea Water								Fresh Water								
	1991	1992	1993	1994	1995	1996	1997	1998	1990	1991	1992	1993	1994	1995	1996	1997	1998
Belgium	85	90	82	92	97	97	100	92	86	75	58	59	56	52	85	95	96
Denmark	93	95	96	95	96	97	96	94	-	90	92	95	96	93	95	89	90
Finland	-	-	-	-	-	89	90	84	-	-	-	-	-	-	89	79	83
Germany	64	74	76	80	85	82	91	91	-	37	39	45	47	53	61	90	88
Greece	90	97	96	95	98	98	98	99	-	33	100	100	100	75	75	50	100
France	87	78	83	87	88	83	90	95	-	84	80	84	82	88	68	79	91
Ireland	97	94	96	100	98	96	97	98	-	-	100	100	100	100	100	100	100
Italy	90	92	88	86	92	92	95	94	-	87	79	81	87	89	89	89	86
Luxembourg	-	-	-	-	-	-	-	-	75	50	75	80	85	85	85	85	85
Netherlands	86	86	80	64	65	85	91	99	-	-	75	62	45	50	54	71	86
Portugal	86	83	81	83	92	86	90	89	-	-	-	29	71	50	35	25	17
Spain	88	93	95	96	97	97	97	98	-	48	61	65	64	68	65	68	73
Sweden	-	-	-	-	-	63	67	85	-	-	-	-	-	-	63	54	74
UK	76	79	80	82	89	89	88	89	-	-	-	-	-	-	-	-	100

Source: European Commission: Quality of Bathing Water (1998 Bathing Season)

8.6 bathing water quality in EC member states 1998

	Number of sampling points	% of sampling points not sampled or insufficiently sampled	% complying with mandatory values
Sea			
Belgium	39	0.0	92.3
Denmark	1,194	0.6	94.3
Finland	94	4.3	84.0
Germany	417	0.0	90.9
Greece	1,733	0.3	98.7
France	1,856	0.0	94.5
Ireland	121	0.8	98.4
Italy	4,868	0.7	94.4
Luxembourg	-	-	-
Netherlands	78	0.0	98.7
Portugal	342	0.6	88.9
Spain	1,597	0.0	97.6
Sweden	378	10.3	84.9
UK	496	0.0	88.7
Fresh			
Belgium	55	0.0	96.4
Denmark	113	3.5	90.3
Finland	357	14.9	83.2
Germany	1,656	2.5	88.3
Greece	4	0.0	100.0
France	1,553	4.4	91.0
Ireland	9	0.0	100.0
Italy	737	0.1	85.8
Luxembourg	20	0.0	85.0
Netherlands	522	9.4	85.6
Portugal	24	4.2	16.7
Spain	215	0.9	73.0
Sweden	462	23.2	74.0
UK	9	0.0	100.0

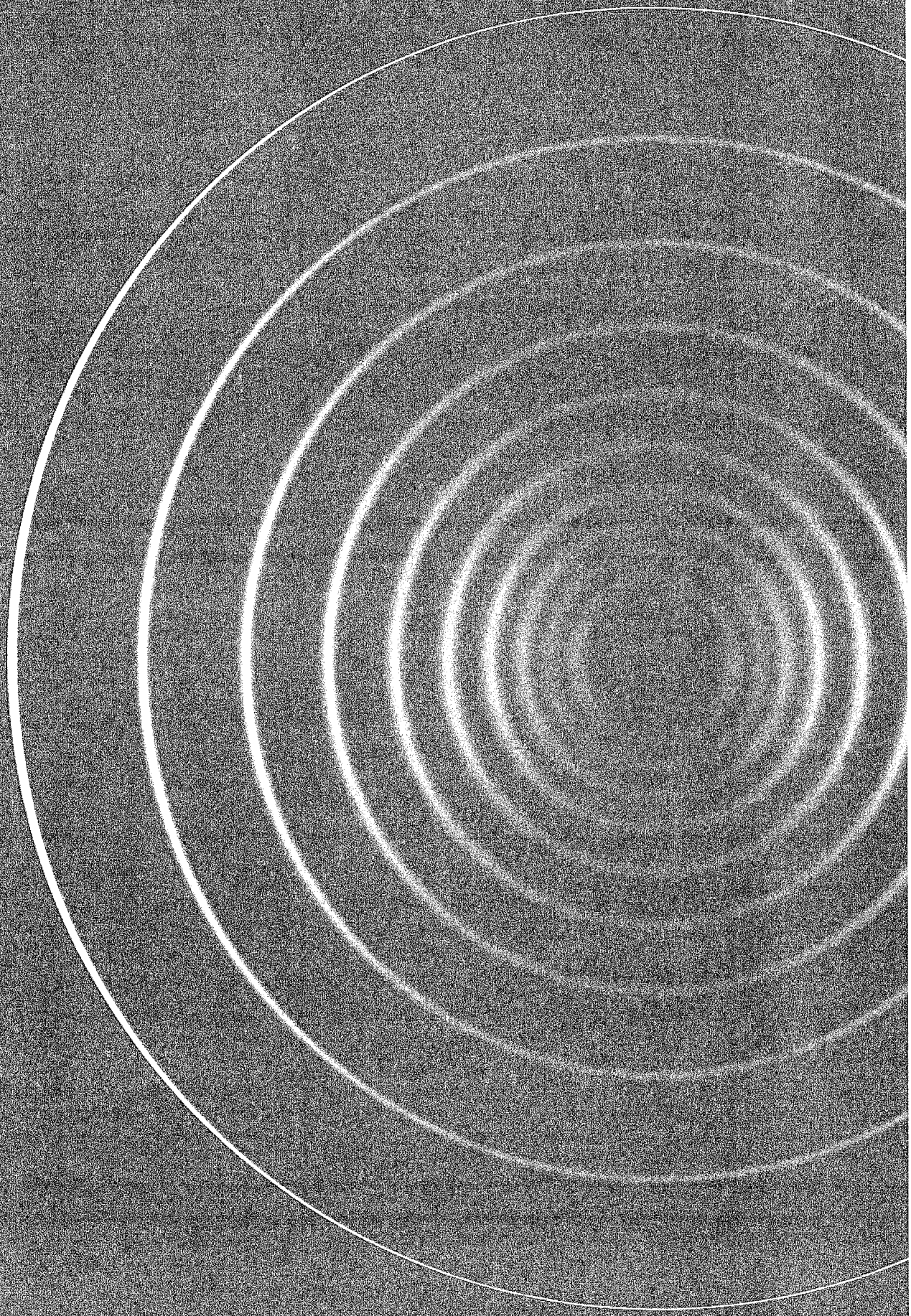
Source: European Commission: Quality of Bathing Water (1998 Bathing Season)

