

# CORPORATE PLAN

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**NRA**

*National Rivers Authority*

Guardians of  
the Water Environment

For further information on the contents  
of this document, please contact:

Corporate Planning Section,  
NRA Head Office - Bristol, Rivers House,  
Waterside Drive, Aztec West, Almondsbury,  
Bristol BS12 4UD.  
Telephone (0454) 624 400

Additional copies are available @ £12 per copy  
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## *Introduction*

Established on 1st September 1989, the National Rivers Authority (NRA or the Authority) came into being as result of the 1989 Water Act and was created as a public body whose main task is to protect and improve the water environment in England and Wales and provide protection against flooding from rivers and the sea. The first year of independent operation was completed on 31st March 1991.

## *Mission Statement*

The National Rivers Authority will protect and improve the water environment. This will be achieved through effective management of water resources and by substantial reductions in pollution. The Authority aims to provide effective defence for people and property against flooding from rivers and the sea. In discharging its duties it will operate openly and balance the interests of all who benefit from and use rivers, groundwaters, estuaries and coastal waters. The Authority will be businesslike, efficient and caring towards its employees.

## *Aims*

The Authority's aims are as follows:

- to achieve a continuing improvement in the quality of rivers, estuaries and coastal waters, through the control of water pollution;
- to assess, manage, plan and conserve water resources and to maintain and improve the quality of water for all those who use it;
- to provide effective defence for people and property against flooding from rivers and the sea;
- to provide adequate arrangements for flood forecasting and warning;
- to maintain, improve and develop fisheries;
- to develop the amenity and recreational potential of waters and lands under NRA control;
- to conserve and enhance wildlife, landscape and archaeological features associated with waters under NRA control;
- to improve and maintain inland waterways and their facilities for use by the public where the NRA is the navigation authority;
- to ensure that dischargers pay the costs of the consequences of their discharges and, as far as possible, to recover the costs of water environment improvements from those who benefit;
- to improve public understanding of the water environment and the NRA's work;
- to improve efficiency in the exercise of the NRA's functions and to provide challenge and opportunity for employees and show concern for their welfare.

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## FOREWORD

Since its formation on 10th July 1989 the National Rivers Authority has been determined to be Guardians of the Water Environment and an effective regulator of the water industry.

We have had some notable initial successes – for example: in pollution control enforcement, in commencing urgently needed studies to resolve low-flow problems in the top priority catchments and in assessing the current status of our sea defences.

There remains much work to be done to rectify long-standing problems and to improve the water environment for the use and enjoyment of all. Some issues, such as tackling badly polluted rivers and finding solutions to water shortages, may take many years of action by ourselves and others.

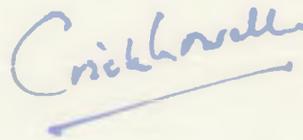
We are currently embarked on developing long-term strategies to address these types of problems. These will form an overall framework for our future corporate plans.

Following an internal review of top management organisation and structure carried out in April 1991, responsibility for the preparation of policy now lies with the Executive Team, consisting of the Chief Executive and Directors, and implementation is the responsibility of the Operations Team (under the newly-appointed Acting Director of Operations) and the Regional General Managers. An audit of regional organisation has been carried out with the assistance of consultants and an action plan to implement recommended improvements has been prepared. These important structural changes will greatly improve our ability to carry out our complex responsibilities and deliver varied regional requirements to consistent national standards.

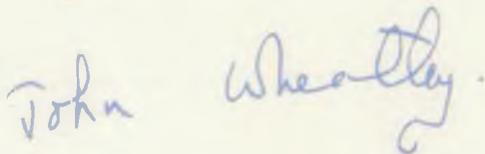
In preparing this, our second *Corporate Plan*, we have re-examined our inheritance and initial aspirations set out in our first 1990/91 *Corporate Plan* and re-affirmed and refined the majority of our original plans. We have also developed new proposals. We intend to pursue these with vigour in 1991/92.

We commend this Plan to you.

*Lord Crickhowell (Chairman)*



*John Wheatley (Chief Executive)*



*September 1991*

## Introduction

This is the National Rivers Authority's second *Corporate Plan*. It sets out the Authority's:

- performance in respect of its first *Corporate Plan*;
- future aims, objectives and targets for each core function and support service;
- planned use of resources;
- projected output and performance;
- efficiency and productivity initiatives.

The Plan covers the period 1991/92 with projections to 1994/95. Actual data for 1989/90 and the forecast outturn for 1990/91 are provided for comparative purposes.

The Plan is a synthesis of ten Regional Plans and a Head Office Plan. Long-term function and support service strategies and an overall corporate strategy are currently being formulated. These will provide a strategic framework for future annual corporate plans.

## Performance in 1990/91

### *Policy:*

- production of and public consultation on discharge consent and compliance policy;
- development of a charging for discharges scheme;
- undertaking a review of fisheries licensing arrangements;
- production of policy statements on recreation and conservation;
- contributing to the contents of the Government's White Paper on the Environment.

### *Operations:*

- commencing work to reduce low-flow problems in the top 20 priority catchments;
- increasing enforcement activity in relation to non-compliant discharges and pollution incidents, resulting in double the number of successful prosecutions;
- carrying out site-specific litter campaigns;
- completing field work in connection with the 1990 Water Quality Survey;
- completing fieldwork and analysis of the results of Phase I of the Sea Defence Survey.

## Priorities

Key priorities included for 1991/92 and beyond are set out below.

### *Policy Development*

#### *Water Resources:*

- develop a new water resources charging scheme for implementation in 1993;
- investigate and report on strategic options for the sustainable development of water resources;
- continue to develop and implement solutions to low-flow problems.

#### *Pollution Control:*

- publish the results of the 1990 Water Quality Survey;
- advise the Secretary of State on the setting of statutory Water Quality Objectives (WQOs);
- implement the charging for discharges scheme to transfer costs from grant-in-aid (GIA) to those who discharge.

#### *Flood Defence:*

- publish and take action in relation to the findings of the Sea Defence Survey;
- contribute and respond to the findings of the National Audit Office (NAO) study on flood defence.

#### *Fisheries:*

- complete public consultation on the proposals to restructure angling licences and implement new arrangements from 1992/93 to increase fisheries income;
- complete a public consultation exercise and develop a charging scheme for Section 28 (S28) by April 1992.

#### *Recreation and Conservation:*

- continue to promote recreation and conservation, particularly in collaboration with other bodies.

#### *Navigation:*

- review the Authority's role in inland navigation;
- develop a navigation policy.

#### *General Operations:*

- improve emergency planning and responses;
- increase regulatory and enforcement activities.

#### *Corporate Planning and Performance Monitoring:*

- develop a corporate strategy;
- improve and develop corporate planning processes;
- adopt a standard approach to the production of catchment management plans;
- introduce performance management and review systems.

#### *Financial Management:*

- implement the findings of a feasibility study on a national accounting service;
- develop an integrated accounting system (IAS).

#### *Personnel Management:*

- undertake a standard job evaluation scheme;
- develop staff inspection and management audit;
- improve manpower planning and control procedures.

#### *Efficiency and Productivity:*

- introduce more effective purchasing arrangements;
- review the operation of laboratory services.

#### *Information Systems:*

- develop and commence the phased introduction of priority applications resulting from the IS strategy.

### **Resources**

In setting priorities for the production of this Plan and allocating resources, the NRA Board decided that clear priority would be given to pollution control, water resources and flood defence, along with the need to improve information systems. The importance of fisheries, recreation, conservation and navigation was recognised, and the Board agreed that current levels of activity should be enhanced with £1m GIA above inflation going to these functions. Increased expenditure on water resources and pollution control will also, of course, benefit these functions. This Plan therefore is based on the key priorities set by the Board. The main items of expenditure and income are given overleaf.

#### *Operational Income and Government Funding*

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
Total Operating Costs (£m)	334	364	431	473	494	513
Total Operating Income (£m)	262	236	299	333	352	369
Total Income as % Operating Costs	79	65	69	70	71	72
Total Government Grants (DoE, MAFF, WO) (£m)	112	131	126	133	136	139
Grants as % Total Operating Costs	33	36	29	28	27	27

As the Authority's projected operational income increases, the anticipated total levels of grant received from the Department of Environment (DoE), the Ministry of Agriculture Fisheries and Food (MAFF) and the Welsh Office represent a progressively smaller proportion of the Authority's total operating costs, thus reducing dependence on Government GIA. In terms of contributions from different Government departments, GIA from DoE falls and MAFF capital grant rises over the Plan period.

*Use of Resources and Sources of Funding*

	90/91	91/92	92/93	93/94	94/95
EXPENDITURE <sup>1</sup>	£m	£m	£m	£m	£m
<b>FUNCTIONS</b>					
Pollution Control	51	61	73	79	80
Fisheries	17	20	22	24	25
Recreation/Conservation/Navigation	10	11	12	14	15
R&D	5	7	8	8	9
<b>Sub Total</b>	<b>83</b>	<b>99</b>	<b>115</b>	<b>125</b>	<b>129</b>
<b>EXCEPTIONAL ITEMS</b>					
Capital Restructuring	14	5	0	0	0
Personnel Buyouts	3	5	5	0	0
Unfunded Pensions	10	11	12	13	13
Additional HO Costs	2	3	2	0	0
IS Strategy	1	5	12	12	13
<b>Sub Total</b>	<b>113</b>	<b>128</b>	<b>146</b>	<b>150</b>	<b>155</b>
Water Resources	60	70	76	78	80
<b>DoE Sub Total</b>	<b>173</b>	<b>198</b>	<b>222</b>	<b>228</b>	<b>235</b>
Flood Defence	191	233	251	266	278
<b>Total</b>	<b>364</b>	<b>431</b>	<b>473</b>	<b>494</b>	<b>513</b>
<b>INCOME</b>					
Charging for Discharges	0	25	37	42	44
Fisheries	7	8	10	11	11
Recreation/Conservation/Navigation	1	1	1	1	2
<b>Sub Total</b>	<b>8</b>	<b>34</b>	<b>48</b>	<b>54</b>	<b>57</b>
DoE Grant-in-Aid	105	94 <sup>2</sup>	97	96	98
<b>Sub Total</b>	<b>113</b>	<b>128</b>	<b>145</b>	<b>150</b>	<b>155</b>
Water Resources	60	74	76	78	80
<b>DoE Sub Total</b>	<b>173</b>	<b>202</b>	<b>221</b>	<b>228</b>	<b>235</b>
Flood Defence – Other	167	191	209	220	232
– MAFF Grant	26	32	36	40	41
<b>Total</b>	<b>366</b>	<b>425</b>	<b>466</b>	<b>488</b>	<b>508</b>
<b>STAFF NUMBERS (FTE)</b>	<b>7,298</b>	<b>7,750<sup>3</sup></b>	<b>7,947</b>	<b>8,007</b>	<b>8,031</b>

*Notes:*

- Expenditure is constructed on a cash basis, assuming a price-base of October 1990 with inflation factors of 9%, 7%, 5% and 5% between 1991/92 and 1994/95.*
- In November 1990 the GIA requirement was estimated at £107m. Due to slippage in recruitment and capital expenditure, this figure was revised to a maximum of £94m in September 1991. Consequential adjustments may be needed to cost estimates in later years and these will be considered in future planning rounds.*
- This figure compares with an establishment target for 1991/92 of 7,984 FTE and reflects the effects of slippage in staff recruitment, staff turnover and the GIA adjustment referred to in note 2 above.*

## Output and Performance

Key output and performance measures include the following :

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>WATER RESOURCES</b>						
No. of sites with low flows ameliorated	0	5	10	16	21	25
% licences determined within statutory period	41	36	55	60	61	62
No. of licence inspections	4,593	6,200	15,550	20,000	24,100	23,300
<b>POLLUTION CONTROL</b>						
No. of discharges monitored	11,481	11,790	14,740	15,100	15,600	16,000
No. of water quality analyses (millions)	3.45	3.8	4.6	4.6	4.8	4.8
Length (km) of Class 4 (Bad Quality) River	617	630	530	450	410	370
Length (km) of Class D (Bad Quality) Estuary	83	80	80	70	70	40
EC Bathing Waters (% compliance) <sup>1</sup>	76	78	79	83	87	99
<b>FLOOD DEFENCE</b>						
% flood warnings with over 4-hour lead-time	46	46	48	49	50	51
Length (km) flood defences maintained	24,668	25,010	25,380	25,570	25,740	25,870
Length (km) new defences constructed	132	218	262	282	352	238
<b>FISHERIES</b>						
Rod licence (% compliance)	94	94	93	93	93	93
No. of fishery surveys	1,810	1,720	2,050	1,760	1,840	1,870
No. of fish reared (millions)	6.1	6.5	9.2	9.0	8.1	8.2
<b>RECREATION</b>						
No. of projects	79	99	86	80	80	80
% in collaboration with others	51	51	66	70	69	66
<b>CONSERVATION</b>						
Length (km) aquatic habitats surveyed	2,650	6,390	8,650	8,550	8,070	8,180
No. of improvement projects	45	92	150	100	115	120
% in collaboration with others	65	54	67	65	70	62
<b>NAVIGATION</b>						
Boat licence compliance (%)	94	95	95	95	95	95
Length (km) maintained	800	790	790	820	820	820

### Notes:

1. Bathing water compliance is expected not planned. The 1994/95 figures reflect the 1994 bathing season (ie. May to September 1994). Final improvements will be reflected in the 1995/96 figures when completion of capital works is expected to result in compliance approaching 100%.

### *Efficiency and Productivity Initiatives*

The Authority will progressively introduce suites of new output and performance measures and a performance review system to improve its economy, efficiency and effectiveness. Some measures will be introduced in 1991/92 totalling some £4.7m; others will be added on a phased basis as the Authority develops new policies, national standards of service and implements its IS strategy.

Planned efficiency savings are as follows:

	92/93	93/94	94/95
Efficiency savings (£m)	7.1	7.4	7.7

Financial audits will concentrate on reviewing:

- purchasing of goods and services;
- usage of energy and other utilities;
- use of in-house manual workforce and contracted services;
- operation of laboratories and other specialist in-house facilities.

Studies will be undertaken to assess the possible economies resulting from the establishment of centres of expertise for specialist facilities and services.

## Introduction

Since the National Rivers Authority was set up in July 1989, it has rapidly established itself as Guardians of the Water Environment in England and Wales. Indeed, it is now generally regarded as being the strongest environmental protection agency in Europe. The Authority's sponsor is the Department of the Environment (DoE) and it also has policy links with the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office.

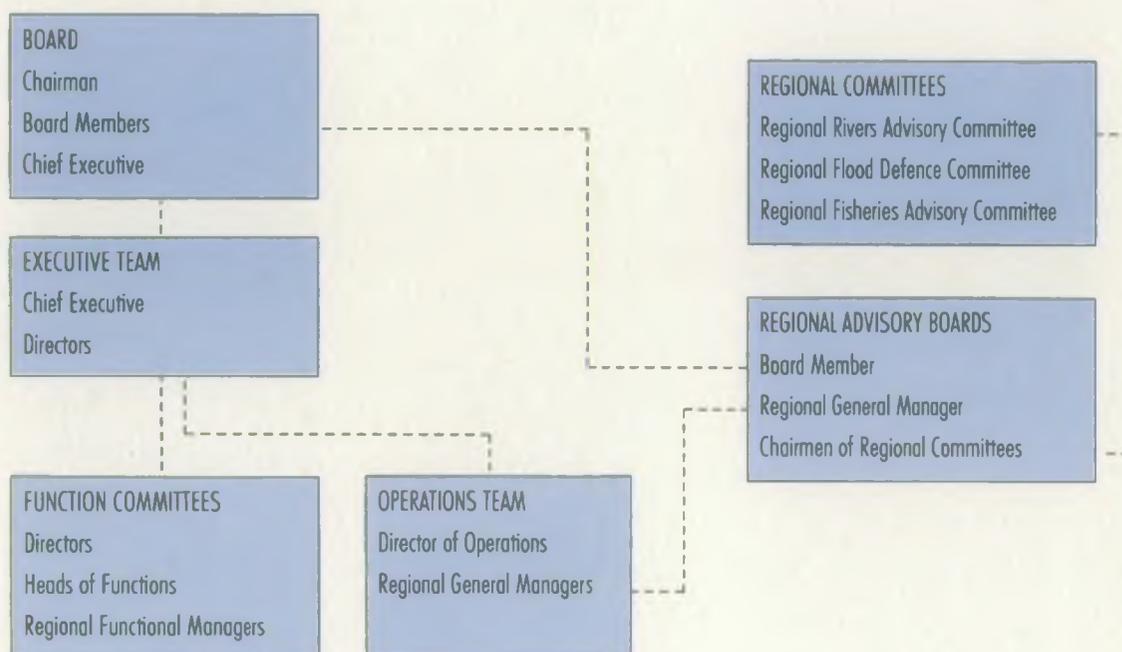
Its statutory duties under the 1989 Water Act include: water resources, pollution control, flood defence, fisheries, recreation, conservation and navigation. The Authority also has responsibility for implementing parts of other legislation such as the 1963 Water Resources Act, 1974 Control of Pollution Act, 1963 Land Drainage Act, 1975 Salmon and Freshwater Fisheries Act and the 1990 Environmental Protection Act (EPA). It has also been made the "competent authority" for sampling and analysis for 16 EC Environmental Directives. Whilst the majority of its duties apply to inland waters, it has pollution control and fisheries responsibilities in coastal waters extending to three and six nautical miles from the coast respectively.

The Authority is a national body with a Head Office in Bristol and London. Its operational activities are carried out in ten Regions. The Authority's strategy and policies are determined by a Board of 15 members appointed by the Secretaries of State for the Environment and Wales, and the Minister of Agriculture, Fisheries and Food. The development of policy and day-to-day management is the responsibility of the Head Office Executive Team. The implementation of policy and day-to-day management in the Regions is co-ordinated via the Operations Team. In addition, The NRA achieves a wide base of consultation via the three statutory committees it has in each Region, namely the Regional Flood Defence Committee (RFDC), Regional Rivers Advisory Committee (RRAC) and Regional Fisheries Advisory Committee (RFAC). In 1990/91 the NRA had a total budget of more than £370m and employed over 7,000 staff. In excess of 67% of its funding came from charging schemes and some 33% from Government grants.

## NRA Regions



## Organisation and Management of the NRA



## Changes in the External Environment

During 1990/91, significant and rapid change in the external environment impacted strongly on the Authority. For example, the Authority has had to respond to major environmental events during the year, notably drought, major flooding – both river and tidal – and blue-green algae. All these events provided a challenge to the Authority over and above intended programmes and plans.

Its policy reviews have had to take account of international developments such as North Sea Ministerial Conference Declarations and the Inter-governmental Panel on Climate Change (IPCC) Report on Climate Change and Global Warming. European Directives and draft Directives, such as those on Groundwater, Landfill and Municipal Waste Water have had a major impact on how the NRA conducts its pollution control activities.

Having been established by the 1989 Water Act, subsequent legislation has rapidly changed the responsibilities of the Authority in a significant way, notably in relation to integrated pollution control (IPC). The Authority put much effort into securing amendments to the 1990 EPA to reflect its own interests. Other legislation which affected the NRA included the 1990 Planning (Hazardous Substances) Act and the 1990 Planning and Compensation Bill. The Authority has also put forward its views on several Private Bills including the Cardiff Bay and River Usk barrage proposals and the British Waterways Bill.

The Authority made a substantial contribution to the development of the Government's thinking on environmental issues that resulted in the White Paper, *This Common Inheritance*. Policy issues included in the submission made to Government were land use and planning, flood defences, the marine environment, funding arrangements, including incentive charging, and future institutional arrangements. The Authority was gratified that some of its proposals were reflected in the White Paper, for example in the idea of an umbrella body responsible for overseeing the pollution control work of various agencies.

Several Select Committees of Parliament have called on the NRA to give expert evidence to enquiries about the future of the Common Agricultural Policy, the draft EC Directives on Municipal Waste Water, the Future of Opencast Coalmining in Wales, Sea Defences along the North Wales Coast and the EC draft Directive on Landfill of Waste. The NRA has also contributed to policy reviews being conducted by other bodies, such as the Countryside Commission and the Sports Council.

The Prime Minister has recently made proposals for an Environment Agency and the NRA, having reacted positively, will contribute to discussions designed to take this forward.

## Achievement of Key Objectives

The Authority has successfully met key corporate objectives set out in its 1990/91 *Corporate Plan*.

Key Objectives 1990/91	Progress
<p><b>DUTIES AND POWERS</b> Clarifying and interpreting its statutory duties and powers and promulgating these to all its employees and relevant external bodies.</p>	Clarified its relationship with HMIP and agreed a Memorandum of Understanding. Staff briefings and seminars held; The Law of the NRA widely promulgated.
Establishing the Authority's capability to comment on and influence UK and EC environmental legislation.	Input made to Environmental Protection Bill, draft EC Directives on Municipal Waste Water and White Paper on the Environment.
<p><b>POLICIES</b> Developing national policies for all its core functions, especially for water abstraction and polluting discharges, and developing new charging registers, billing systems and enforcement methods.</p>	1990 water resources abstraction charging scheme introduced, consenting and compliance policy published and charging for discharges scheme devised to be implemented by July 1991. Computer register and billing system devised for charging for discharges.
Seeking to influence land use planning in order to prevent undesirable development in river catchments likely to cause flooding or pollution with long-term socio-economic consequences.	Views submitted for the White Paper on the Environment: discussions still ongoing with Government. Interim planning liaison guidelines introduced in all Regions.
Improving the Authority's response to pollution, flooding and drought emergencies.	Emergency liaison arrangements reviewed and new emergency control rooms developed eg. in Thames Region. Introduced a new three-colour national flood warning procedure.
<p><b>CORPORATE PLANNING</b> Producing an overall corporate strategy and individual strategies for each core function and support service.</p>	Core function and support service strategies written in draft form, for consultation with regional committees.
Developing a multifunctional approach to regional and catchment management, through the development and introduction of integrated catchment management plans.	Working group established to consider all aspects of catchment management and draft report produced.
Developing output and performance measurement and links with job appraisal.	Interim output measures introduced to produce first <i>Annual Report</i> . Performance measures being developed as part of strategy formulation. Individual performance appraisal system introduced for Senior Managers.
<p><b>HUMAN RESOURCES</b> Ensuring compliance with Health and Safety objectives to create a secure working environment for all the Authority's employees.</p>	Health and Safety section established within Personnel. Regional committees established and National Conference programmed for April 1991.
Resolving staff terms and conditions and improving employee relations.	Senior Managers' terms and conditions review completed. NJSC standard job evaluation scheme underway. Liaison with employee organisations established.
Identifying the training needs of staff, implementing development programmes and introducing a graduate recruitment scheme.	Graduate recruitment scheme implemented with 29 graduates selected and 120 recruited in total.
Ensuring the staffing of Regions and Head Office are sufficient to carry out the Authority's statutory duties, involving relocating the majority of the Authority's Head Office to Bristol and recruiting additional personnel to the Regional Offices, laboratories and other facilities.	Part of the Head Office moved into managed office accommodation in Bristol in January 1991; move to be completed by 1 July 1991. Additional staff recruited to key areas.

<i>Key Objectives 1990/91</i>	<i>Progress</i>
<b>FINANCE</b> Developing new charging schemes and billing systems for the Authority's core functions to increase income and reduce dependence on GIA.	New charging for discharges scheme set to commence in line with new policy with effect from July 1991, and fisheries licencing and S28 proposals both undergoing review.
Introducing new accounting and financial management procedures, including improved identification of cost centres, allocation of support service costs and audit systems.	Head Office audit section expanded and feasibility study on a national accounting centre undertaken. Integrated accounting system (IAS) identified as a priority application in the IS strategy for implementation from April 1992. Cost centres being identified as a part of the specification process.
<b>EFFICIENCY</b> Ensuring the flexible, efficient and effective use of manpower and financial resources.	Scientific and technical expertise has been shared between Regions and inter-regional co-operation developed.
Reviewing the use of in-house workforce, contracted services and competitive tendering.	Reviews of these areas commenced with reports due mid-1991.
<b>INFORMATION SYSTEMS</b> Implementing the IS strategy.	Phase II of the strategy underway. Four high priority applications identified and work on their specification begun.
<b>RESEARCH AND DEVELOPMENT</b> Developing a scientific and technical research programme to support the Authority's functions.	£6.1m programme expenditure with 52 projects completed and 100 started. External links and funding (6% of programme cost) established via R&D "Open Forum" meeting and other means.
<b>CORPORATE IMAGE</b> Increasing public awareness of the Authority's activities through various media.	Extensive coverage of NRA work by reactive and proactive relations with media. Responded to many thousands of public and media enquiries and produced <i>The Water Guardians</i> .

### *Formulation of the Plan for 1991/92*

In preparing this Plan, the Authority has been able to make a more detailed assessment than was possible last year of its varied inheritance and identify areas of particular under-provision or weakness. It has also been able to take account of the impact of the numerous developments in the external environment which have brought additional tasks and responsibilities.

In drawing up its plans and programmes for 1991/92, it has also had due regard to the priorities indicated by the then Secretary of State when the Public Expenditure Survey (PES) settlement was made in November 1990, namely that resources should be used to:

- enhance significantly water quality work across all Regions;
- maintain activities on all other GIA functions at least at present activity levels;
- support the continued development of effective financial and management systems;
- fund priority capital items and other "exceptional items".

The Authority attaches great importance to its policy, financial and manpower planning in order to make the best use of resources at its disposal and provide value for money. Work is currently directed to developing a more sharply focused management culture, with emphasis on personal responsibility and accountability. Clarity in defining policies and procedures will be emphasised. The Authority's Board, regional committees and senior staff all contributed to the production of this Plan and further details of this process are set out in Appendix 1.

## Next Plan

In order to ensure the Authority's corporate planning process is dynamic and fits the Authority's needs, a detailed review of the process and methodology used to prepare this Plan will be undertaken before the Authority starts work on its third *Corporate Plan*. The Authority's future corporate planning will place greater emphasis on:

- rolling forward corporate and function strategies;
- improving policy planning and implementation;
- better target setting against standards of service;
- pursuing efficiency savings and productivity gains;
- increasing self-generated income to further reduce dependence on Government grants;
- improving planning of capital expenditure and asset management.

Other factors in 1991/92 and 1992/93 will also have a major impact on the production and contents of the authority's third *Corporate Plan* and include, for example:

- continued implementation of the IS strategy and, in particular, the development of the IAS, water archive and performance measurement software applications;
- introduction of a common manpower classification scheme;
- introduction of improved suites of output and performance measures;
- improved monitoring and reporting of operational performance;
- development of management, financial and other audits;
- development of a formal performance review system;
- adoption of a standard approach to catchment management planning.



PROGRAMMES AND  
PLANS

CORE FUNCTIONS



## Introduction

The significance of water resources has been highlighted by the occurrence of two drought years in 1989 and 1990, with indications of continued problems in 1991.

Accordingly, the NRA considers the development of a strategic plan for water resources to meet the needs of public supply, industry and agriculture to be of major importance. A fundamental review of all strategic options is underway to identify solutions which are acceptable in relation to the overall management of the water environment.

The Authority considers particular emphasis will need to be given to assessing the overall balance of water use, especially ensuring leakage is reduced to realistic levels, and the need for possible schemes to transfer water from areas of plenty to the drier parts of the country, which also tend to be the more densely populated. Major water resource developments may be necessary and it is possible that the NRA will need to make a financial contribution to some of these where there are environmental benefits for the general public.

Work on alleviating low flows due to over-abstraction continues; in some cases the implementation of solutions will take several years to achieve. The occurrence of exceptionally dry years highlights the problems and in some instances gives an incorrect impression of the real cause. Funding of some solutions may well be difficult, particularly if they involve revoking abstraction licences and substantial compensation payments.

Work is progressing on producing a revised water abstraction charges scheme for introduction in April 1993. The aim is to develop a nationally consistent scheme which is simple, fair and reflects the level of activity that the NRA carries out on water resource work in relation to sources. Within current legislation it has to be a cost-recovery scheme, so the ability to influence abstraction use of water will be limited.

Protection of groundwater is extremely important and a groundwater protection policy is being developed. This will be relevant to many topics such as nitrate-sensitive areas (NSAs), waste disposal and the use of fertilizers and pesticides. Such a policy needs to be simple to understand and apply, but also able to take account of the complexities of soil, aquifer and flow characteristics.

As well as these discrete projects, the work on water resources increases in response to dry weather. The need for enforcement activity of abstractions is greater, as is the workload in dealing with applications for licences. All this produces a need to increase the number of staff working on water resources if the NRA is to be able to meet its objectives and the justified expectations of others.

## Aims:

- to assess, manage, plan and conserve water resources and to maintain and improve the quality of water for all those who use it.

## Objectives:

- to plan for the sustainable development of water resources, taking account of the needs of the water environment and those of abstractors;
- to collect, validate, store and provide hydrometric data and water quality data to support the duties of the water resources function and to support other functions as necessary;
- to apply a nationally consistent approach to abstraction licensing, including licence determination, charging, policing, enforcement and variation;
- to investigate problems caused by authorised over-abstraction from water resources and to implement a consistent approach to the alleviation of these problems;
- to apply statutory powers with the objective of protecting the quality of water resources;
- to develop and implement a groundwater protection policy.

## Performance 1990/91

The Authority successfully achieved the following targets in 1990/91.

### Policy:

- produced a draft strategy for the water resource function;
- completed an initial review of the status of the national hydrometric network;
- started to implement a plan of action to overcome the effects of over-abstraction in priority catchments;
- developed proposals for monitoring, modelling and evaluating possible solutions in connection with the control of rising groundwater;
- commenced development of a new national abstraction charging scheme;
- developed a policy framework for ensuring the consistent determination, variation, revocation and policing of abstraction licences;
- developed a draft national groundwater protection policy.

#### *Operations:*

- managed river augmentation schemes to support abstractions and protect the environment during the 1990 drought;
- completed investigations and identified options for solving 15 of the 20 highest priority sites perceived as having unacceptably low flows;
- carried out over 6,000 licence enforcement inspections – an increase of 35% over 1989/90;
- determined 1,900 applications to abstract – or impound – an increase of 82% over 1989/90.

### **Targets 1991/92**

#### *Resource Planning:*

- to set up water resources planning forums for each Region by July 1991;
- to complete a report on national strategic resource development options by September 1991 and subsequently make interim policy statements concerning the development of a national water resources development plan with a view to its publication by December 1992. This will build on the water resources function strategy, the review of strategic options and the local options available in the Regions and will recommend solutions;
- to refine NRA policy on leakage control and demand management by October 1991;
- to complete and publish the draft function strategy by December 1991.

#### *Low Flows:*

- to prepare a report on progress in alleviating low flows by November 1991.

#### *Operational Management:*

- to produce water situation drought reports at a frequency appropriate to the drought severity and respond to drought by liaison with abstractors, operation of NRA augmentation schemes and evaluation and implementation of measures to minimise impact on the environment and abstractors;
- to prepare a consultation note on the proposed national abstraction charges scheme for publication during 1991;
- to review the potential for additional operating agreements with water undertakers which would benefit the overall management of water resources by December 1991.

#### *Licensing and Enforcement:*

- to develop water resources charging policy;
- to develop a technical framework for abstraction and impounding licence determination by December 1991;
- to increase the number of licence enforcement checks from 6,000 to 15,500 per annum.

#### *Resource Protection:*

- to identify possible vulnerable zones in relation to the possible introduction of the EC Nitrate Directive and produce a report by November 1991;
- to publish and implement a groundwater protection policy framework and commence implementation by November 1991;
- to review and publish a report on the need for additional NSAs by March 1992.

#### *Hydrometrics:*

- to develop and implement a hydrometric data charging policy by September 1991;
- to review the management of the hydrometric network and report on the need for improvement of the network by March 1992.

### **Inputs**

#### *Finance*

A substantial increase in expenditure is proposed in 1991/92, especially in relation to water resource planning, hydrometrics, and regulatory activities. In subsequent years, overall expenditure remains effectively constant pending the completion of detailed investigative work to identify appropriate solutions and prioritise possible additional capital expenditure, particularly in respect of strategic development options and solutions to low-flow problems. Initial estimates put the cost of solving low-flows in the identified top 20 priority catchments at some £30m. The expenditure figures include work that the NRA is undertaking in preparation for the introduction of vulnerable zones which will be required as part of the implementation of the forthcoming EC Nitrate Directive.

### Staffing

Staffing increased 27% between 1989/90 and 1990/91. A further 19% increase is planned for 1991/92, thereafter it levels off. The ratio between non-manual and manual staff stays approximately constant over the Plan period.

The staff increases proposed in 1991/92 are to correct the understaffing that occurred during the formation of the NRA, to enable essential work in connection with water resources planning, low flows, increased regulatory activity, and the implementation and administration of resource protection policies.

Specific consideration has been given to the required number of abstraction licensing inspectors. Approximately 10% of the water resources manpower will be devoted to this activity to improve licence compliance and achieve effective enforcement.

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	83	60	74	76	78	80
EXPENDITURE (£m)							
Hydrometrics		19	14	16	17	18	18
Resource Planning		3	5	8	8	7	7
Licencing		3	5	7	6	7	7
Enforcement		2	3	4	4	4	4
Operational Management		12	17	17	18	19	20
Other		27	16	18	23	23	24
	<b>Total</b>	66	60	70	76	78	80
Comprising:							
Revenue		61	51	55	61	63	65
Capital		5	9	15	15	15	15
VARIANCE (£m)							
	<b>Surplus</b>	17	0	4	0	0	0
MANPOWER (FTE)							
Non-Manual		497	634	757	750	755	755
Manual		22	27	27	27	27	27
	<b>Total</b>	519	661	784	777	782	782
Included in the above are:							
Abstraction Licence Inspectors		19	40	63	58	59	60

### Output and Performance

#### Policies:

- water resources function strategy;
- creation of ten regional water resources planning forums;
- report on national strategic water resource development options;
- leakage control and demand management policy;
- water resources development strategy;
- new national abstraction charges strategy;
- new framework for licence determination;
- report on need for additional operating agreements with the water undertakers;
- progress report on alleviation low flows;
- report on vulnerable zones and need for additional NSAs;
- groundwater protection policy framework;
- report on improvements needed to the hydrometric network.