8.7 sewage sludge (biosolids) generation

	Quantity in dry solids/tonnes/per annum	
	Current (1994)	**After UWWT Directive**
Austria	180,000	250,000
Belgium	88,000	250,000
Denmark	170,000	170,000
Finland	150,000	150,000
France	800,000	1,300,000
Germany	3,200,000	3,850,000
Greece	70,000	180,000
Ireland	12,000	40,000
Italy	800,000	1,300,000
Luxembourg	7,500	15,000
Netherlands	340,000	450,000
(Norway)	(93,000)	(130,000)
Portugal	8,400	60,000
Spain	528,000	1,088,000
Sweden	240,000	240,000
UK	1,100,000	1,350,000
Total EU	7,693,900	10,693,000

Source: European Waste Water Group now Eureau 2 no updated information yet available

other water organisations



Eureau
127 rue Colonel Bourg, 1140 Brussels, Belgium
Tel: 00 32 2 534 55 90 Fax: 00 32 2 534 10 62
E-Mail: eureau@skymet.be

EUREAU is a non-profit organisation representing the interests of water suppliers and waste water operators within the European Union. It has the following objectives

- to represent the common interests of its members to the public or private community organisations responsible for dealing with the formulation of community legislation and European standards relevant to water supply and waste water
- to identify, propose, encourage and take all necessary steps in the context of the general interests of the water sector
- to make the appropriate international and national bodies and the general public aware of the relevant issues.

The European Union and European Free Trade Association countries are full members. The UK is represented by Water UK. Other European countries can apply to be observer members.

The Committee structure (requiring two UK representatives for each Commission) is

Commission 1
Drinking water: resources, treatment and quality.

Commission 2
Waste water: technical and economic aspects.

Commission 3
Legislation and economics.

Commission 4
Drinking water and waste water: standardisation and certification.

European Water Association e.V. (formerly EWPCA)
Theodor-Heuss-Allee 17, D-53773 Hennef
PO Box 1165 o D-53758 Hennef
Tel: 00 49 2242 872 0 Fax: 00 49 2242 872 135
E-mail: Ewa@atv.de Web site: www.EWAonline.de

The European Water Association e.V. - EWA - was established in 1981 as a non government, non-profit making organisation registered in Bonn, Germany. Membership is confined to professional associations and institutions that are active in the field of water management. Activities are aimed at managing the water environment and in furthering interaction and collaboration between European countries in the technical and scientific practice of managing the water environment.

International Water Association (IWA)
Alliance House, 12 Caxton Street, London SW1H 0QS
Tel: 0207 654 5500 Fax: 0207 654 5555
E-mail: water@IWAhq.org.uk Web: www.IWAhq.org.uk

The International Water Association is a new organisation resulting from the coming together of the International Water Services Association (IWSA) and the International Association on Water Quality (IAWQ). It is a non-profit membership organisation and its mission is: to promote best practice and exchange of the latest skills, techniques and knowledge of all aspects of water management; to disseminate this worldwide by all possible means including meetings, publications, expert networks and electronic media; to engage in advocacy and exchange of ideas with major agencies, promote public awareness and to provide a means whereby all the different types of organisations and professions in the water sector can exchange information.