*Operations*

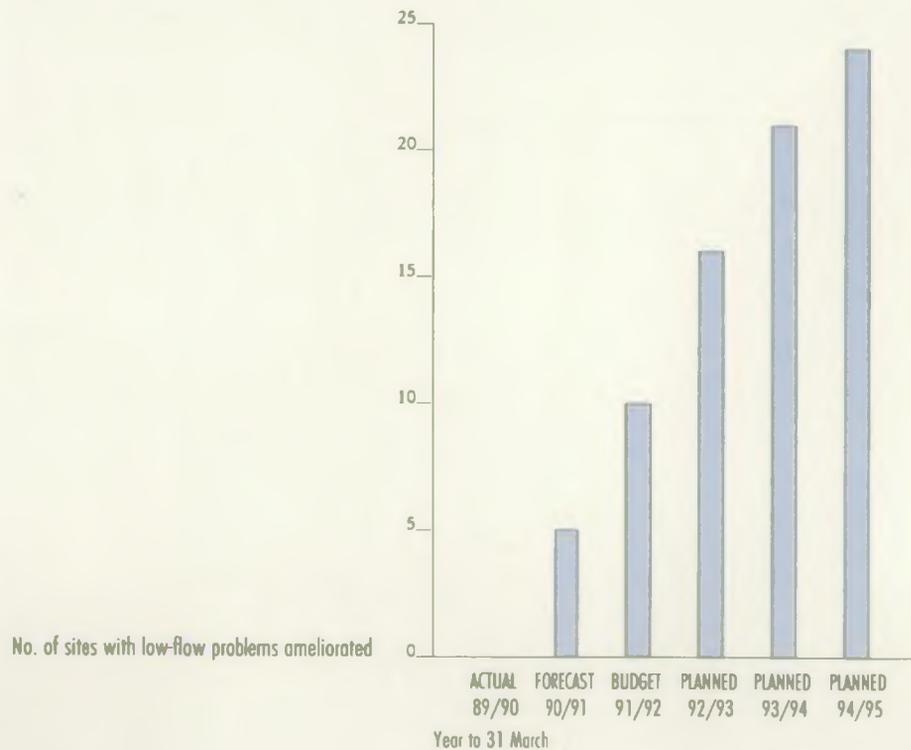
*Resource Planning*

The Authority will be seeking to progressively audit resources and demands within water supply zones throughout the NRA. A total of 92 zone audits are planned for 1991/92.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of supply zones where resource demands balance audited	18	74	92	67	70	71

*Low flows*

The Authority will be seeking to ameliorate the effects of low flows at an increasing number of sites over the Plan period up to a total of 24 in 1994/95.



	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of low-flow studies completed	0	23	25	30	30	30
No. of sites with low-flow ameliorated	0	5	10	16	21	24

*Low-flow Priority Locations and  
Extent of Gauged Catchments*

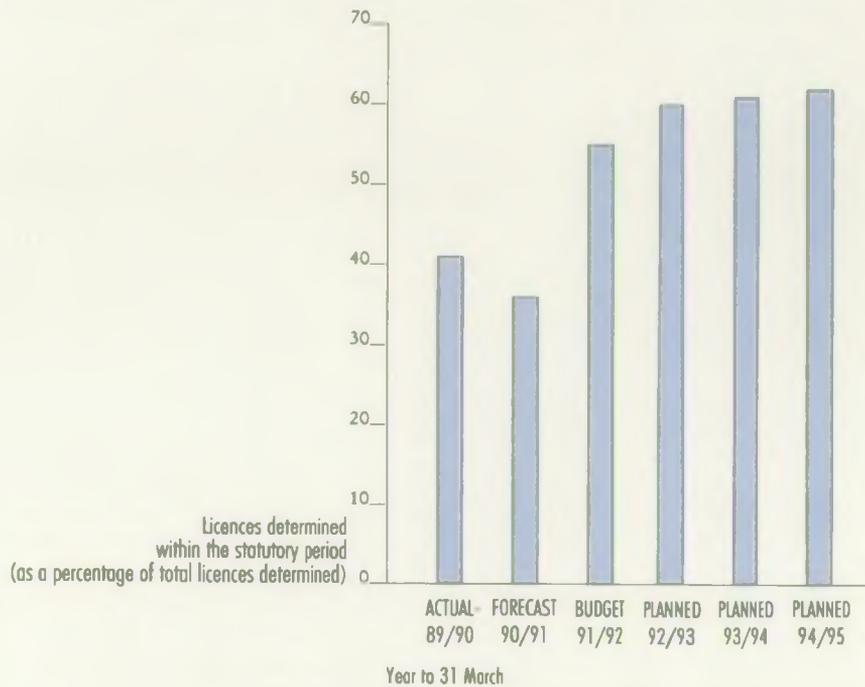
*Gauged catchments of  
England and Wales* ■

*Alleviation of low-flow  
top 20 priority locations* ●

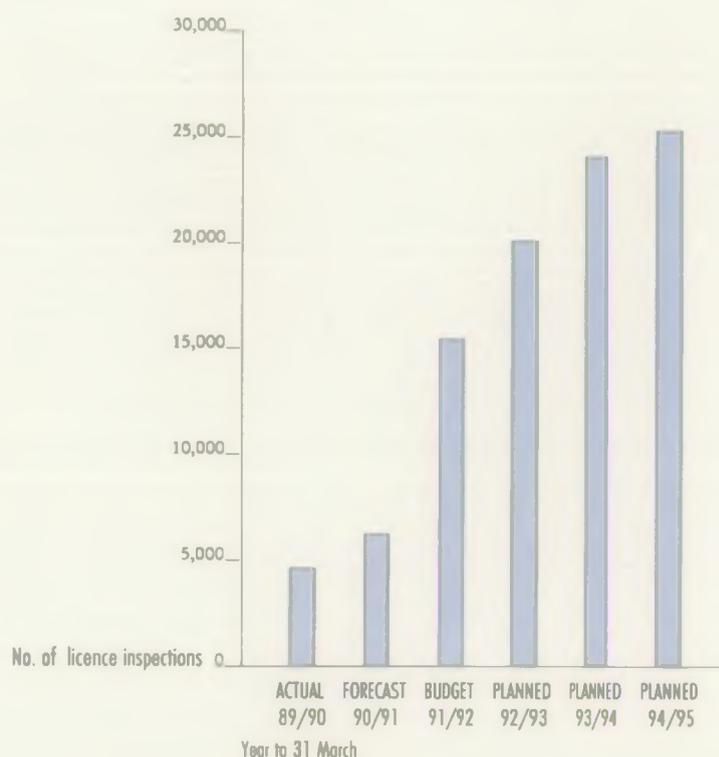


### Licensing

The Authority projects that the number of licences determined within the statutory period will increase as a result of additional manpower from 36% in 1990/91 to over 60% in 1992/93 and beyond.



	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF LICENCES IN FORCE</b>						
– abstractions	45,485	46,300	47,200	47,700	48,200	48,700
– impoundments	2,260	2,400	2,500	2,600	2,800	3,000
<b>Total</b>	<b>47,745</b>	<b>48,700</b>	<b>49,700</b>	<b>50,300</b>	<b>51,000</b>	<b>51,700</b>
<b>NO. OF NEW LICENCES DETERMINED WITHIN STATUTORY PERIOD</b>						
– abstractions	390	630	970	850	880	890
– impoundments	39	60	150	140	140	150
<b>Total</b>	<b>429</b>	<b>690</b>	<b>1,120</b>	<b>990</b>	<b>1,020</b>	<b>1,040</b>
<b>TOTAL LICENCES DETERMINED</b>						
– abstractions	932	1,760	1,790	1,450	1,460	1,470
– impoundments	109	140	230	200	200	200
<b>Total</b>	<b>1,041</b>	<b>1,900</b>	<b>2,020</b>	<b>1,650</b>	<b>1,660</b>	<b>1,670</b>
<b>PERCENT OF LICENCES DETERMINED WITHIN STATUTORY PERIOD COMPARED TO TOTAL</b>						
– abstractions (%)	42	36	54	59	60	61
– impoundments (%)	36	43	65	70	70	75
<b>Total (%)</b>	<b>41</b>	<b>36</b>	<b>55</b>	<b>60</b>	<b>61</b>	<b>62</b>



### Enforcement

The Authority projects that the number of abstraction licences inspected as a proportion of those required under its enforcement policy will increase as a result of additional staffing from 27% in 1990/91 to over 90% by 1994/95.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF HIGHLY CRITICAL' LICENCE INSPECTIONS</b>						
- required by NRA policy	1,268	2,300	3,091	3,100	3,100	3,100
- probable	240	800	2,500	3,000	3,100	3,100
- % of target	19	35	81	97	100	100
<b>NO. OF MORE CRITICAL' LICENCE INSPECTIONS</b>						
- required by NRA policy	6,725	10,800	12,300	12,400	12,500	12,700
- probable	2,463	3,000	7,700	9,800	12,200	12,500
- % of target	37	28	63	79	98	98
<b>NO. OF LESS CRITICAL' LICENCE INSPECTIONS</b>						
- required by NRA policy	4,190	5,000	5,500	5,700	5,900	6,000
- probable	1,120	1,400	3,300	4,400	5,500	5,800
- % of target	27	28	60	77	93	97
<b>NO. OF NON-CRITICAL' LICENCE INSPECTIONS</b>						
- required by NRA policy	4,050	4,900	5,100	5,200	5,200	5,200
- probable	770	1,000	2,000	2,800	3,300	3,900
- % of target	19	20	39	54	63	75
<b>NO. OF TOTAL INSPECTIONS</b>	<b>4,593</b>	<b>6,200</b>	<b>15,500</b>	<b>20,000</b>	<b>24,100</b>	<b>25,300</b>
- average attainment of target (%)	28	27	60	76	90	94

#### Notes:

1. Refer to Appendix 3 for an explanation of NRA inspection categories.

### *Hydrometrics*

The Authority proposes to operate around 10,600 hydrometric monitoring stations in 1991/92, with a slight increase projected to 1994/95. The Authority projects that the number of river flow measurements stations operating with an accuracy of  $\pm 10\%$  will be increased from 81% to 95% over the Plan period.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF MONITORING STATIONS OPERATED						
– rainfall	3,418	3,450	3,450	3,500	3,500	3,500
– river flow	1,053	1,100	1,100	1,100	1,100	1,100
– groundwater	5,981	6,000	6,100	6,100	6,100	6,100
<b>Total</b>	<b>10,452</b>	<b>10,550</b>	<b>10,650</b>	<b>10,700</b>	<b>10,700</b>	<b>10,700</b>
NO. OF MEASUREMENTS MADE WITH $\pm 10\%$ ACCURACY						
– river flow	875	890	940	990	1,020	1,050

## Introduction

In its initial year, the NRA set about reviewing its inherited facilities and practices, throughout the ten Regions, in order to develop common national working arrangements and to provide the means by which improvements to water quality, via the use of statutory Water Quality Objectives (WQOs), can be obtained. This involved:

- reviewing in excess of 5,000 discharge consents and increasing sampling and laboratory work;
- reviewing the means by which consents for discharge are set;
- harmonising existing consenting practices;
- developing a scheme for recovering the costs of discharge consenting and associated monitoring and compliance work;
- carrying out river quality surveys to assess their current status;
- reviewing catchment planning methods.

Attempts have also been made to bring a fresh approach to managing water quality by:

- modifying monitoring programmes and increasing enforcement of discharge consents;
- pursuing a higher rate of prosecution with regard to polluting events and improving the response in dealing with such events;
- improving the efficiency of detecting pollution, breaches of consent, and monitoring water quality by developing automatic pollution monitors;
- improving the aesthetic quality of rivers by carrying out site-specific litter campaigns;
- setting up an NSA pilot study.

Routine work relating to water quality has continued, which consists of consenting and monitoring discharges, environmental surveillance, responding to incidents, liaising with planning authorities and undertaking pollution prevention work. As a result of increased monitoring and enforcement activity, water utility plc compliance with discharge consent conditions has improved.

The NRA is also responsible for a large tranche of monitoring work related to various EC Directives and the regional programmes have been harmonised in various ways – as has monitoring in general – although more needs to be done.

A number of complications have also arisen, in particular the introduction of the Environmental Protection Act (EPA) which will result in the transfer of various consenting practices to Her Majesty's Inspectorate of Pollution (HMIP) in order to implement Integrated Pollution Control (IPC).

New draft Water Act regulations have been dealt with, particularly in relation to the important area of preventing the risk of pollution from certain farming practices.

An elevated awareness of the water environment has also generated added interest both within Government and amongst the general public. One such issue was the occurrence of toxic blue-green algae in certain waters, for which a national evaluation and strategy was formulated for the first time.

## Aims:

- to achieve a continuing improvement in the quality of rivers, estuaries and coastal waters through the control of water pollution;
- to ensure that dischargers pay the costs of the consequences of their discharges and, as far as possible, to recover the costs of water environment improvements from those who benefit.

## Objectives:

- to recommend and advise the Secretary of State on the setting of WQOs and standards;
- to ensure that monitoring of controlled waters is adequate to demonstrate that WQOs, once set, will be met;
- to introduce measures to ensure that the regulation of point-source discharges will lead to the achievement of WQOs;
- to utilise pollution prevention powers to the fullest extent to ensure WQOs are maintained;
- to develop pollution prevention activities carried out by others, by influencing bodies such as planning authorities to take account of pollution prevention needs;
- to improve pollution alleviation activities and emergency procedures;
- to improve methods for financing, and accounting for, pollution control activities;
- to improve the provision of information to the public and official bodies, to further the management of the water environment.

## Performance 1990/91

The Authority successfully achieved the following targets in 1990/91.

### *Policy:*

- prepared interim policy guidance documents for setting consents and for enforcement;
- issued a major review on consent and compliance policy for public consultation;
- developed a charging scheme for cost recovery for discharges; the first stage – an application charge – was initiated in October 1990; the second stage – the annual charge – is expected to commence in mid-1991;
- published a report on toxic blue-green algae;
- developed a litter policy and carried out site-specific clean-up campaigns;

### *Operations:*

- completed the field work for the 1990 River Quality Survey and submitted proposals for classifying waters to DoE;
- obtained and tested prototype automatic hand-held instruments for measuring water quality;
- made further progress in the development of a portable pollution monitor – Merlin;
- made returns to DoE on the Bathing Water, Titanium Dioxide and Dangerous Substances Directives;
- set up an NSA pilot study.

Less progress has been made on producing policies for pollution prevention; only the new farm waste regulations have so far been implemented. Discussions have been held with Government on other regulatory subjects. Pollution prevention policies are being developed in relation to contaminated land. Some progress has been made on developing policy for water protection zones, particularly for NSA pilot studies (a report on the need for additional NSAs will be published during 1991/92), and on consenting septic tank soakaways. Contributions have also been made to the Authority's catchment management plans group draft report.

## Targets 1991/92

### *Water Quality Objectives:*

- to produce a public consultation document on the introduction of WQOs from 1992 onwards by October 1991;
- to complete the River Quality Survey and publish the results to compare with the 1985 survey by October 1991;
- to complete the pollution control function strategy by December 1991.

### *Consenting and Compliance:*

- to produce guidance for NRA/HMIP liaison with respect to EPA responsibilities by June 1991;
- to produce the first part of a consent and compliance guidance manual for regional use by August 1991;
- to finalise and implement nationally-consistent controlled water monitoring programmes by August 1991;
- to develop a nationally-consistent Water Act register system in advance of the IS strategy by December 1991.

### *Monitoring:*

- to complete a national network of NRA laboratories and increase the use of automated instruments by September 1991;
- to maintain an EC Directive monitoring programme, and work required for other international agreements, reporting to DoE and publicly (as required).

### *Pollution Reduction:*

- to consider the case for further measures to control diffuse pollution via statutory regulations and use of powers under the Water Act and, as required, to press for their introduction;
- to further the development of long-term catchment planning and capacity, within a framework of economic accountability, by December 1991.

## Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	-	-	25	37	42	44
EXPENDITURE (£m)							
Incidents/emergencies		6	7	9	10	11	11
Consenting and compliance monitoring		23	25	27	36	38	39
EC Directives		6	7	9	10	11	12
Pollution prevention		5	5	7	7	8	6
Other work		8	7	9	9	10	13
	<b>Total</b>	<b>48</b>	<b>51</b>	<b>61</b>	<b>72</b>	<b>78</b>	<b>81</b>
Comprising:							
Revenue		43	42	53	64	70	73
Capital		5	9	8	8	8	8
VARIANCE (£m)	<b>GIA</b>	<b>48</b>	<b>51</b>	<b>36</b>	<b>35</b>	<b>36</b>	<b>37</b>
MANPOWER (FTE)							
Non-Manual		1,017	1,353	1,422	1,583	1,601	1,597
Manual		17	22	22	22	22	22
	<b>Total</b>	<b>1,034</b>	<b>1,375</b>	<b>1,444</b>	<b>1,605</b>	<b>1,623</b>	<b>1,619</b>
Included in the above are:							
Laboratory Staff		266	383	476	467	471	473
Pollution Control Inspectors		384	478	577	557	567	565

### Finance

A dramatic increase in income is predicted in 1991/92 as a result of introducing a cost-recovery scheme for discharge consenting, namely the charging for discharges scheme. This will considerably reduce the Authority's deficit in relation to its expenditure on pollution control. Further, but smaller increases in income are predicted for future years. The charging scheme will be reviewed in 1994.

The Authority intends to increase expenditure by some 20% in 1991/92 in order to bring all of the NRA Regions up to a common operating capability. This increase allows for additional staff and substantial initial capital investment in equipment, including new and improved laboratory facilities and surveillance capability – including marine craft.

It will also enable the Authority to increase its capability to detect illegal discharges by the use of automated detection equipment deployed in key areas, and to increase the rate of response to incidents and emergencies. More effort will also be put into pollution prevention measures, including the implementation of new regulations.

### Staffing

Staffing levels increase in 1991/92 by 5%. The increase is primarily accounted for by additional laboratory staff and pollution inspectors. Other staff increases are in connection with the implementation of the statutory WQOs, which are expected to be introduced from 1992 onwards. This will also require a substantial review of existing discharge consents.

## Output and Performance

### Policies:

- guidance on implementing statutory WQOs;
- consent and compliance guidance manual;
- monitoring programme for controlled waters;
- methodology for improving the Water Act register;
- guidance on NRA/HMIP liaison on consents.

## Operations

### WQOs and Monitoring

A cornerstone of the Water Act and its approach to water quality is that of setting statutory WQOs. Proposals for using WQOs will be published in 1991, with a view to introducing them for rivers from late 1992 onwards. Eventually, it is intended that all forms of controlled waters will be the subject of classification schemes plus use-related WQOs.

As a first step, the assessment of current river water quality needs to be completed. This should result in a new scheme for classifying rivers in such a way that biological aspects, as well as the traditional physical and chemical ones, will be used. In the interim, the NRA will work to existing objectives and standards in order to maintain, and where necessary improve, water quality.