WaterAid
Prince Consort House, 27-29
Albert Embankment, London SE1 7UB
Tel: 0207 793 4500 Fax: 0207 793 4545
E-mail: wateraid@wateraid.org.uk Internet: www.wateraid.org.uk

People in the UK enjoy an excellent level of water and sanitation services. In developing countries, however, the situation is very different. Over a billion people lack access to clean water and over two billion lack adequate sanitation. WaterAid exists to help those people.

WaterAid is supported in the UK by all water companies, many consultants, contractors and suppliers and thousands of individuals. WaterAid's income in 1998/99 was £9.7 million, continuing the underlying upward trend in fundraising.

As a result, WaterAid's overseas activities continue to expand. WaterAid is now 18 years old, and has in that time helped more than five million people achieve practical improvements to their water supply.

In the world's poorest countries water needs remain immense. People in these countries very much want to overcome those needs for themselves. They are willing to work hard, sinking wells or digging trenches for simply gravity-fed schemes. WaterAid supports their efforts, providing technical guidance and some of the equipment and materials. Hygiene education sessions teach good health practices to ensure that lasting benefits to health are achieved.

During 1998/99 WaterAid commissioned major research into new areas of work. The research concentrated on innovative ways of increasing its urban work and identifying new countries where it may wish to work. As a result it is in the process of setting up new Country Programmes in Madagascar and Malawi, as well as pilot projects in Mali and Burkina Faso. WaterAid is also employing an urban specialist to help identify new partnerships in urban development. These new initiatives will expand WaterAid's ability to help some of the poorest people in the world.

WRc

Henley Road, Medmenham, Marlow,
Buckinghamshire SL7 2HD
Tel: 01491 636 500 Fax: 01491 636 501
E-mail: solutions@wrcplc.co.uk

WRc is a knowledge based company with a strong R & D foundation and a wide range of scientific and engineering skills in the environmental field. The company deals with issues in areas such as water supply, waste disposal, recycling, land use, contaminated land, environmental quality and risk assessment.

WRc's mission is

- to work with customers in providing solutions to their problems
- to build substantial business relationships, working with selected customers in addressing the issues facing them, ranging from defining problems to putting solutions into operation, backed up by information and training support
- to operate between regulators and the regulated and across other organisational divides to provide a cost effective service against a background of continually changing pressures facing our customers
- to work with R&D organisations and those who need to use results from research to generate business opportunities
- to develop innovative products and services which can be branded and sold to a wider range of customers
- to make use of our management expertise to lead or participate in consortia

WTI

Headquarters, Tadley Court, Tadley,
Basingstoke, Hampshire RG26 3TB
Tel: 0118 981 3011 Fax: 0118 981 7000
E-mail: wti@dial.pipex.com

WTI Training Group is the largest provider of specialist training services to the water industry in the UK. Services include a wide range of open courses, but 70% of our work in the water sector is now bespoke. This ranges from training consultancy to the development of qualification schemes.

The company now has 12 service divisions, each providing a range of specialist services

- Water & Environment
- Building and Facilities Management
- First Aid
- Gas
- Healthcare
- Health & Safety
- International
- JCB Operator Training
- Mechanical & Electrical
- People Development
- Rail
- Street Works

Most delegates attend one of WTI's four training centres, but many are trained at their own premises or attend courses in one of our mobile training centres.

WTI works with industry bodies on the development of training and qualification schemes and many courses are endorsed by national bodies including City in Guilds, BTEC, CABWI, CIWEM and IWO. WTI also designs and organises UK based development programmes for overseas individuals and groups and arranges the placement of UK training specialists overseas.

Institute of Hydrology (IH)

Maclean Building, Crowmarsh Gifford,
Wallingford OX10 8BB
Tel: 001491 838 800 Fax: 01491 692424
E-mail: www.nwl.ac.uk/ih/

IH is one of the component institutes of the Natural Environment Research Council. Its mission is to obtain a greater understanding of the hydrological cycle and the component physical, chemical and biological processes at local, regional and global scales. Much of its research is directed toward monitoring and predicting the effects of natural environmental change and the activities of man on the hydrological cycle.

A core programme of research is funded by NERC but about 75% of IH work involves contract research for UK government departments, international agencies, overseas governments, consultants and public and private sector businesses.

Institution of Water Officers (IWO)

4 Carlton Court, Team Valley, Gateshead
Tyne & Wear NE11 OAZ
Tel: 0191 422 0088 Fax: 0191 422 0087
E-Mail: lynnh@iwohq.demon.co.uk
Website: www.iwohq.demon.co.uk

The Institution of Water Officers is a professional membership organisation for people working in the water industry. Its purpose is to promote the advancement of knowledge which it does through local and national meetings, seminars, workshops, weekend schools, technical visits, exhibitions and a variety of social events. It is also a nominated body of the Engineering Council allowing it to register members at both Eng Tech and I.Eng. level.

The Institution produces a quarterly journal Water distributed throughout the water industry, featuring articles on topical issues, products and services as well as Institution and industry news.