The means by which the WQOs could be introduced throughout the country will be subject to public consultation, with a view to introducing them from 1992 onwards. In order to achieve them, it will be necessary to advise on what the objectives should be and how they could be realised. This will also involve a new means of setting consents, monitoring discharges and the environment and taking steps to reduce diffuse sources of pollution.

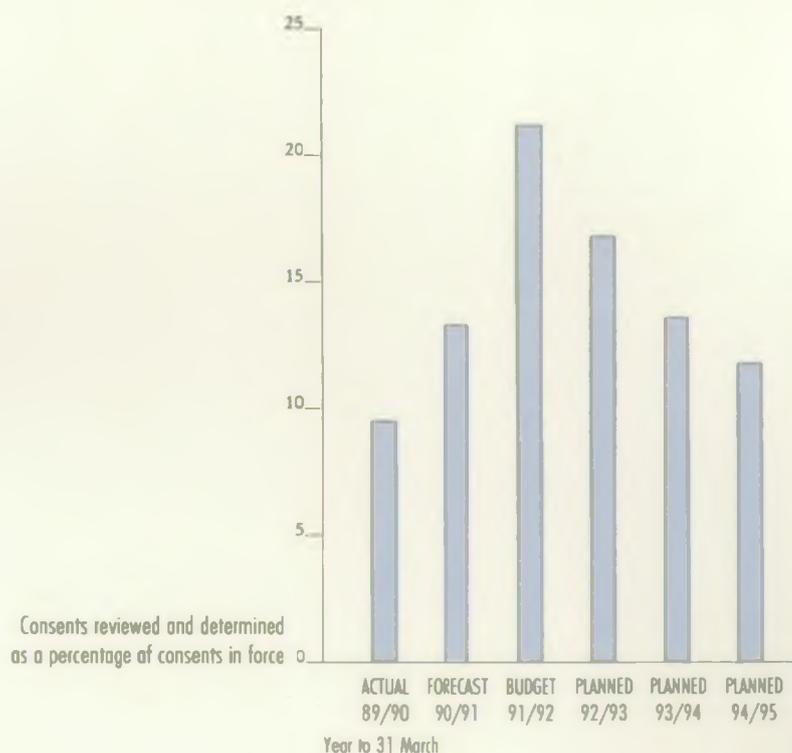
The programme will include:

- developing WQOs;
- applying the results of the 1990 review of consent and compliance practices;
- increasing monitoring capabilities;
- reviewing the inherited tranche of consents.

This will not be an easy task, because the implementation of IPC will take up much staff time in liaising with, and transferring relevant data to, HMIP. An important new EC Directive on Urban Waste Water will also require considerable effort.

### Consents

The NRA inherited a large number of consents which were "deemed" under previous legislation and now require to be positively determined. This is reflected in the peak of effort indicated in the figure below. The increased inspection and monitoring effort is also expected to result in a considerable increase in dischargers complying with their consents; this will be accompanied by a strong enforcement policy.



### Discharge Consenting

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF CONSENTS DETERMINED</b>						
- STWs: WSPLCs	2,084	2,500	2,500	2,500	2,500	2,500
: private	2,442	1,800	1,800	1,700	1,700	1,700
- trade	336	340	450	380	340	340
- agricultural	36	180	120	110	110	110
- others	5,499	2,700	3,900	3,700	3,500	3,500
<b>Total</b>	<b>10,397</b>	<b>7,520</b>	<b>8,770</b>	<b>8,390</b>	<b>8,150</b>	<b>8,150</b>
<b>NO. OF CONSENTS REVIEWED</b>						
- STWs: WSPLCs	802	505	1,490	1,170	820	770
: private	54	2,070	450	180	440	310
- trade	90	200	1,300	400	2,200	2,100
- agricultural	50	2,010	820	210	230	120
- others	35	380	4,680	2,320	520	410
<b>Total</b>	<b>1,031</b>	<b>5,170</b>	<b>8,780</b>	<b>4,280</b>	<b>4,210</b>	<b>3,710</b>
<b>NO. OF DEEMED CONSENTS DETERMINED</b>						
- STWs: WSPLCs	6	150	920	350	160	150
: private	0	400	2,300	1,600	800	100
- trade	10	10	240	100	30	10
- agricultural	0	400	1,500	2,500	1,600	1,000
- others	11	500	2,800	3,200	2,000	1,200
<b>Total</b>	<b>27</b>	<b>1,460</b>	<b>7,760</b>	<b>7,750</b>	<b>4,590</b>	<b>2,460</b>
<b>NO. OF CONSENTS IN FORCE</b>						
- STWs: WSPLCs	8,551	6,700	9,000	8,900	9,000	7,000
: private	17,059	17,400	20,100	21,400	23,000	24,000
- trade	10,239	6,100	10,100	10,100	10,000	7,000
- agricultural	7,173	5,000	4,900	5,000	5,000	7,000
- others	78,123	70,900	75,100	76,100	78,000	76,000
<b>Total</b>	<b>121,145</b>	<b>106,100</b>	<b>119,200</b>	<b>121,500</b>	<b>125,000</b>	<b>121,000</b>
<b>NO. OF DISCHARGES MONITORED</b>						
- STWs: WSPLCs	5,000	5,100	5,700	5,500	5,600	5,600
: private	1,700	2,000	2,800	3,000	3,200	3,300
- trade	3,500	3,500	4,500	4,700	4,700	4,800
- agricultural	281	290	340	390	420	440
- others	1,000	900	1,400	1,500	1,700	1,800
<b>Total</b>	<b>11,481</b>	<b>11,790</b>	<b>14,740</b>	<b>15,090</b>	<b>15,620</b>	<b>15,940</b>

### Enforcement

Effective management of water quality also requires a strong stand on enforcement and the need for more extensive environmental data. More pollution inspectors will be employed, although it is anticipated that the use of hand-held and other portable pollution monitors will also improve their efficiency and effectiveness.

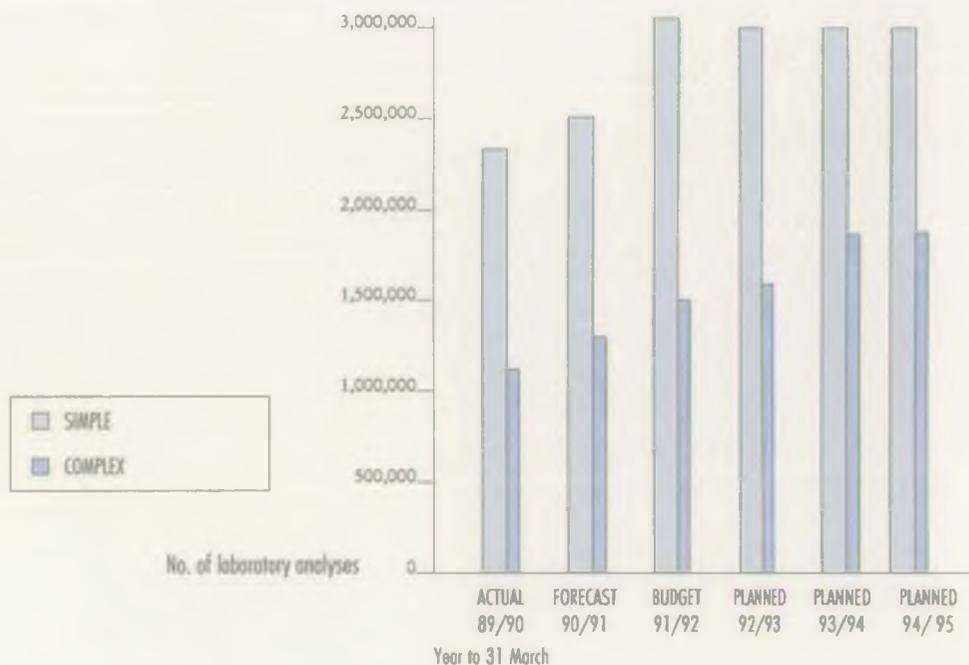
### Laboratories

The NRA still has to complete the building of some of its laboratories, with a major facility in Exeter being commissioned to serve the South West and Wessex Regions, and another in Hampshire to serve the Southern Region. Some of the existing laboratories in other Regions also need to be maintained at a high level of competence by upgrading existing facilities and equipment. Work is well in hand to integrate fully all facilities into a national network.

Effective laboratory support is, however, not just a question of analysing more samples; the ever-increasing complexity of the chemicals in our environment means that the ratio of "simple" to "complex" analyses required is expected to change with more "complex" analyses being undertaken as part of new monitoring and sampling programmes. For example, pesticides and herbicides are now of particular interest, especially with regard to waters taken for public supply, as are levels of "Red List" substances, whose input into our coastal waters from inland sources will be carefully evaluated.

### Sampling and Analysis

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF SAMPLING POINTS</b>						
- ground waters	1,337	1,700	3,700	3,400	3,300	3,300
- rivers	13,027	14,100	16,800	16,700	16,100	16,100
- effluents	11,237	12,000	13,200	13,700	13,500	13,600
- enclosed waters	793	1,000	1,900	1,800	1,800	1,800
- estuaries	961	1,300	2,000	1,800	1,800	1,800
- bathing waters	597	600	670	650	650	650
- coastal waters	105	180	500	540	530	530
- others	552	600	1,400	1,200	1,100	1,100
<b>Total</b>	<b>28,609</b>	<b>31,480</b>	<b>41,170</b>	<b>39,790</b>	<b>38,780</b>	<b>38,880</b>
<b>NO. OF ROUTINE SINGLE SAMPLES</b>						
- ground waters	3,797	4,300	12,900	13,100	12,900	12,900
- rivers	118,589	141,000	173,000	172,000	164,000	164,000
- effluents	116,318	132,000	148,000	153,000	148,000	148,000
- enclosed waters	4,182	8,600	23,000	10,700	11,000	11,000
- estuaries	12,383	19,000	13,400	32,000	32,000	32,000
- bathing waters	10,761	13,100	3,000	13,400	13,400	13,400
- coastal waters	872	1,700	22,800	3,500	3,500	3,500
- others	4,848	11,400	15,400	24,000	26,000	27,000
<b>Total</b>	<b>271,750</b>	<b>331,100</b>	<b>411,500</b>	<b>421,700</b>	<b>410,800</b>	<b>411,800</b>
<b>NO. OF ANALYSES (MILLIONS)</b>						
- simple	2.33	2.5	3.1	3.0	3.0	3.0
- complex	1.12	1.3	1.5	1.6	1.8	1.8
<b>Total</b>	<b>3.45</b>	<b>3.8</b>	<b>4.6</b>	<b>4.6</b>	<b>4.8</b>	<b>4.8</b>
<b>NO. OF NEW WATER ACT REGISTER ENTRIES</b>						
- consents	23,744	22,000	26,000	26,000	28,000	29,000
- samples	291,858	342,000	429,000	391,000	379,000	381,000



#### River Water Quality

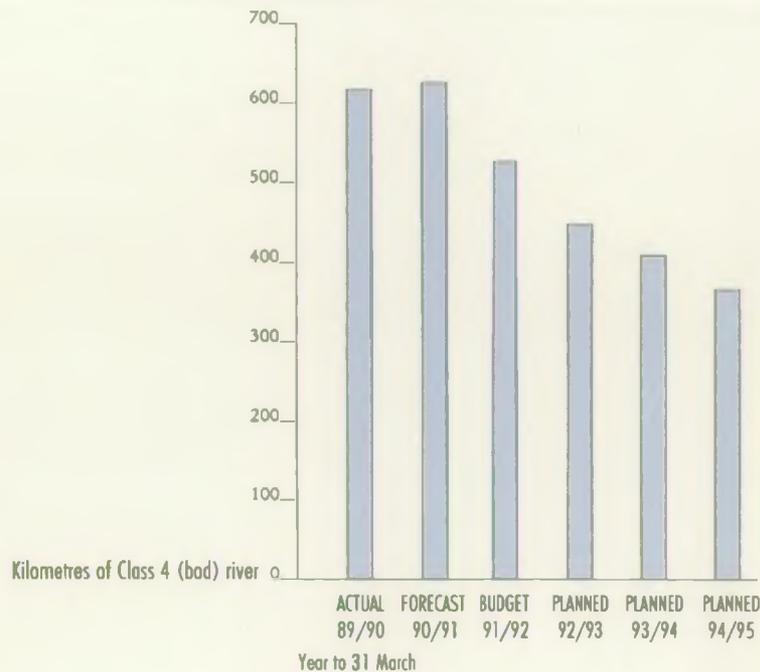
River quality has been traditionally assessed using a Classification Scheme based primarily on physical and chemical characteristics. Following the 1990/91 River Quality Survey, it is intended to use a different scheme which will incorporate biological criteria; the projections given in the table below, however, are based on the existing scheme.

The NRA aims to improve Class 4 rivers, substantially reduce Class 3 rivers, increase Class 2 rivers and maintain Class 1 rivers. The highest Class rivers are, however, considerably affected by variable weather conditions and by chronic inputs of diffuse pollution, resulting in fluctuations between Class 1A and 1B which are difficult to predict.

There are, in addition, other criteria which the NRA would wish to use in planning river quality criteria, such as the need to reduce the total "loads" of materials discharged into them, a reduction in pollution incidents and increased compliance with consents. The extent to which such action will result in better water quality in the short-term is however difficult to judge, although there are indications that discharge compliance is improving in response to the Authority's tripartite sampling programme. The NRA is therefore committed to eliminating the lowest Class of rivers and improving others where necessary.

To some extent, the rate at which this can be achieved is dependent upon the large capital expenditure programme to which the water utility plcs are committed, although other sources of pollution – such as contaminated land and old mine workings – are also important areas which need to be tackled. The capital programme of the water utility plcs is particularly directed at improving bathing water quality, an objective high on the list of NRA priorities.

	ACTUAL 89/90	FORECAST 90/91	EXPECTED 91/92	EXPECTED 92/93	EXPECTED 93/94	EXPECTED 94/95	LONG-TERM TARGET
LENGTH OF RIVER (km) IN CLASS							
- 1A Good	12,881	13,260	12,900	12,900	12,900	12,800	15,300
- 1B Good	13,556	14,260	14,500	14,600	14,600	14,600	18,400
- 2 Fair	9,863	9,950	10,600	11,100	11,100	11,400	11,100
- 3 Poor	3,612	3,700	3,400	3,100	3,100	2,900	800
- 4 Bad	617	630	530	450	410	370	0
<b>Total Length Classified</b>	<b>40,529</b>	<b>41,800</b>	<b>41,930</b>	<b>42,050</b>	<b>42,110</b>	<b>42,070</b>	<b>45,500</b>

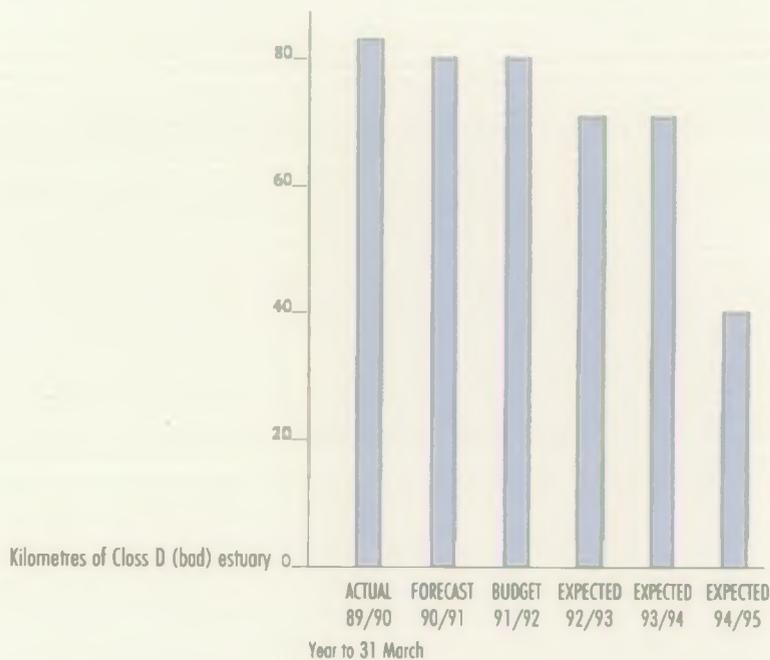


#### *Diffuse Pollution*

Increased effort on consenting, enforcement and monitoring would be counter-productive if attention was not also paid to accidental, unforeseen and diffuse sources of pollution. Accordingly, the NRA's ability to respond to emergencies will be strengthened – for such events can rapidly destroy years of work to improve quality – and offenders dealt with. Reducing the risk of such incidents happening at all, however, is the most profitable course, and thus more staff will be employed in pollution prevention work – such as advising farmers via targeted farm campaigns, which have already proved successful, and in overseeing the introduction of much-needed farm waste regulations.

Similar regulations are now required to deal with other potential sources of pollution stored and used near water. Pollution causes can also be minimised by careful planning and, with this in mind, liaison with local authorities will be strengthened. In relation to contaminated land, the Government has urged that the possibilities for using Derelict Land Grant recovery of cost from those responsible as well as local authority action be fully explored before generating proposals for direct NRA action using GIA. The NRA's original estimates of its expenditure in this area in its first *Corporate Plan* are therefore no longer valid. Work is in hand to produce revised cost estimates associated with investigative and monitoring work.