Society of British Water Industries (SBWI)
38 Holly Walk, Leamington Spa, Warwickshire, CV32 4LY
Tel: 01926 831 530 Fax: 01926 831 931
E-mail: sbwr@compuserve.com Website: www.sbwi.co.uk

SBWI services the interests of the major UK manufacturers and contractors who supply the water industry. Members meet regularly in sections devoted to specific interests: pipeline equipment; metering systems; waste water; leakage, contracting (from service laying to turnkey projects).

The main aim of the Society is to help members serve the water industry better, by keeping them well informed about topical issues, providing seminars and speakers when required, and liaising with other bodies. Members are also represented on European, British and Industry standards-making committees.

UK Water Industry Research Ltd (UKWIR)
1 Queen Anne's Gate, London SW1H 9BT
Tel: 0207 344 1821/1807 Fax: 0207 344 1859
E-Mail: ukwir@compuserve.com

UKWIR provides a framework for the procurement of a common research programme for UK water operators on 'one voice' issues. Its members are the water and sewerage companies and the water supply companies of England and Wales, the Scottish water authorities and Northern Ireland Water Service.

Since 1 April 1994, the members of UKWIR have collaborated in an 'operators' club' to carry out a rolling programme valued at about £3.5 million per year. On some projects the value is enhanced by collaborating either nationally with government departments and regulators or internationally with bodies such as the American Water Works Association Research Foundation.

Proposals for research and development projects are initiated by the water industry committees, consisting of representatives from the companies and authorities who are the members of UKWIR. The majority of the work contained in the programme is put out to open tender with tenders being sought from a wide range of companies, academic institutions and other organisations both in the UK and overseas. Individual projects are managed by project managers drawn from among the industry's research and development managers with central coordination.

In preparation for developing future programmes tailored to meet strategic business needs, UKWIR is holding a series of technology transfer workshops. A quarterly newsletter, UKWIR News, is published to promote the dissemination of current and future research information.

The research programme falls within the following main subject areas: water quality and health; toxicology; water resources and climate change; waste water treatment; sewage sludge; water mains and services; leakage and metering; and process control.

The Board for Education and Training in the Water Industry (BETWI)
1 Queen Anne's Gate, London SW1H 9BT
Tel: 0207 957 4580 Fax: 0207 957 4557
E-mail: ian@betwi.demon.co.uk Website:
http://www.betwi.demon.co.uk

BETWI is the national training organisation (NTO) for the water sector. As an NTO it provides a focal point for all education and training matters within the water sector and is the industry's principal point of contact with the Department for Education and Employment. As an NTO, BETWI's primary activities are

- to assess and respond to the education, training and development needs of employers in the water sector, including National Vocational Qualifications (NVQs) and Scottish Vocational Qualifications (SVQs), modern apprenticeships and national traineeships
- to represent to Government and others the sector's training and education interests and to respond to national education and training initiatives on behalf of the sector
- to ensure the development, review and implementation of national occupational standards, especially NVQs and SVQs
- to promote investment in people as central to competitive business performance as well as other competitiveness-based initiatives such as sector targets, lifelong learning and skills benchmarking

BETWI is a member of the International Federation of Training and Development Organisations and gained Investors in People recognition on 22 June 1998.

In corporation as a company limited by guarantee took place on 14 October 1992. Membership consists of Water UK.

British Water
1 Queen Anne's Gate, London SW1H 9BT
Tel: 0207 957 4554 Fax: 0207 957 4565
E-mail: info@britishwater.co.uk Web site:
www.britishwater.org

British Water is an association of nearly 200 of the leading organisations in the UK water and waste water industry and is thus also a key component of the UK's environmental management capability. The resources of its membership extend to water supply and sewage treatment, engineering, management and IT consultancy, civil and process contracting, equipment manufacture and supply, banks, legal services and specialist research and

training organisations. It can thus bring to global markets for water and environment-related projects, tailor-made combinations of consultancy, engineering, construction and operational and investment management skills for developments of any complexity, small as well as large.

In addition to its representational role, British Water functions through a series of focus groups concerned with concession, municipal, industrial and disinfection market opportunities in the UK and international market places, as well as domestic water treatment in the UK. Specialist sub-groups are engaged in a range of technological, legislative, regulatory and standards issues on behalf of the industry, and British Water is represented on the principal UK and European standards bodies. The organisation's objectives are

- to stimulate UK and overseas markets to the benefit of British Water members in particular and by extension, the UK water and waste water industry
- to harness, stimulate and manage the combined efforts of British Water, government and other institutions to promote the growth and competitiveness of the UK water and waste water industry
- to provide a forum for the discussion of industry issues among members and transmit informed opinion on these matters to government and other institutions
- to promote and enhance the technical expertise of the British water and waste water industry
- to provide effective services at minimum cost and inform members of all activities of British Water and the information available to them from the organisation
- to develop overseas programmes, including inward visits, to the widest benefits of members

The Certification and Assessment Board for the Water Industry (CABWI)
CABWI Awarding Body, 1 Queen Anne's Gate,
London SW1H 9BT
Tel: 0207 957 4517 Fax: 0207 957 4641
E-mail: cabwi@aol.com Website:
www.members.aol.com/cabwi

CABWI Awarding Body awards National Vocational Qualifications (NVQs) in water, waste water, waste management and customer service functions across England, Wales and Northern Ireland and increasingly overseas. In Scotland, CABWI awards Scottish Vocational Qualifications (SVQs) jointly with the Scottish Qualifications Authority (SQA).

CABWI is also an awarding body for the Street Works qualifications for supervisors and operatives contained in the two sets of regulations that cover the UK.

The Chartered Institution of Water and Environmental Management (CIWEM)
15 John Street, London WC1N 2EB
Tel: 0207 831 3110 Fax: 0207 405 4967
E-Mail: admin@ciwem.org.uk Website: www.ciwem.org.uk
CIWEM is a multi-disciplinary, professional and examining body for engineers, scientists and other professionally qualified personnel engaged in water and environmental management. The main objectives of the institution are to advance the practice of water and environmental management for the public benefit and to promote education, training, study and research in those areas. CIWEM's membership is nearly 12,000 of whom over 1,500 are overseas.

Foundation for Water Research (FWR)
FWR, Allen House, The Listons, Liston Road, Marlow,
Buckinghamshire SL7 1FD
Tel: 01628 891589 Fax: 01628 472711
E:mail: office@fwr.org.uk Web: www.fwr.org

FWR is an independent, non-profit making organisation that promotes and disseminates research on all aspects of water, waste water and related environmental issues. It has a representative membership of water related organisations throughout the world. On behalf of this membership, FWR publishes and promotes technical reports from a wide range of sources. These include a large library of information based on research funded by the Foundation.

The Foundation also supports or participates in a number of forums that facilitate the interchange of information and define outstanding research needs in specific topic areas. When collaborative research needs are identified the Foundation also manages and sponsors research projects.

Additional terms frequently encountered in relation to water and sewerage, not defined previously in Waterfacts 2000.

Abstraction
Taking of water from river, reservoir or borehole. Abstractions of surface water and groundwater in England and Wales are subject to an Environment Agency licence. Licence holders include water undertakers, general industry (particularly electricity generating companies) and agricultural concerns.

Aquifer
Underground water source – water bearing rock and soil strata.

Bathing waters
Areas designated under EC directive 76/160/EEC. Number of bathers is main criterion.

Biochemical Oxygen Demand (BOD)
The quantity of dissolved oxygen in water (mg/l) consumed under test conditions during a given period (5 days) through the microbiological oxidation of biodegradable organic matter present in waste waters. One of the standard tests used to characterise effluent quality.

Biodegradability
Ability of substance to decompose without adding chemicals.

Biological filtration
A process in which settled sewage uniformly trickles downward through a bed of inert material such as slag, moulded plastics or clinker, thus permitting contact with the biological film with which the surfaces of the medium are coated so that oxidation and clarification take place.

Blue flag beaches
Beaches which meet a number of detailed criteria for cleanliness and facilities including compliance with the EC directive's guideline bathing water standards.

Catchment
Area drained by a river or river system. Also area drained by a sewerage system.

Cess pit
A holding tank for waste water storage which is emptied on a regular basis. No treatment of the waste water occurs in the cess pit. Used by outlying properties remote from the mains sewerage systems.

Coarse screen
A screen used for removing gross solids from domestic or industrial waste water, with spaces between the bars at least 50mm wide.

Chemical Oxygen Demand (COD)
The quantity of oxygen equivalent to the amount of oxidising agent consumed in oxidising the majority of organic matter present in waste waters. Does not distinguish between the organic matter liable to be degraded readily by biological means and the more intractable forms. Can include the oxygen demand of some inorganic substances such as sulphides. Measured by testing a sample of the wastewater with potassium dichromate and sulphuric acid.

Chlorination
The application of chlorine to water for the purpose of disinfection.

Coastal waters (United Kingdom)
Defined in the Water Act 1989 as any waters which are within the area which extends landwards from baselines from which the breadth of the territorial sea is measured as far as the limit of the highest tide and in the case of any rivers, as far as tidal limit of the river.

Coliform bacteria
A group of bacteria found in the intestine and faeces of most animals. Coliforms can sometimes be found in untreated water. The treatment process removes them and disinfection prevents their reappearance in the distribution system. In water receiving discharges, faecal coliform bacteria are used to indicate the presence of sewage.

Communication pipe
That part of the pipe which conveys water from the main to the customer's house and which is in the road or footpath.

Controlled waters
Inland, coastal, territorial and ground water to which British pollution control legislation applies.

Cryptosporidium
A waterborne parasitic micro-organism, believed to originate from livestock. Cryptosporidia have been identified as responsible for a small number of acute diarrhoea cases (cryptosporidiosis).

Desalination
The removal of dissolved salts from water by distillation, reverse osmosis, de-ionization, electrodialysis or freezing.

Discharge consent
A legal document which gives permission to discharge and sets out the terms under which the discharge should be made.

Disconnection
Separation of a customer's supply from the public water network.