### Estuarial and Marine Work

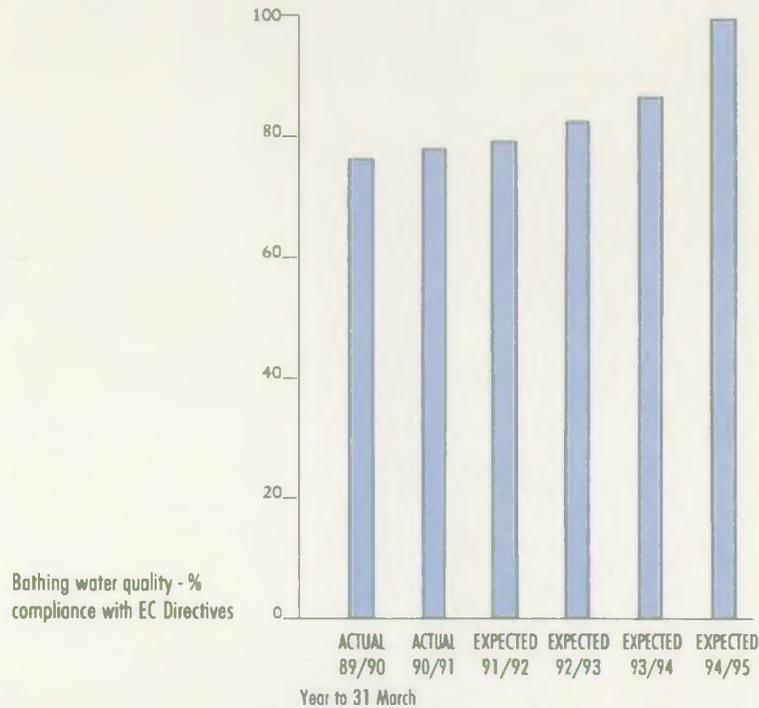


	ACTUAL 89/90	FORECAST 90/91	EXPECTED 91/92	EXPECTED 92/93	EXPECTED 93/94	EXPECTED 94/95	LONG-TERM TARGET
LENGTH OF ESTUARY (km) IN CLASS							
A Good	1,710	1,660	1,680	1,690	1,730	1,740	1,690
B Fair	655	650	640	640	640	640	740
C Poor	168	160	160	160	110	140	10
D Bad	83	80	80	70	70	40	0
<b>Total</b>	<b>2,616</b>	<b>2,550</b>	<b>2,560</b>	<b>2,560</b>	<b>2,550</b>	<b>2,560</b>	<b>2,440</b>

Monitoring programmes will be extended to cover areas previously neglected. These include groundwaters and the large expanse of offshore waters (out to a distance of three miles from the coast) for which the NRA has responsibility. For the latter, three new marine vessels are being commissioned to cover the eastern and north-west coast, augmenting the highly successful NRA vessel *Vigilance* now operating from the NRA's Wessex Region in the south-west of England. The operation of such vessels, together with the necessary laboratory analyses of biological and chemical samples, will greatly increase the NRA's ability to evaluate the quality of such waters and guide future work to improve them where necessary.

### EC Directives

Compliance with the Bathing Waters Directive has shown an improvement during the last two years, but this is considered to have been partly the result of the fine summer weather which increased bacterial mortality in the receiving waters and decreased the quantity of sewage material discharged via storm sewage overflows. Guaranteed improvements can thus only be projected on the basis of the effect of the water utility plc capital improvements programmes now underway. The 1994/95 figures reflect the position during the 1994 bathing season (ie. May to September 1994). Final improvements will be reflected in the 1995/96 figures when completion of capital works is expected to result in compliance approaching 100%. Compliance with the other EC Directives is currently at a high level and is expected to remain so.



	ACTUAL 89/90	ACTUAL 90/91	EXPECTED 91/92	EXPECTED 92/93	EXPECTED 93/94	EXPECTED 94/95
<b>BATHING WATER</b>						
No. of identified EC bathing waters	401	407	414	414	414	414
No. of waters achieving coliform standard	304	318	326	345	359	410
- compliance (%)	76	78	79	83	87	99
<b>SHELLFISH WATER</b>						
No. of designated shellfish waters	18	18	18	18	18	18
No. of waters achieving directive standard	17	17	18	18	18	18
- compliance (%)	94	94	100	100	100	100
<b>FRESHWATER FISHERIES</b>						
- Length of Classified Fishery (km)						
- salmonid	12,910	12,910	12,910	13,000	13,000	13,000
- non-salmonid	6,407	6,410	6,410	6,500	6,600	6,600
<b>Total</b>	<b>19,318</b>	<b>19,320</b>	<b>19,320</b>	<b>19,500</b>	<b>19,600</b>	<b>19,600</b>
Length of Classified Fishery Achieving Directive (km)						
- salmonid	12,232	12,350	12,400	12,500	12,500	12,500
- non-salmonid	5,619	5,690	5,800	5,900	5,900	6,000
<b>Total</b>	<b>17,913</b>	<b>18,040</b>	<b>18,200</b>	<b>18,400</b>	<b>18,400</b>	<b>18,500</b>
<b>COMPLIANCE OF CLASSIFIED FISHERY (%)</b>						
- salmonid	95	96	100	100	100	100
- non-salmonid	88	89	100	100	100	100

## Introduction

In addition to exceptionally dry weather, it is somewhat ironic that in recent years nature has also produced extremes of wet weather and tidal storm surges resulting in major floods. Such events emphasise the importance of, and need for, flood defence work to protect people and property from flooding.

Good progress has been made on the survey of all sea defences in England and Wales, and work is now being extended to include all tidal defences. Initial results from the survey on the state of the NRA's and others' defences are already being used by the RFDCs to advise on the need for, and design of, new works.

The NRA has also discussed its approach with MAFF for allowing for sea level rise which is based on IPCC forecasts. This will ensure the most appropriate schemes are taken forward, and with a consistent approach to standards of service.

In relation to the Authority's capital expenditure, the Grant Earning Ceiling (GEC) from MAFF is forecast to increase in future years. However with grant rates unchanged, in order to carry out an increasing programme of maintenance and improvement of defences, the Authority will need the continued support of local authorities in terms of their levy contributions (for which they are reimbursed through the Revenue Support Grant).

With respect to flood emergencies, the Authority is keeping under review possible changes in the working arrangements between local authorities (who act as agents to the water utility plcs in relation to work in sewerage systems) which may well result in a less readily available workforce to augment the NRA's own flood defence workforce during emergencies.

The NRA is also involved in the National Audit Office (NAO) study of sea defences which will focus attention on many key issues within the flood defence function during 1991/92.

## Aims:

- to provide effective defence for people and property against flooding from rivers and the sea;
- to provide adequate arrangements for flood forecasting, warning and for responding to flood events.

## Objectives:

- to produce and implement a strategy for flood defence through the development of a systematic approach for assessing capital and maintenance requirements and develop medium and long-term plans for those defences owned and maintained by the NRA;
- to encourage development of information technology and extension of facilities which will further advance the development of strategies and procedures for warning of, and responding to, emergencies;
- to support research and development which will assist in identifying future flood defence needs;
- to review best practices for operating methodology, increasing efficiency and enhancing value for money;
- to heighten general awareness of the need for development controls in flood plains and contribute to the development of catchment management plans,
- to identify opportunities for the enhancement of environmental, recreational and amenity facilities when undertaking flood defence works.

## Performance 1990/91

The Authority has successfully achieved the following targets in 1990/91.

### Policy:

- produced a draft flood defence strategy;
- completed initial research for determining the urgency and priority of capital works;
- introduced a national three-colour flood warning system and updated regional emergency procedures;
- completed fieldwork and data analysis of Phase I of its National Sea Defence Survey which was designed to determine the status of the Authority's sea defences, and commenced fieldwork on Phases II and III of the survey;
- formulated a policy in respect of the construction of tidal and sea defences in relation to rising sea-levels;
- completed and supplied MAFF with updated Medium-Term Plans (MTPs) for flood defence in each NRA Region;
- commenced the identification of land-use bands in each Region for use in determining standards of service;
- introduced a charging policy for S28 and S29 consents under the 1976 Land Drainage Act.

### *Operations:*

Compared to 1989/90 the Authority :

- issued more land drainage consents, increased flood defence byelaw enforcement and commented on more planning applications;
- maintained a greater length of defences and carried out more flood defence capital works improving alleviation of flooding affecting people and property.

### *Targets 1991/92*

#### *Policy:*

- to develop policies in response to the outcome of Phases II and III of the Sea Defence Survey by December 1991;
- to review the effectiveness of the national flood warning colour code scheme by October 1991;
- to review and standardise the basis of cross-function charging between fisheries, conservation, navigation and recreation and flood defence within Regions;
- to complete and publish the flood defence function strategy by December 1991 and begin its implementation by April 1992.

#### *Operations:*

- to revise and prepare new annual MTPs by January 1992, and develop ten year "needs" plans for all Regions by March 1992;
- to ensure all sea defences with residual life of less than five years are included in MTPs or maintenance programmes, wherever economically justified, by March 1992;
- to ensure Phases I-III of the Sea Defence Survey are completed and reported upon by October 1991 and commence Phase IV on tidal banks;
- to monitor predictions of sea-level due to climate change and the performance of new surge and wave forecasting models to enhance flood forecasting capabilities by March 1992;
- to develop standards of service with a view to their introduction and identification of associated land-use bands in all Regions by March 1992.

## Inputs

### Finance

Flood defence income from levies and other sources is projected to rise in 1991/92 and future Plan years to fund an expanding programme of works.

Total expenditure is projected to rise in 1991/92 and later years. The main areas of expenditure increase are for maintenance and improvement of defences. Expenditure on regulation, enforcement and flood emergency services increases only slightly.

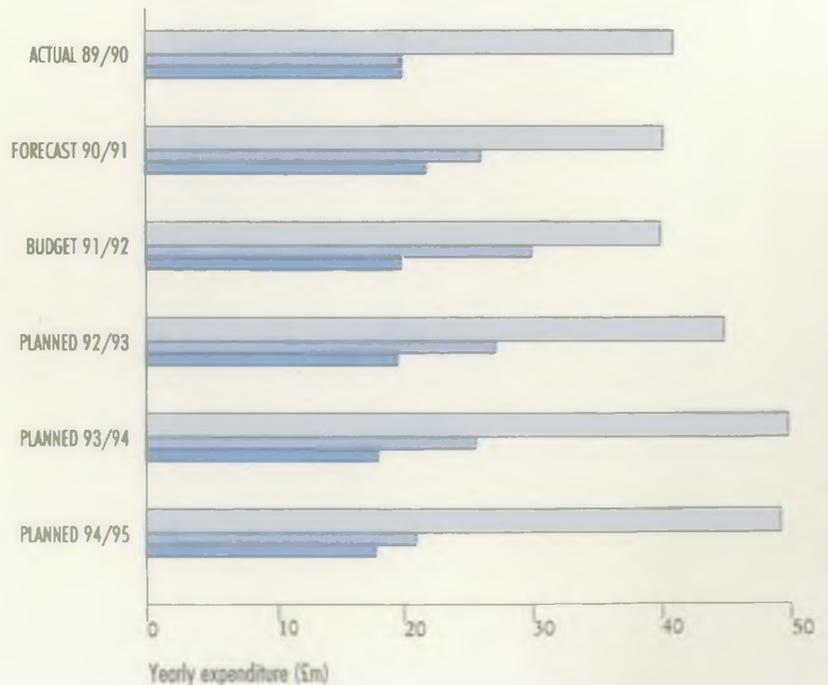
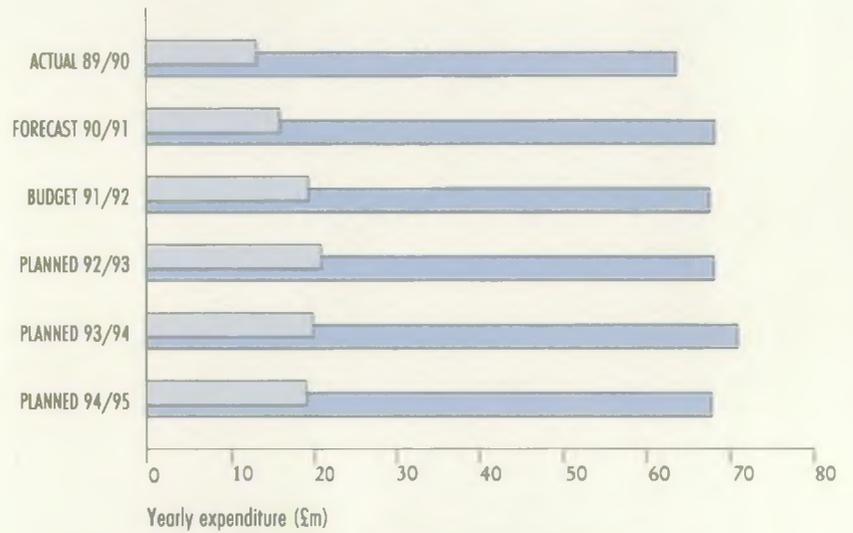
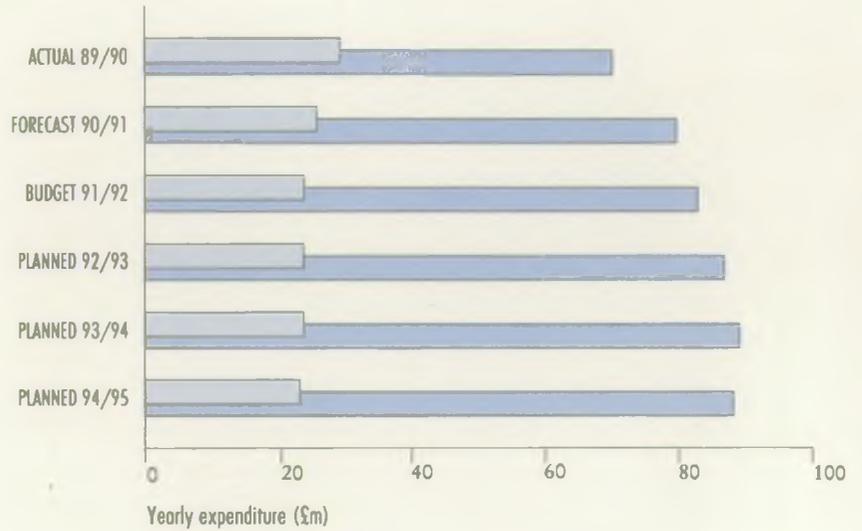
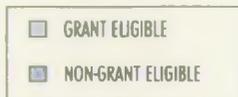
Details of the capital expenditure programme developed from the aggregation of MTPs from all ten NRA Regions, which have been submitted to MAFF for capital grants, are set out in the figures on the following pages. Schemes may fall into more than one primary or composite classification, so it is invalid to add up the columns across these histograms.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>INCOME (£m)</b>						
Levies	158	159	182	201	217	230
GDC	2	2	3	3	3	3
Other	28	32	38	41	40	40
<b>Total</b>	<b>188</b>	<b>193</b>	<b>223</b>	<b>245</b>	<b>260</b>	<b>273</b>
<b>EXPENDITURE (£m)</b>						
Regulation/enforcement	4	5	6	7	8	8
Maintenance of existing defences (revenue works)	67	75	90	98	105	111
Improvement and development of defences	82	94	118	126	132	136
Flood emergency services	6	7	8	8	9	10
Other	9	9	11	12	12	13
<b>Total</b>	<b>168</b>	<b>190</b>	<b>233</b>	<b>251</b>	<b>266</b>	<b>278</b>
<b>Comprising:</b>						
Revenue	90	98	118	129	136	143
Capital	78	92	114	122	130	135
<b>VARIANCE (£m)</b>						
<b>Surplus/(Deficit)</b>	<b>20</b>	<b>3</b>	<b>(10)</b>	<b>(6)</b>	<b>(6)</b>	<b>(5)</b>
<b>MANPOWER (FTE)</b>						
Non-Manual	1,230	1,337	1,444	1,453	1,478	1,490
Manual	2,228	2,222	2,216	2,226	2,220	2,215
<b>Total</b>	<b>3,458</b>	<b>3,559</b>	<b>3,660</b>	<b>3,679</b>	<b>3,698</b>	<b>3,705</b>
<b>Included in the above are:</b>						
Design Services	201	222	250	253	257	257
Plant/Vehicle Services	109	111	113	113	113	113
Planning Liaison	127	137	145	147	147	147
Emergency Planning	20	24	25	25	25	25
Comms/Control Rooms	30	41	46	46	52	52

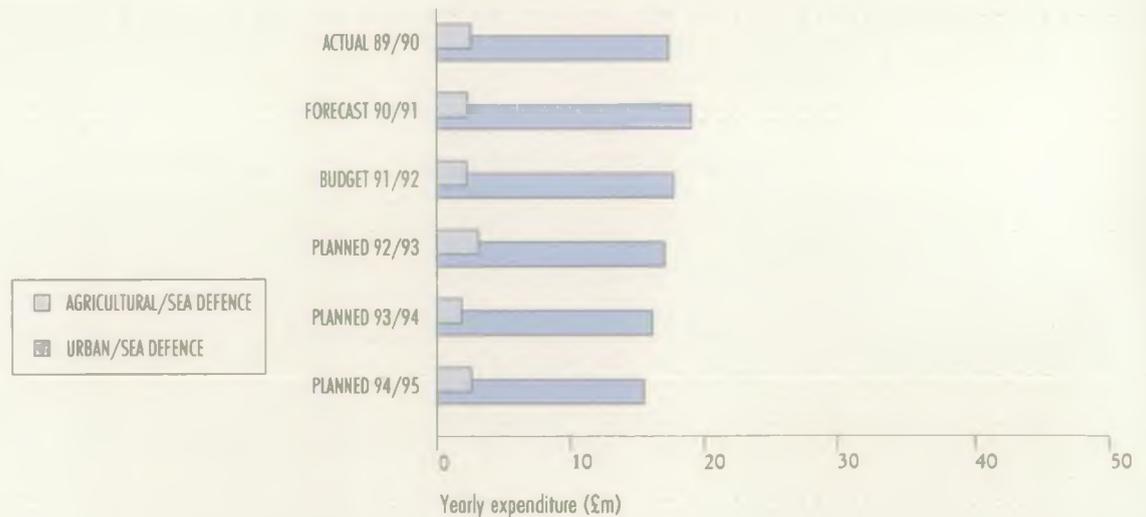
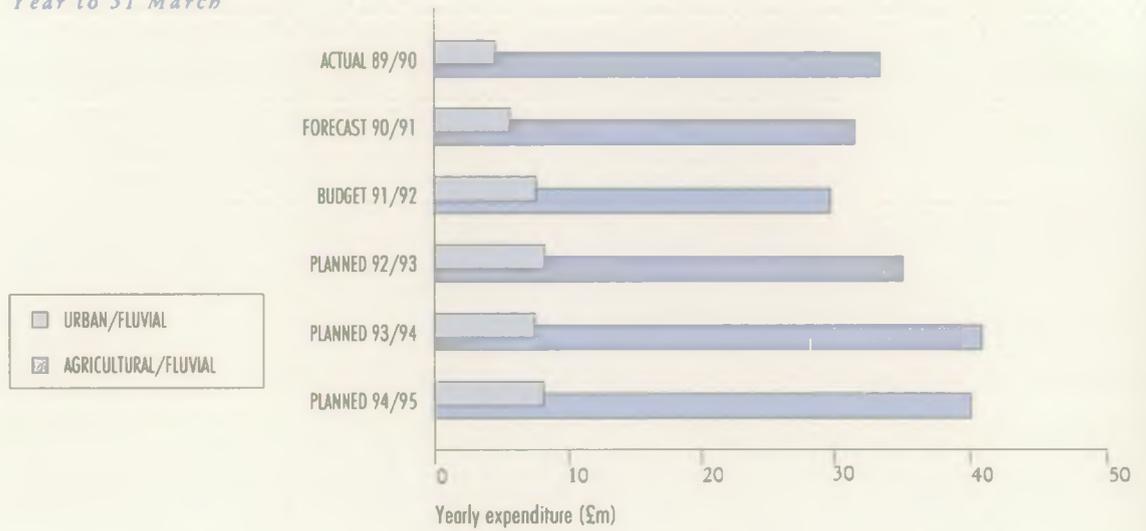
The capital programme takes account of Government policy for flood defence and concentrates on works to protect urban areas from flooding, especially tidal flooding. It also adheres to the priority ranking system set by MAFF and reflects damage to defences which occurred during the winter storms in 1989 and 1990, and the need to replace defences reaching the end of their effective life. Sea defences requiring urgent attention, including those identified during the course of Phase I of the Sea Defence Survey and the major Sea Defence Management Study undertaken in Anglian Region, have also influenced the programme.