Descriptive consent
A consent under which discharges are controlled by imposing general rather than numerical standards.

Disinfection
The destruction of pathogens by physical or chemical means.

Disinfection by-products (DBPs)
The residual substances formed by disinfection.

Dissolved air flotation
A process which can be used for grease removal, for concentrating activated sludge, or a pre treatment stage in physico-chemical methods of treatment.

Dissolved Oxygen (DO)
Oxygen dissolved in a liquid, the solubility depending on temperature, partial pressure, and salinity, expressed in milligrams per litre. Tables giving values for the solubility of oxygen in water have been published in standard methods.

Drought
A prolonged period of dry weather, said to exist if, for at least fifteen days, on each day rainfall has been less than 0.25mm.

E. Coli (Escherichia Coli)
A bacterium taken as an indicator of faecal contamination.

Ecology
The study of interrelation between living organisms and their environment.

Environmental Quality Objective (EQO)
The description of water quality required to maintain an identified use of a body of water.

Environmental Quality Standard (EQS)
The concentration of a parameter which must not be exceeded if the EQO is to be maintained or achieved.

Estuary (UK)
The transitional area at the mouth of a river between fresh water and coastal waters.

Estuary (EC)
The transitional area between fresh water and the proper marine area. The outer part of an estuary is limited by the straight line between the furthest seawater extent of the low water line on each side of the estuary.

Eutrophication
The enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing an accelerated growth of algae and higher forms of plant life to produce disturbance to the balance of organisms present in the water and to the quality of the water concerned.

Final effluent
Typically, the effluent discharged from a treatment plant after completion of treatment of a domestic or industrial wastewater.

Fine screen
A bar screen or wire mesh.

Fluoridation
Application of fluoride to drinking water at the request of health authorities as a preventive measure against dental decay.

Foul flooding
Flooding from a sewer.

Foul sewer
A sewer conveying sewage, ie waste water of domestic or industrial origin, excluding rain water or surface water.

Groundwater
Water occurring in permeable underground strata eg chalk and sand stone.

Hardness
Characteristic of waters containing dissolved calcium and magnesium salts.

Hydrology
The applied science concerned with the cycle, or precipitation, run-off or infiltration and storage, evaporation and re-precipitation.

Impounding reservoir
The traditional form of upland reservoir produced by damming water courses.

Industrial Waste Water
Any waste water which is discharged from trade or industrial premises, other than domestic waste water and run-off rain water.

Integrated Pollution Control (IPC)
The control of discharges from specified industrial premises, whether to land, air or water.

K factor
Amount by which each licensed water company can increase its charges annually on top of inflation. Controlled by Ofwat.

Less Sensitive Areas
A water body or area where the discharge of wastewater does not adversely affect the environment.
(See Annex II of UWWTD 91/271/EEC).
In the UK, also referred to as High Natural Dispersal Areas (HNDAs).

Licence of Appointment
Legal document granting water company permission to operate.

Load
The quantity or mass of any substance transported in an effluent per unit time (the product of concentration of pollutant and effluent flow).

Mains
Pipes which carry treated drinking water.

Meter
A device for measuring length, flow, time, temperature of water.

Numeric consent
A consent in which numerical limits are set for the concentration or load of substances discharged and also for the effluent flow.

Nutrients
A substance such as nitrogen or phosphorus which provides nourishment to organisms.

Outfall
The site of discharge of a liquid from a pipe. Applied particularly to the point at which a sewer discharges to a treatment works or receiving water, or the point at which a conduit discharges the effluent from a treatment works into a receiving water.

Ozonation
The addition of ozone, particularly to a raw water or biologically treated sewage to decolorise and disinfect it. Also termed 'ozonization'.

Pathogen
A organism which is capable of producing disease.

PCBs
Polychlorinated Biphenyls – a group of industrial chemicals found in the environment.

Phenols
A group of aromatic organic compounds which may adversely affect biological sewage-treatment processes or sludge digestion, or cause taste problems in drinking water.

Plumbo-solvency
The ability to dissolve lead.

Polluting load
The quantity of polluting matter entering a treatment plant or in the effluent discharged into a receiving water during a given period.

Population equivalent (PE)
The amount of oxygen demanding materials discharged by one person each day.

Private sewer
A sewer which is not a public sewer as defined in section 20 of the Public Health Act 1936.

Public sewer
A sewer vested in a water authority by virtue of the provisions of section 20 of the Public Health Act 1936 as amended by section 40 and paragraph 33 of the 8th schedule to the Water Act 1973.

Receiving water
Inland and coastal water receiving treated effluent to which pollution control legislation applies generally.

Red list
List of potentially dangerous substances whose discharge to watercourses is controlled under integrated pollution control.

Screenings
The gross solids including rags and plastics in sewage are intercepted by screens and removed manually or by raking mechanisms.

Sedimentation
The process by which settleable solids are removed from sewage by passing it through a tank at a rate that allows the solids to gravitate to the floor to form sludge.

Sensitive areas
A water body or area where more than secondary treatment is required for waste waters discharged under UWWTD 91/271/EEC.