MAFF is making increases in the GEC available for the NRA, in 1992/93 and in 1993/94, enhancing when applicable the basic rate of grant. The supplement for the sea and tidal defences remains unchanged at 20%. In 1992/93 Anglian Region is proposing to spend over 70% of its GEC in undertaking sea and tidal works, with nearly 50% of this sum being spent in Lincolnshire. Many other Regions have planned to spend anywhere between 40% to 60% and above of their budgets on sea and tidal defences to protect urban areas.

*Flood Defence Capital Programme  
Primary Classification  
Year to 31 March*

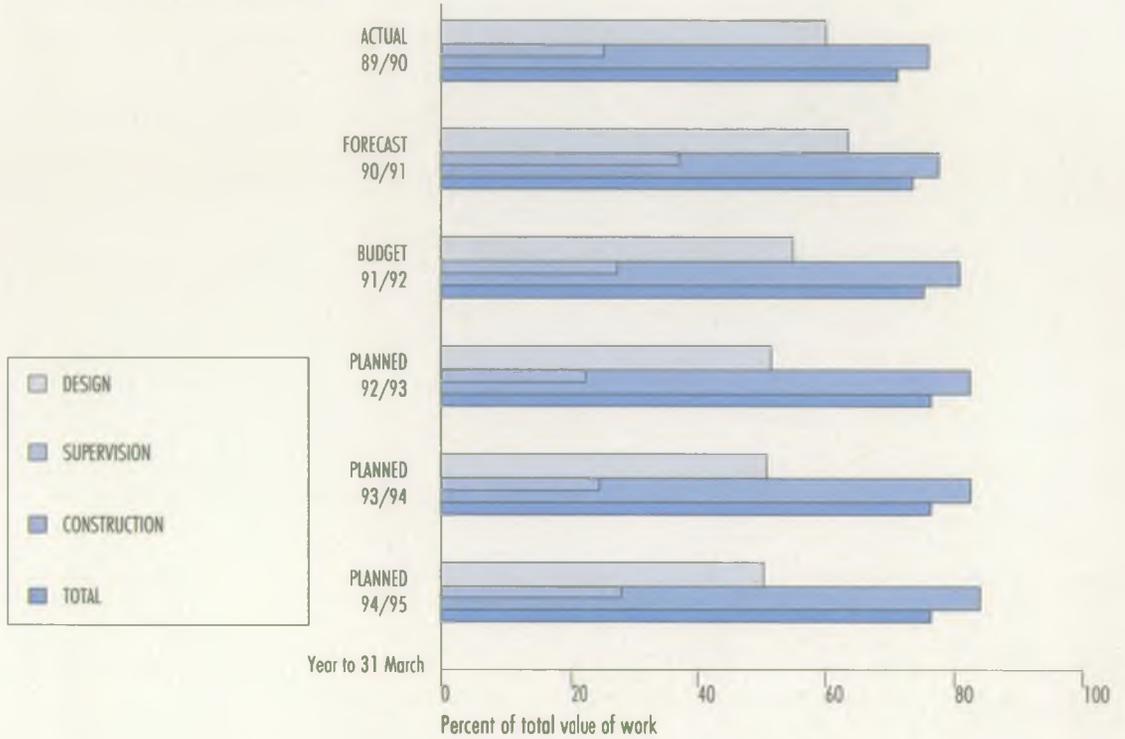


*Flood Defence Capital Programme  
Composite Classification  
Year to 31 March*

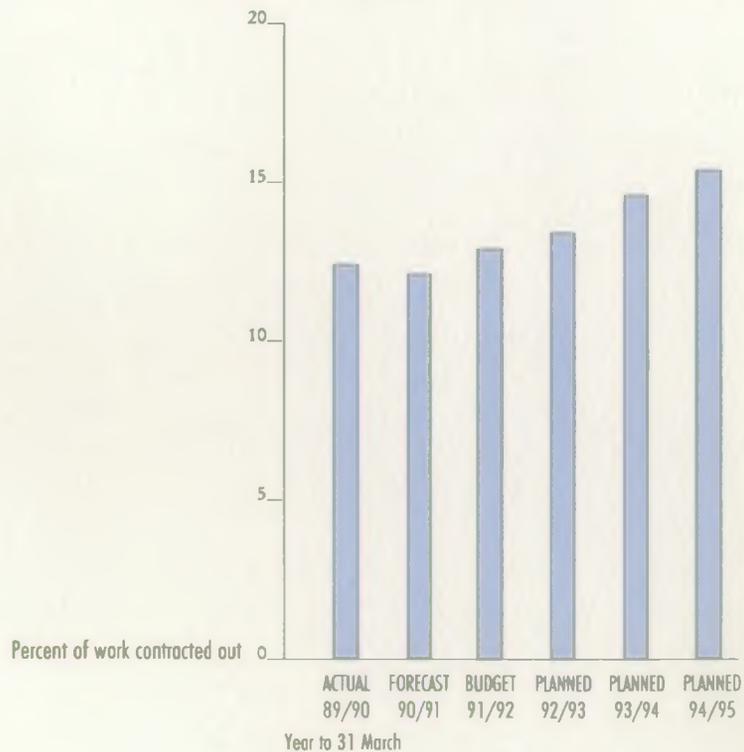


*Work Contracted Out*

*Improvement (Capital)*



*Maintenance (Revenue)*



### Staffing

A small increase in staffing is proposed in 1991/92, with further small increases in future years. The increase in non-manual staff mainly comprises engineering staff and project managers to enable the implementation of the Authority's expanding programme. Staff are for emergency planning, new 24-hour emergency control communication centres and work associated with planning liaison and development control. The number of planning applications requiring the Authority's consent is projected to continue rising and some additional staff are to help deal with responses to planning applications within the statutory period. Manual staff decrease slightly over the Plan period.

For flood defence work a slight increase in maintenance work contracted-out is planned. The percentage of capital work contracted-out is already high and will continue to increase over the Plan period. Whilst more construction work will be contracted-out, less design work will be contracted-out where greater cost effectiveness can be shown by the use of in-house design teams. The potential for design centres covering several Regions will be investigated.

The NRA inherited a situation of a rising programme of work, but it did so with only limited staff and so great reliance was placed upon engineering consultants. The Authority recognises a need to develop and train graduates and young engineers to serve its future needs effectively. With a sound recruitment policy, the use of consultants is planned to fall, so placing greater reliance on in-house capabilities. This policy will be carefully implemented to ensure that economies are achieved in the design and supervision activities, though the Authority will continue to offer contracts for the bulk of its construction activity.

## Output and Performance

### Policies:

- completion of and new policies in response to, Phases I, II and III of the Sea Defence Survey.

### Operations:

#### Regulation and Enforcement

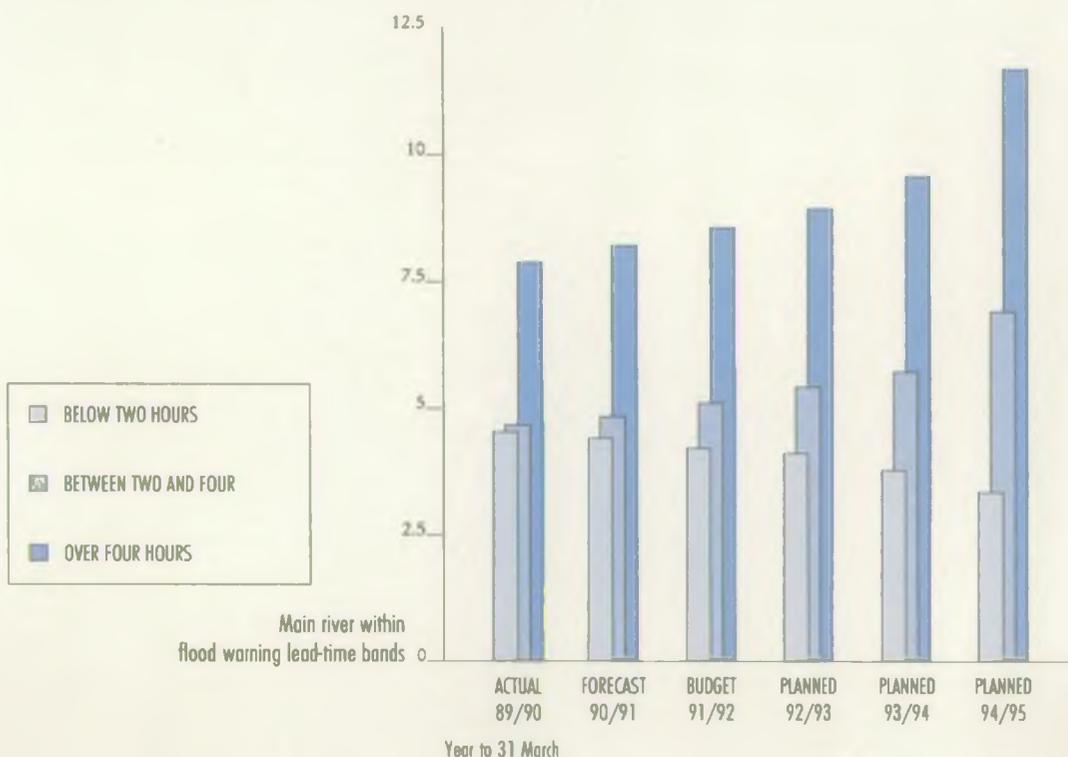
The Authority anticipates issuing more land drainage consents and carrying out more bye-law enforcement actions during the Plan period. The number of planning applications it will need to comment on is also projected to rise, reflecting the growing development pressure on floodplain and low-lying land.

	ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
LAND DRAINAGE REGULATION AND ENFORCEMENT	89/90	90/91	91/92	92/93	93/94	94/95
No. of new consents issued	4,187	4,973	5,656	5,749	6,023	6,163
No. of bye-law enforcements	378	558	657	700	715	740
No. of planning applications screened	85,978	90,975	96,635	101,560	106,075	116,845

### Flood Warnings

The Authority projects that the length of main river, where flood warnings of four hours or over and between 2 and 4 hours in advance of a flooding event, will increase over the Plan period, whilst the length of river where flood warnings are given less than two hours before an event will decrease. People and owners of property and land will thus have more time to prepare for the possibility of flooding.

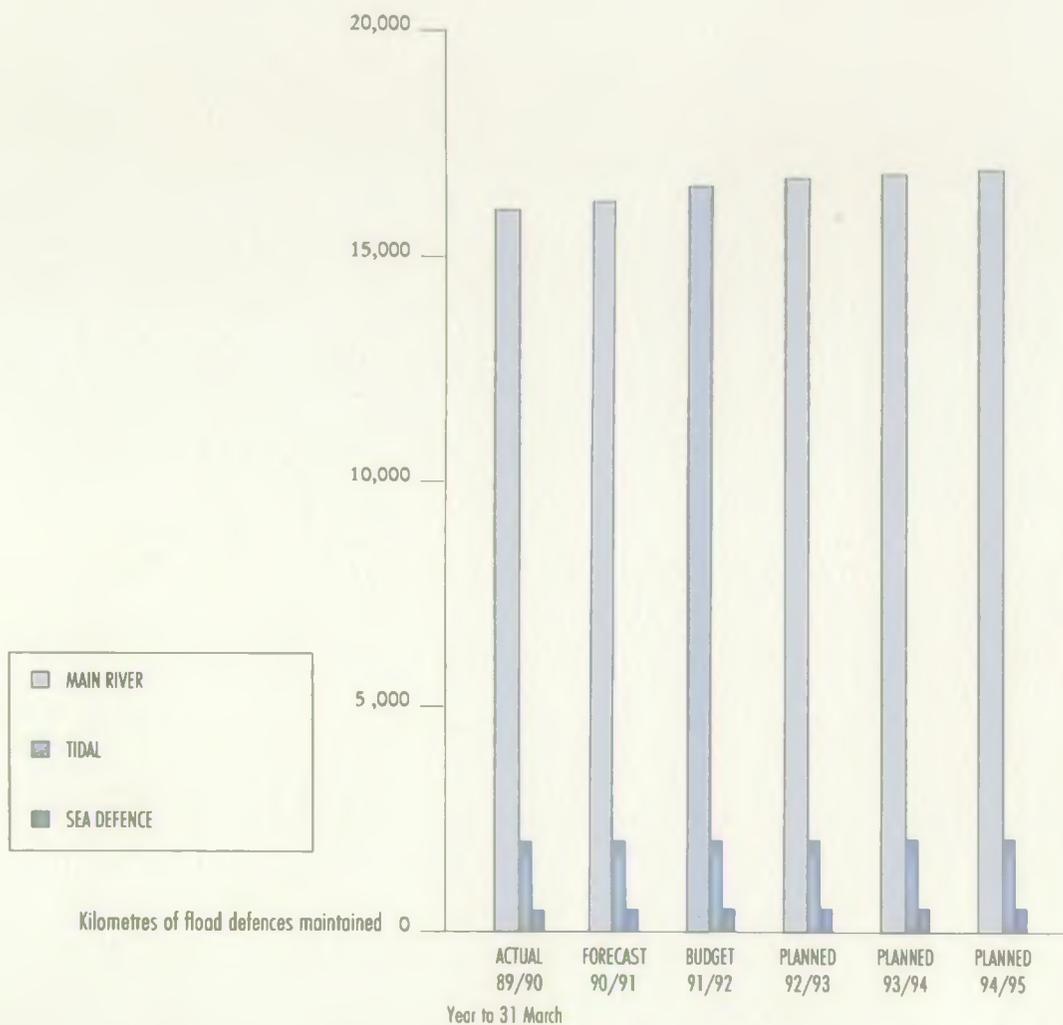
TOTAL LENGTH OF MAIN RIVER WITHIN FLOOD WARNING LEAD-TIME BANDS	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95	LONG-TERM TARGET
Lead-Time Bands (hours)							
- over four	7,883	8,044	8,577	9,142	9,607	9,923	11,742
- two to four	4,706	4,876	5,149	5,177	5,434	5,756	6,906
- below two	4,582	4,442	4,263	4,155	4,014	3,814	3,391
<b>Total</b>	<b>17,171</b>	<b>17,362</b>	<b>17,989</b>	<b>18,474</b>	<b>19,055</b>	<b>19,493</b>	<b>22,039</b>



## Maintenance

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>FLOOD DEFENCES MAINTAINED (km)</b>						
- main river	16,040	16,250	16,600	16,750	16,850	16,950
- embankment	6,165	6,250	6,250	6,250	6,300	6,300
- tidal	1,995	2,010	2,020	2,050	2,060	2,080
- sea defence	468	500	520	520	530	540
<b>Total</b>	<b>24,668</b>	<b>25,010</b>	<b>25,380</b>	<b>25,570</b>	<b>25,740</b>	<b>25,870</b>
<b>LENGTH MOWN (km)</b>						
- main river	10,084	10,300	10,500	10,700	10,800	10,900
- embankment	4,766	4,900	4,900	4,900	4,900	4,900
- tidal	2,351	2,360	2,420	2,490	2,610	2,680
- sea defence	403	420	450	450	450	460
<b>Total</b>	<b>17,603</b>	<b>17,980</b>	<b>18,270</b>	<b>18,540</b>	<b>18,760</b>	<b>18,940</b>
<b>MAIN RIVER (km)</b>						
- weed cuts	7,609	7,951	8,187	8,275	8,352	8,385
- silt dredged	1,115	1,215	1,245	1,258	1,231	1,256
<b>MAINTENANCE WORK (£m)</b>						
- total value of maintenance work (£m)	30.7	57.8	62.6	67	70	74
- value contracted out (£m)	3.8	7.0	8.1	9	10	11
- proportion contracted out (%)	12	12	13	13	15	15
<b>PROTECTION</b>						
- houses protected (thousands)	743	746	748	750	760	780
- people protected (millions)	2.17	2.19	2.20	2.22	2.23	2.29
- commercial properties protected (thousands)	86	87	89	90	91	94
- agricultural land protected (thousands of ha)	1,071	1,076	1,080	1,085	1,088	1,098

Increase in the length of main river, embankments, tidal and sea defences maintained by dredging, weed cutting or grass mowing (as appropriate), as well as increases in people, houses, commercial property and agricultural land protected from flooding are projected over the Plan period. Slightly more maintenance work will be contracted-out.



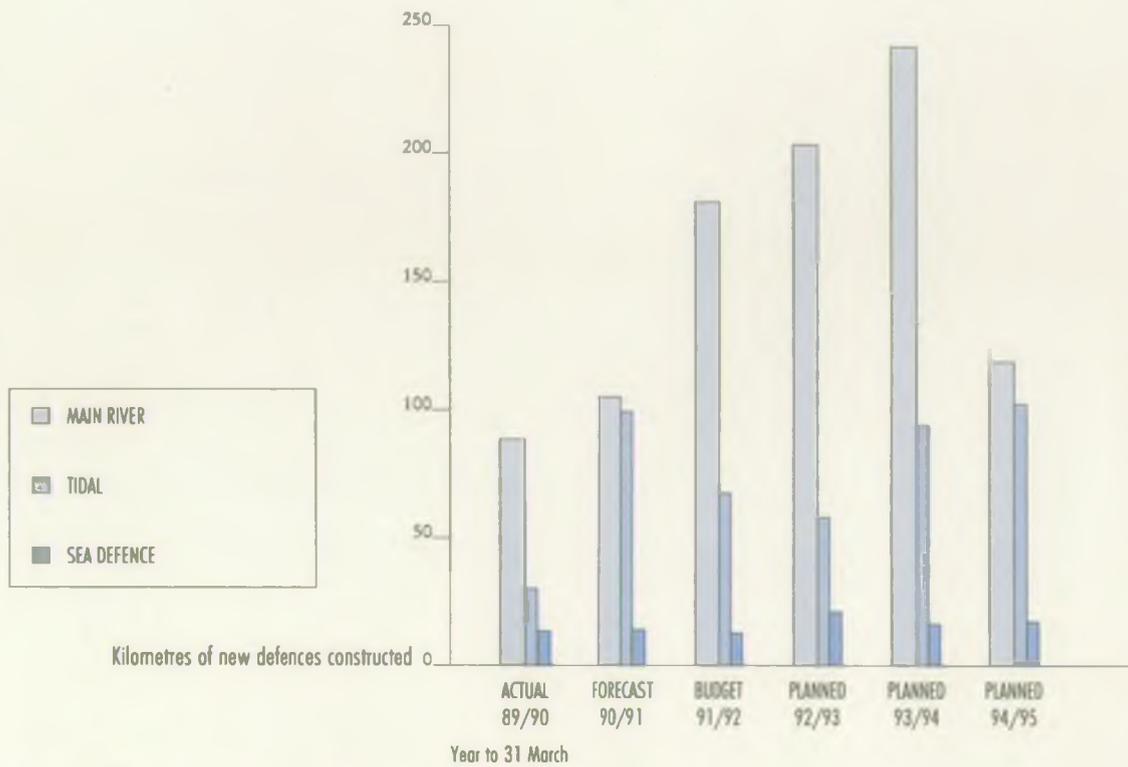
### Capital Works

Whilst the number of schemes carried out over the Plan appears to fall, they comprise more large schemes, resulting in a greater length of new defences being constructed and more people, houses, commercial properties and agricultural land being protected. The proportion of capital works contracted-out will increase slightly. All land-use type bands, given an appropriate standard of service from capital works, will be given increased flood protection during the Plan period.

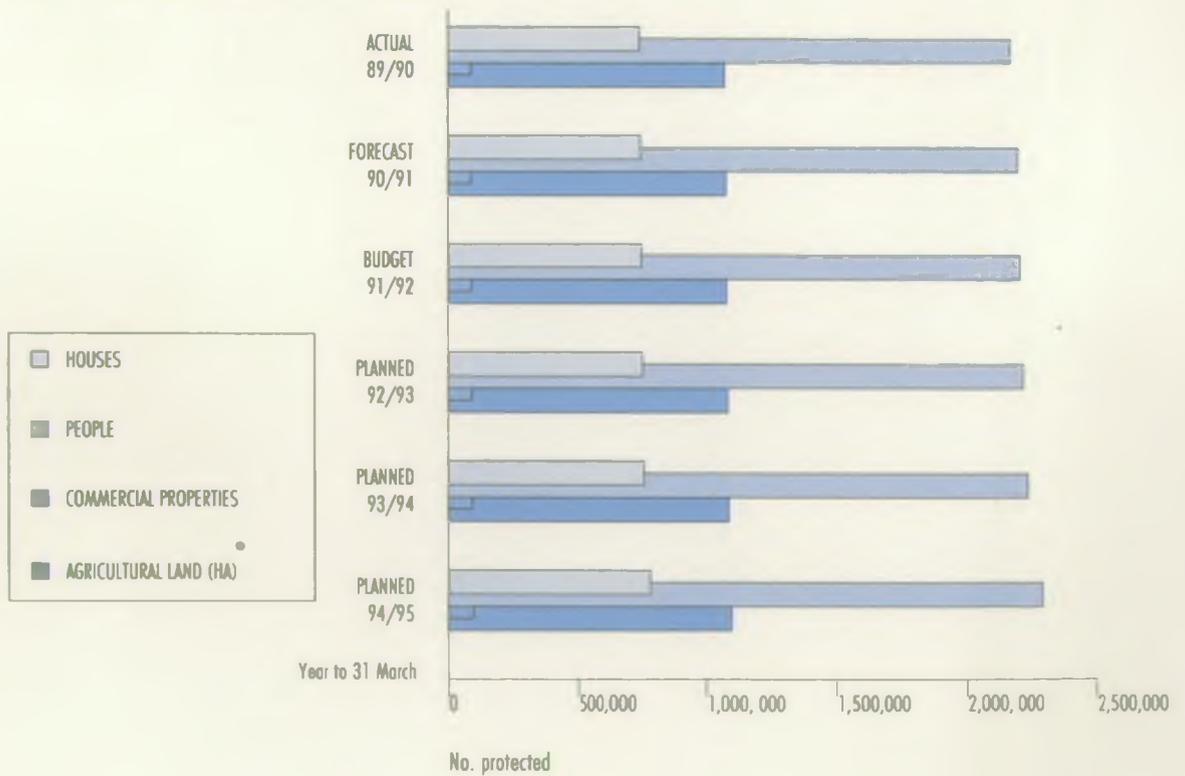
### Flood Defence Capital Works

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF SCHEMES SEEKING MAFF GRANT</b>						
- main river	103	104	102	63	65	52
- tidal	45	61	47	40	40	35
- sea defence	24	36	26	26	23	22
<b>Total</b>	<b>172</b>	<b>201</b>	<b>175</b>	<b>129</b>	<b>128</b>	<b>109</b>
<b>NO. OF SCHEMES STARTING</b>						
- main river	90	128	99	83	70	66
- tidal	47	65	51	39	41	40
- sea defence	21	33	20	18	26	14
<b>Total</b>	<b>158</b>	<b>226</b>	<b>170</b>	<b>140</b>	<b>137</b>	<b>120</b>
<b>NO. OF SCHEMES IN PROGRESS</b>						
- main river	226	271	207	180	179	173
- tidal	78	110	74	81	76	70
- sea defence	33	47	37	37	33	18
<b>Total</b>	<b>337</b>	<b>428</b>	<b>318</b>	<b>298</b>	<b>288</b>	<b>261</b>
<b>NO. OF SCHEMES FINISHING</b>						
- main river	55	164	107	83	76	65
- tidal	17	60	52	38	33	33
- sea defence	15	28	21	19	15	16
<b>Total</b>	<b>87</b>	<b>252</b>	<b>180</b>	<b>140</b>	<b>124</b>	<b>114</b>
<b>LENGTH OF NEW DEFENCES CONSTRUCTED (km)</b>						
- main river	89	105	182	203	242	119
- tidal	30	99	67	58	94	102
- sea defence	14	14	13	21	16	17
<b>Total</b>	<b>132</b>	<b>218</b>	<b>262</b>	<b>282</b>	<b>352</b>	<b>238</b>
<b>TOTAL VALUE OF CAPITAL SCHEMES (£m)</b>						
- design	15.9	16.5	18.3	17.4	18.0	18.4
- supervision	2.2	2.3	2.2	2.4	2.7	3.5
- construction	63.1	70.2	79.8	85.5	93.0	93.7
<b>Total</b>	<b>81.2</b>	<b>89.0</b>	<b>100.4</b>	<b>105.3</b>	<b>113.7</b>	<b>115.6</b>
<b>WORK CONTRACTED OUT (AS % OF TOTAL WORK VALUE IN £m)</b>						
- design	60	63	55	52	51	50
- supervision	25	37	28	22	26	28
- construction	76	78	81	83	83	84
<b>Total</b>	<b>72</b>	<b>74</b>	<b>75</b>	<b>77</b>	<b>77</b>	<b>77</b>
<b>NEW PROTECTION</b>						
- houses (no.)	7,116	14,100	8,600	7,700	29,500	15,200
- people (no.)	20,000	34,600	22,000	23,000	77,000	42,000
- commercial properties (no.)	733	1,700	1,100	1,600	4,000	2,100
- agricultural land (ha)	7,349	16,000	22,000	20,000	34,000	42,000

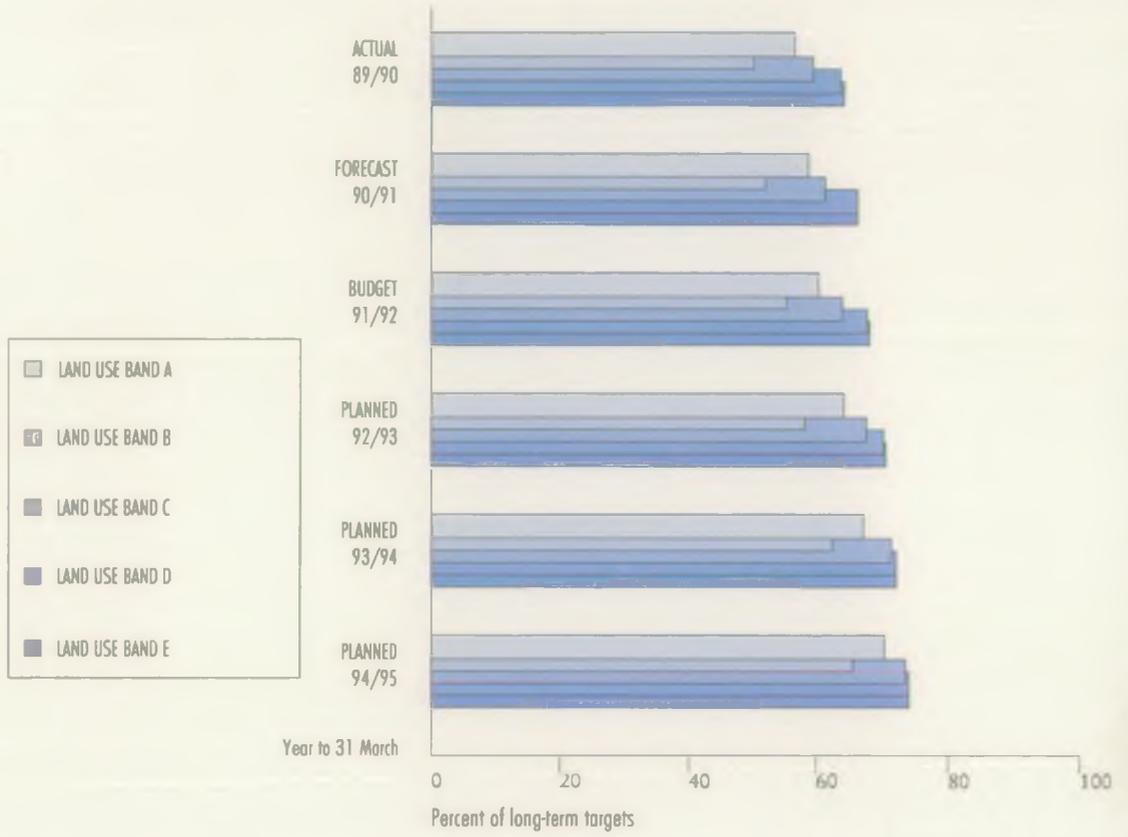
### Defences Constructed



### Flood Protection Resulting From Capital and Maintenance Works



*Main River Protection  
Kilometres of Land Use  
Bands' Protected*

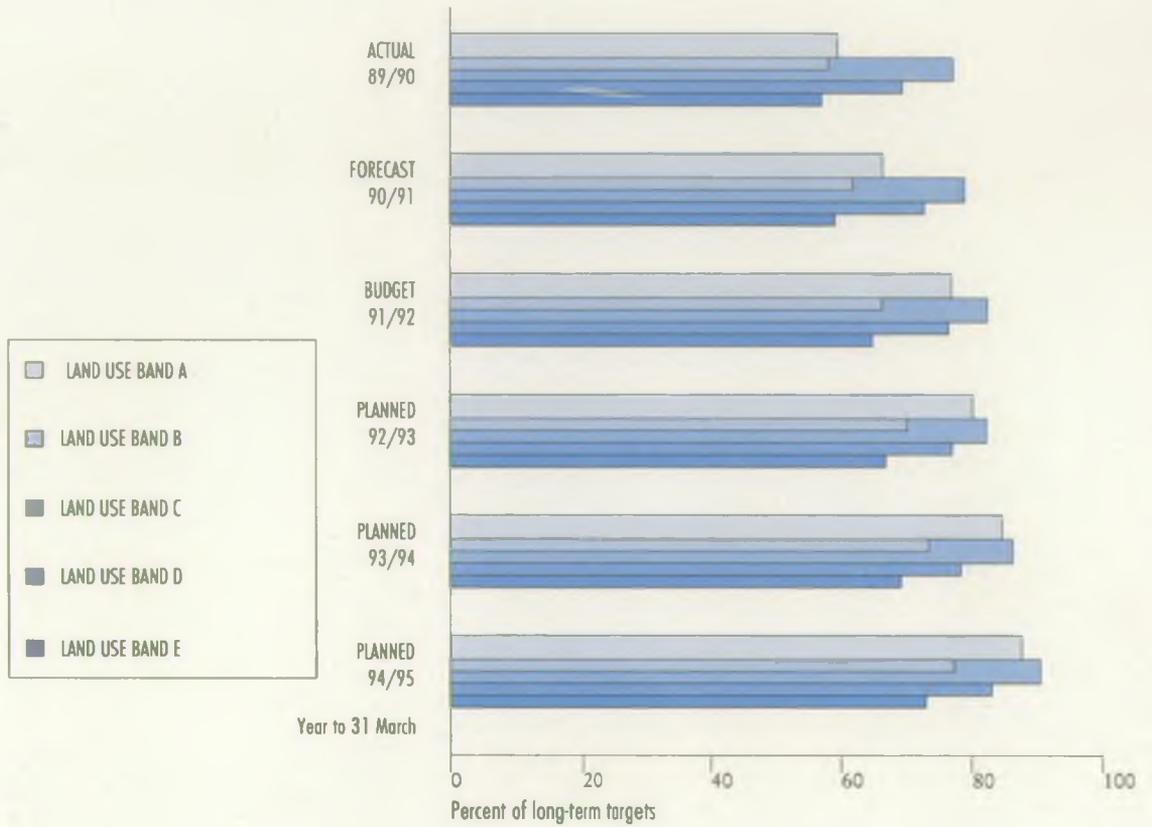


*Notes:*

1. Refer to Appendix 4 for Land Use Band descriptions.



*Sea Defence Protection  
Kilometres of Land Use  
Bands' Protected*



*Notes:*

1. Refer to Appendix 4 for Land Use Band descriptions.

## Introduction

Under the 1989 Water Act, 1975 Salmon and Freshwater Fisheries Act and other fisheries legislation, the Authority has substantial duties and powers in respect of salmon, migratory trout, trout, eels and freshwater fisheries in inland and coastal waters. In particular, it has to protect, regulate, maintain, improve and develop fisheries. NRA's responsibilities relate to both commercial, sport fisheries and fish populations that are not exploited.

Its main operational activities include issuing and checking fishing licences, controlling illegal fishing, enforcing fisheries statute and bye-laws, assessing fish populations to monitor their status, responding to fish-kills, rearing and restocking fish, controlling fish movements, constructing fish passes, collecting fisheries statistics and, in some instances, giving fisheries management advice. The Authority is also a fishery owner in its own right and controls a number of fisheries used for scientific research or let for angling purposes.

The importance of fisheries, as with recreation, conservation and navigation, is far greater than is indicated by consideration of the money spent on it or of the number of staff employed. Fisheries are of interest to a large proportion of the general public with the presence of healthy fish populations being seen as the pivotal indicator of good water quality.

At present, about half the funds for the Authority's fisheries work comes from Government GIA as a significant portion of the work is of importance to the public at large. However, it is essential that those who benefit directly also pay their fair share.

The current angling licence arrangements which were inherited from the ten Regional Water Authorities are very complex. Consultations on options to simplify these and to give a better service to anglers are underway. The NRA is also developing a more consistent approach to stock assessment which is essential if plans for the future are to be targeted where work is needed most. In addition, the work on preventing poaching also needs to be done in such a way as to get best value from the resources used.