Septic tank
A type of sedimentation tank in which the sludge is retained sufficiently long for the organic content to undergo anaerobic digestion. When sludge is eventually removed to a sewage treatment works, some is left in the tank to act as a 'seed' to initiate further digestion. Used for receiving the sewage from houses and other premises which are too isolated for connection to a foul sewer.

Service reservoir
A reservoir where treated water is stored.

Sewage (or Waste Water)
Water-borne wastes from domestic uses of water, derived from households or similar uses in trade and industry. Storm sewage is that flowing to a treatment works in wet weather or discharged from storm overflows, when the sewage is diluted to a greater or lesser extent with rain water.

Sewage Sludge (also known as Biosolids or Sludge)
A by-product arising from the treatment of sewage or from septic tanks or similar installations. (See Article II of Directive 86/278/EEC for full definition.)

Sewage (treatment) works (STW)
A term for the structures, plant and equipment used for collecting and treating sewage, normally with some sludge drying.

Sewer
A pipe conveying wastewater or sewage discharged into it from two or more house drains.

Sewerage
A system of pipes and mechanical appliances for the collection and transportation of domestic and industrial wastewaters.

Sludge cake
Sludge that has been dewatered to the extent that it can be handled as a solid, usually containing more than 15 per cent dry solids, depending on the type of sludge and method of dewatering.

Soft water
Water which forms an immediate lather with soap and has a total hardness which is typically less than 60 milligrams per litre (as CaC03).

Statutory water company
A company authorised immediately before the passing of the Water Act 1973 by any local statutory provision to supply water, or a company in whom the assets of any company so authorised have subsequently become vested.

Statutory Water Quality Objective (SWQO)
Water Quality Objective set down in legislation.

Storage reservoir
A reservoir for storing untreated water.

Storm sewage overflow
A device to prevent overloading of the sewerage system during storm events.

Storm sewage tank
A tank into which, in wet weather, is diverted all the sewage and rain water reaching a treatment works in excess of that which is to receive biological treatment. Its purpose is to store as much of the storm sewage as possible, for return to the works inlet after the flow has returned to normal, and to remove settleable solids from the remainder which overflows from the tank to a receiving water.

Streptococci
Bacterial indicator of faecal contamination of water.

Supply pipe
That portion of pipe which conveys water from the main to the customer's house and which is on the customer's property.

Surface water
The run-off from paved and unpaved roads, buildings and land.

Suspended solids
In sewage analysis, those solids retained after filtration.

THM
Trihalomethanes: by-products of chlorination.

Total dissolved solids (TDS)
The concentration of dissolved solids in a waste water or effluent, ie the residue after evaporation and drying, expressed in milligrams per litre of sample.

Trade effluent
Waste water produced by trade and industry – not domestic sewage.

Transfer (water)
System where drinking water or raw water is moved around a region.

Trunk sewer
A sewer which receives many tributary branches or discharges from other large sewers and serves a large area.

Turbidity
Interference with the passage of light rays through a liquid, caused by the presence of suspended matter.

Ultraviolet (UV) treatment
Treatment of drinking water or effluent with UV rays to neutralise bacteria.

Upper tier limit
An absolute numerical limit in a consent to discharge.

Water table
Upper surface of the saturated zone in the ground.

Water treatment
The process of converting raw untreated water to a public water supply safe for human consumption. Can involve, variously, screening, initial disinfection, clarification, filtration, pH correction, final disinfection.

Water (treatment) works (WTW)
Works which treat raw water to produce potable water for public supply.

Process Efficiencies – the Regulator wants yours !

Here are ours !

Budgeting and Controls

Process Mapping and Improvement

Procurement Strategy and Partnering

Value Management and Engineering

Risk Management and Turnbull Report Implementation

Benchmarking and Key Performance Measurement

Commitment Reporting and Out-turn Influence

Whole Life Cycle Costing

Operational Cost Data

Pre and Post Contract Cost Management

Programming and Scheduling

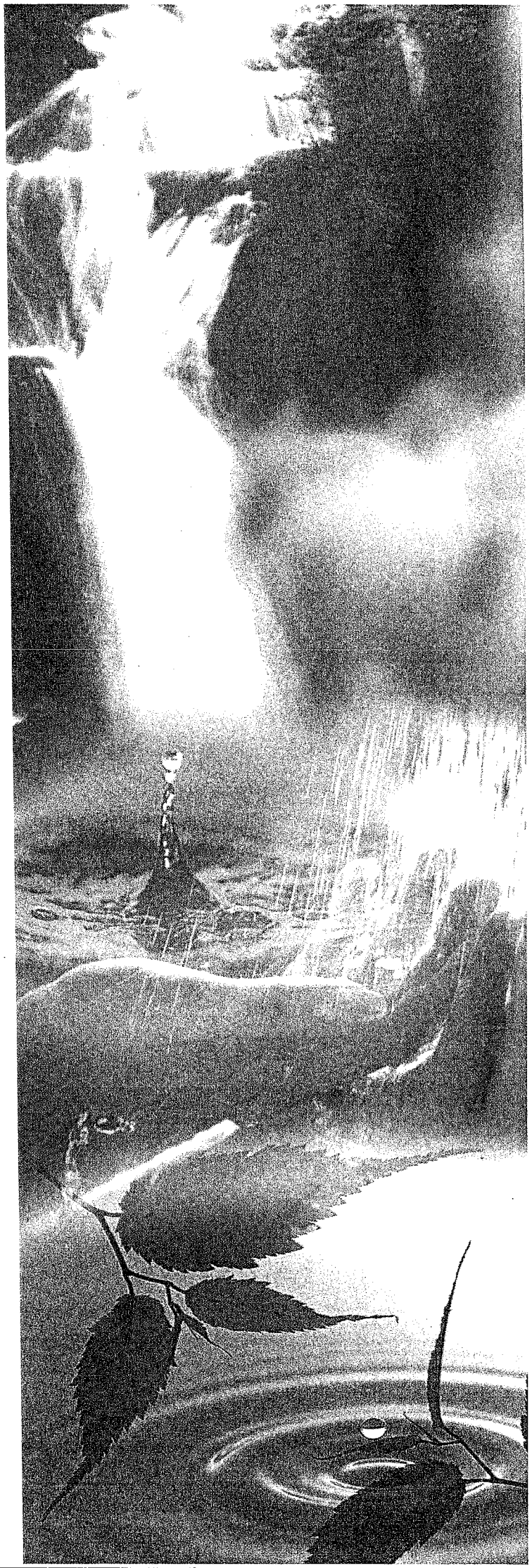
Software system development

Be better prepared for the next Strategic Review !

Faithful&**Gould** are the UK's leading Cost Consultancy providing a broad base of experience, expertise and contact with the Water and Sewage Industry as a whole

How can Faithful&Gould influence your business?
Contact :

Tony Ross, Director
Faithful&**Gould**
77 Portland Place
London W1N 4JJ
020 7637 2345



How to order Water UK publications

In addition to Waterfacts, Water UK produces a range of other publications.
To order, please contact Water UK Publications, PO Box 20, Hadleigh, Ipswich, Suffolk IP7 5DQ
Tel: 01473 824447 Fax: 01473 824655 E-mail: wateruk@tidebrook.co.uk
Please make cheques payable to Water UK.

FORM G/90
General conditions of contract for water industry lump sum plant contracts which are based on Model Form 'A' General Conditions of Contract, recommended by the Institution of Mechanical Engineers, the Institution of Electrical Engineers and the Association of Consulting Engineers.
Published 1990, 45 pages, price £10

FORM P
Although no longer supported by Water UK Form P is still widely used and provides 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 1991, 6 pages, price £10

GUIDANCE ON THE HEALTH HAZARDS OF WORK INVOLVING EXPOSURE TO SEWAGE
Prepared by the WSA Health and Safety Technical Group in consultation with the Health and Safety Executive Utilities National Interest Group. It will be of interest to employers and managers in water companies, local authorities, the civil engineering and plumbing industries and to others whose work may involve contact with sewage.
Published 1995, 10 pages, price £10

RADON IN AIR: OCCASIONAL GUIDANCE NOTE
Prepared by the Water Services Association Health and Safety Technical Group, in consultation with the Health and Safety Executive Utilities National Interest Group, representatives of the water industry and the National Radiological Protection Board (NRPB). The publication offers guidance on radon in air which is specifically for circumstances in the water industry. It would also be of interest to other utilities and organisations, consultants, contractors and designers involved with a work force who enter enclosed spaces under ground.
Published 1997, 20 pages, price £20

PRINCIPLES OF WATER SUPPLY HYGIENE AND TECHNICAL GUIDANCE NOTES
A series of principles developed by the industry to be used as a framework in which to apply their own good practice.
Published 1998, 8 pages, price £5

WATERFACTS '98, '97, '96, '95, '94, '93, '92, '91, '90, '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: 1998 (80 pages, £30) 1997 (70 pages, £20), 1996 (70 pages, £15), 1995, 1994, 1993, 1992, 1991, 1990, 1989, 60 pages, price £10

THE WATER INDUSTRY MAP
Published 1999, poster size, £25

WRc publishes a range of books, manuals, reports, software and multimedia products. A number of titles are produced in association with Water UK including:

- Civil Engineering Specifications for the Water Industry (CESWI)
- Sewers for Adoption (4th edition)
- Managing Leakage
- Planning the Rehabilitation of Water Distribution Systems

for more details or a free publications catalogue please contact:
WRc Information Resources, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF
Tel: 01793 865138 Fax: 01793 514562
e-mail: publications@wrcplc.co.uk
Web address: http://www.wrcplc.co.uk

Who's Who in the Water Industry 2000 is published by Turret RAI in association with Water UK.

To order please contact:
Turret RAI plc, Armstrong House, 38 Market Square, Uxbridge, Middlesex UB8 1TG
Tel: 01895 454545 Fax: 01895 454647