NRA attaches importance to making provision for the raising of contributions from fishery owners under Section 28 (S28) of the 1975 Salmon and Freshwater Fisheries Act. This would benefit fisheries owners, and in many cases replace the payment of rates to local authorities, who have no locus in maintaining, improving or developing fisheries. A scheme is being developed for consultation with interested parties; it will be challenging to develop one which is simple, fair and acceptable to the fisheries owners.

## Aims:

- to maintain, improve and develop fisheries.

## Objectives:

- to develop and implement a strategy for fisheries;
- to monitor the fishery status of rivers and inland, estuary and, where appropriate, coastal waters;
- to regulate, protect and conserve salmon, trout, freshwater, eel and coastal fisheries (where appropriate) through the enforcement of fisheries legislation;
- to formulate policies to maintain, improve and develop fisheries and restore and rehabilitate damaged fisheries;
- to ensure proper consideration of fisheries issues through RFACs;
- to provide a fisheries service which is based on a sound charging system and which is sensitive to the needs of the public.

## Performance 1990/91

The Authority has successfully achieved the following targets in 1990/91.

### Policy:

- produced a draft fisheries strategy and identified an initial suite of output and performance measures;
- completed a review of fishing licence structure and commenced a public consultation exercise on angling licences;
- determined the current level of licence compliance and showed that existing levels of licence checking are adequate and should be maintained;
- identified procedures for assessing and levying charges using S28 orders for purposes of public consultation. However, the target to commence introduction of S28 orders and charges by January 1991 was not achieved;
- produced a draft report on a consistent policy on the NRA's response to fish kills. The final report will be completed by December 1991;

- developed guidelines for S30 fish introductions and made steady progress on the development of a fish diseases policy. The latter will be completed by March 1992 once changes in EC legislation are taken into account;
- established a research project which has generated a preliminary report to assist in the development of a fisheries classification scheme. The final report will be completed by March 1992;
- completed a fundamental review of the NRA's fish stock assessment, catch statistics and fishing effort data needs, containing recommendations for fisheries monitoring to produce a consistent approach throughout England and Wales. The latter is due to be implemented by March 1992;
- produced the 1989 annual catch statistics report for salmon and migratory trout;
- formulated policies on NRA general fishing licences and spring viraemia of carp (SVC);
- produced a review of the available information on the north-east coast fishery;
- organised a joint NRA, National Farmers Union (NFU), Water Research Centre (WRc) seminar on fish farming and the environment, in conjunction with other NRA functions, and other regulatory bodies to discuss abstraction licensing, discharge consenting and other issues relevant to fish farming;
- gave evidence to the Sports Council Angling Review Panel;
- produced an NRA Code of Practice for safety in electric fishing operations.

### Targets 1991/92

#### *Policy:*

- to complete public consultation on restructuring of angling licences by August 1991 and implement revised structure and new charging scheme from April 1992;
- to complete a public consultation exercise and develop a charging scheme for S28 by April 1992;
- to determine whether the sea-trout populations of England and Wales are in decline and whether the NRA has the necessary information and resources to manage sea-trout stocks effectively by July 1991;
- to review enforcement resources, practices and the terms and conditions of enforcement staff in order to identify methods and working practices that increase effectiveness through a more consistent operation across England and Wales. In particular, to identify ways of seeking greater flexibility in deployment of staff and equipment, and of targeting problem areas by March 1992;
- to publish a fisheries strategy by December 1991;
- to report on the implementation of a harmonised stock assessment programme by March 1992;
- to assess the need for a review of the management of the north-east coast commercial salmon and sea-trout fishery by March 1992;
- to improve the collection and timeliness of publishing fisheries statistics by March 1992;
- to ensure that fisheries costs incurred by the activities of other functions are recharged fairly by December 1991.

## Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	7	7	8	10	11	11
EXPENDITURE (£m)							
Regulation		1	1	2	2	2	2
Enforcement		5	5	7	7	9	9
Monitoring		3	4	4	5	5	6
Physico-chemical Improvement		1	1	1	2	2	2
Rearing and Restocking		2	3	3	3	3	3
Other		3	3	3	3	3	3
	<b>Total</b>	15	17	20	22	24	25
Comprising:							
Revenue		13	14	18	20	22	23
Capital		2	3	2	2	2	2
VARIANCE (£m)	<b>GIA</b>	8	10	12	12	13	14
MANPOWER (FTE)							
Non-Manual		380	409	424	451	456	460
Manual		11	13	13	13	13	13
	<b>Total</b>	391	422	437	464	469	473
Included in the above are:							
Fisheries Inspectors/Bailiffs		263	275	292	292	296	297

### Finance

The Authority intends to increase fisheries income and expenditure over the Plan period. The additional expenditure is to produce modest increases in fisheries regulation, enforcement, monitoring, improvement, rearing and restocking. The Authority is currently reviewing charging policy for angling licences and S28 orders and will actively seek to generate additional income from April 1992 to meet at least some of the proposed additional expenditure.

### Staffing

The planned increase in fisheries staff is to facilitate improved levels of enforcement, stock assessment and fishery improvement activities.

## Output and Performance

### Policies:

- completed fisheries strategy;
- restructured angling licence arrangements;
- S28 charging scheme;
- review of status of sea-trout stocks.

### Operations

#### Regulation

Rod licence sales may be affected by the introduction of revised licensing arrangements and it is difficult to forecast their impact. However, a small increase in rod licence sales is predicted in 1991/92 and for future years. A 10% increase in net licensing is projected between 1990/91 and 1991/92, which then levels off in later Plan years. The number of S28 orders issued is likely to differ from current projections depending on the implementation scheme adopted.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF LICENCES ISSUED						
– rod (millions)	1.25	1.25	1.25	1.27	1.27	1.27
– net (thousands)	3.1	3.1	3.4	3.5	3.4	3.4
NO. OF S28 ORDERS	5	5	9	7	7	7
NO. OF NEW BYE-LAWS CREATED						
– inland	8	13	18	2	1	1
– sea	1	2	16	1	1	1
<b>Total</b>	<b>9</b>	<b>15</b>	<b>34</b>	<b>3</b>	<b>2</b>	<b>2</b>

### Enforcement

An increase in the distance patrolled by fisheries enforcement staff is planned in 1991/92. The projection of a future decline in subsequent years will be subject to review during 1991/92. With the exception of eel fyke nets, where greater controls will be needed, the level of fishing licence compliance is high and the current level of effort devoted to this activity will be maintained. The number of cases taken to court and successful prosecutions are anticipated to fluctuate around existing levels.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
LENGTH PATROLLED (KM)						
– river	124,784	125,700	135,900	114,500	114,600	114,600
– estuary/sea	65,318	69,900	73,600	55,200	55,200	55,200
– other	20,912	20,800	21,600	20,600	20,600	20,700
<b>Total</b>	<b>211,014</b>	<b>216,400</b>	<b>231,100</b>	<b>190,300</b>	<b>190,400</b>	<b>190,500</b>
NO. OF LICENCES CHECKED						
– rod	186,849	191,500	201,300	197,500	198,000	198,500
– net	1,970	1,900	2,010	2,060	2,030	2,040
<b>Total</b>	<b>188,819</b>	<b>193,400</b>	<b>203,310</b>	<b>199,560</b>	<b>200,030</b>	<b>200,540</b>
LICENCES CHECKED (%)						
– rod	15	15	16	16	16	16
– net	64	62	59	59	59	60
<b>Total</b>	<b>15</b>	<b>15</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>
LICENCE COMPLIANCE (%)						
– rod	94	94	93	93	93	93
– net	87	87	87	88	87	87
<b>Total</b>	<b>94</b>	<b>94</b>	<b>93</b>	<b>93</b>	<b>93</b>	<b>93</b>
NO. OF CASES TAKEN TO COURT						
– rod	3,042	2,800	3,000	3,000	3,000	3,000
– net	198	200	180	190	190	190
<b>Total</b>	<b>3,240</b>	<b>3,000</b>	<b>3,180</b>	<b>3,190</b>	<b>3,190</b>	<b>3,190</b>
NO. OF SUCCESSFUL PROSECUTIONS						
– rod	2,947	2,790	2,980	2,950	2,960	2,960
– net	189	190	180	190	190	190
<b>Total</b>	<b>3,136</b>	<b>2,980</b>	<b>3,160</b>	<b>3,140</b>	<b>3,150</b>	<b>3,150</b>
No. of Bye-law Offences	1,029	1,110	1,170	1,100	1,100	1,100
No. of Bye-law Offence Cases Taken to Court	850	790	850	800	810	810
No. of Successfully Prosecuted Offences	755	710	760	720	720	730

### Monitoring

Slightly fewer fishery sampling sites will be used in 1991/92 compared to 1990/91, though minor increases are projected for future years. More surveys are planned in 1991/92, but a smaller total length of river will be surveyed than 1990/91. Current projections for future years will be reviewed in 1991/92.

The proportion of reported fish kills attended is projected to remain at about 96%. Whilst the activities of all NRA functions and staff are planned to reduce the numbers of such fish kills and the need to rescue large numbers of fish, the projections to 1994/95 anticipate the incidence remaining at similar levels with a continuing need to rescue some 0.6m fish each year.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF SAMPLING SITES						
– routine	1,477	1,690	1,660	1,820	1,830	1,830
– other	1,172	890	860	820	860	860
<b>Total</b>	<b>2,649</b>	<b>2,580</b>	<b>2,520</b>	<b>2,640</b>	<b>2,690</b>	<b>2,690</b>
NO. OF SURVEYS						
– netting/electro	1,602	1,520	1,850	1,560	1,630	1,650
– angler census	208	200	200	200	210	220
<b>Total</b>	<b>1,810</b>	<b>1,720</b>	<b>2,050</b>	<b>1,760</b>	<b>1,840</b>	<b>1,870</b>
LENGTH SURVEYED (km)						
– river	8,936	9,000	7,500	7,400	7,500	7,500
– other	1,493	1,500	1,500	1,400	1,400	1,400
<b>Total</b>	<b>10,428</b>	<b>10,500</b>	<b>9,000</b>	<b>8,800</b>	<b>8,900</b>	<b>8,900</b>
FISH MORTALITIES						
– proportion attended (%)	98	97	96	95	96	96
– No. of fish saved (millions)	1.2	0.5	0.7	0.6	0.6	0.6

### Habitat Improvements

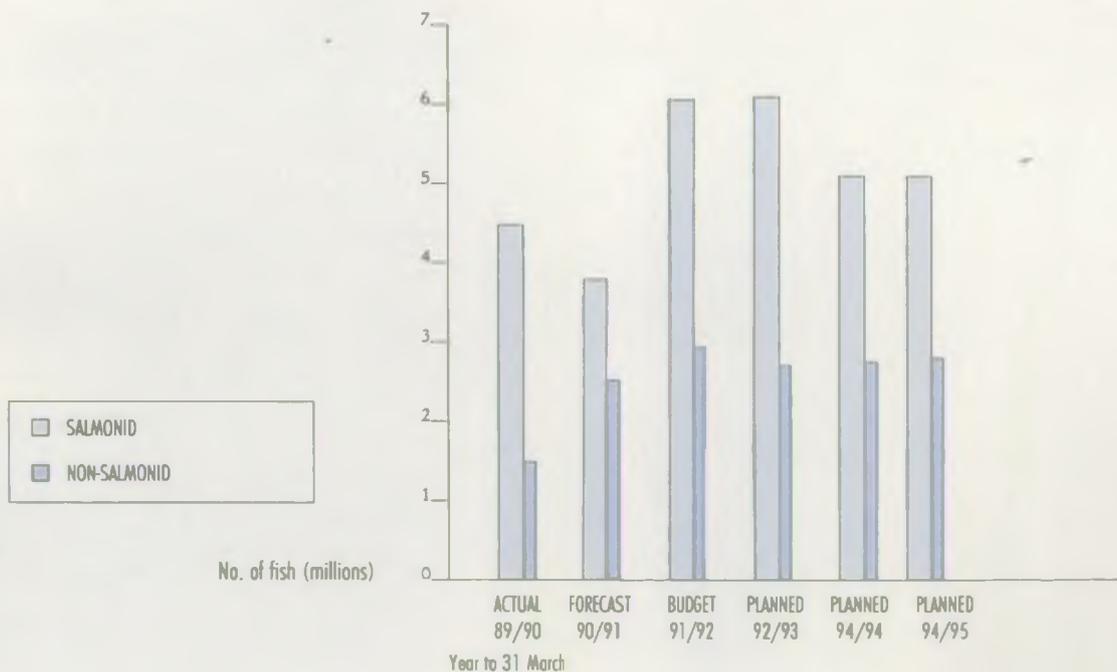
	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF IMPROVEMENT STRUCTURES BUILT						
– fish passes	13	31	18	15	17	17
– other	26	16	15	13	12	15
<b>Total</b>	<b>39</b>	<b>47</b>	<b>33</b>	<b>28</b>	<b>29</b>	<b>32</b>

### Fish Rearing and Stocking

36% and 42% increases in the numbers of fish stocked and reared respectively are projected for 1991/92. Current figures indicate a decline in rearing and stocking after 1992/93, however these figures and future fluctuations need to be treated with caution as rearing is highly dependent on prevailing weather conditions.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>FISH REARING (NO. IN MILLIONS)</b>						
- salmonid juvenile	4.3	3.7	6.0	6.0	5.0	5.0
- salmonid adult	0.2	0.1	0.1	0.1	0.1	0.1
<b>Total Salmonid</b>	<b>4.5</b>	<b>3.8</b>	<b>6.1</b>	<b>6.1</b>	<b>5.1</b>	<b>5.1</b>
- non-salmonid juvenile	1.4	2.2	2.6	2.4	2.5	2.5
- non-salmonid adult	0.1	0.3	0.4	0.3	0.3	0.3
<b>Total Non-Salmonid</b>	<b>1.5</b>	<b>2.5</b>	<b>2.9</b>	<b>2.7</b>	<b>2.8</b>	<b>2.8</b>
<b>Total Salmonid and Non-Salmonid</b>	<b>6.1</b>	<b>6.5</b>	<b>9.2</b>	<b>9.0</b>	<b>8.1</b>	<b>8.2</b>
<b>FISH STOCKING (NO. IN MILLIONS)</b>						
- salmonid juvenile	3.8	3.5	5.1	5.4	3.9	3.9
- salmonid adult	0.2	0.2	0.2	0.2	0.2	0.2
<b>Total Salmonid</b>	<b>4.0</b>	<b>3.7</b>	<b>5.3</b>	<b>5.6</b>	<b>4.1</b>	<b>4.1</b>
- non-salmonid juvenile	0.4	0.6	1.1	0.5	0.5	0.7
- non-salmonid adult	1.5	1.2	1.2	1.0	1.1	1.1
<b>Total Non-Salmonid</b>	<b>1.9</b>	<b>1.8</b>	<b>2.3</b>	<b>1.5</b>	<b>1.6</b>	<b>1.8</b>
<b>Total Salmonid and Non-Salmonid</b>	<b>5.9</b>	<b>5.5</b>	<b>7.6</b>	<b>7.1</b>	<b>5.7</b>	<b>5.9</b>

### Fish Rearing



## Introduction

Under the 1989 Water Act the Authority was given various duties and powers in respect of recreation and inherited duties and powers under earlier legislation. It has a duty to make available its own lands and waters, where it has legal rights to permit recreation and promote the use of other inland and coastal waters and associated land for recreational purposes. It also has bye-law making powers and obligations under the Water Act Code of Practice on Conservation, Recreation, and Access.

The Authority controls over 1,000 recreation and amenity sites across England and Wales. They range from the Thames Barrier Visitor Centre and National White Water Canoeing Centre, Afon Tryweryn to numerous facilities for angling, sailing, boat mooring, walking, cycling, horseriding and other pursuits. The Authority also controls various informal recreation amenities including carparks, footpaths and picnic areas.

One of the key challenges facing the Authority is to review the extent of its involvement with recreation, the number and type of facilities it controls and the existing variety of management and promotional arrangements to assess both whether these are appropriate to a national body and consistent across England and Wales. There are also close links between recreation and all the Authority's other functions which have to be considered.

## Aims:

- to develop the amenity and recreational potential of waters and land under NRA control.

## Objectives:

- to develop and implement a function strategy for recreation;
- to adopt and implement the Code of Practice on Conservation, Access and Recreation as it applies to the NRA;
- to generally promote water recreation, in particular the use of the NRA's own facilities for recreation;
- to recover from the users, as far as is practicable, the costs of providing NRA recreational facilities;
- to ensure proper consideration of recreational issues by RRACs.

## Performance 1990/91

The Authority successfully achieved the following targets in 1990/91.

### Policy:

- produced a draft recreation strategy and identified an initial suite of recreation output and performance measures;
- produced a draft recreation policy statement and draft Canoe Code (for rivers not being navigations);
- responded to consultations on the Countryside for Sport, National Parks Review and Future of the Rural Society;
- commenced preliminary work in drawing up an inventory of all NRA-controlled recreation sites and on identifying potential areas to increase recreation income.

### Operations:

- controlled or operated some 1,019 recreation sites enjoyed by large numbers of visitors;
- undertook 99 recreation projects of which 50% were in collaboration with other bodies.

## Targets 1991/92

### Policy:

- to finalise national conservation, access and recreation guidelines by July 1991 - this is a joint target for the recreation and conservation functions;
- to publish the recreation function strategy by November 1991;
- to produce a report on implications for blue-green algae for water recreation by September 1991;
- to produce a report on NRA landholdings and recreational assets by January 1992;
- to derive and agree recreation charges and costs on an equitable basis with other functions by September 1992.

## Inputs

### Finance

The NRA is developing a strategy which aims to ensure maximum benefit is obtained from its own sites and that help is given to others to make best use of their sites. In many cases the NRA will be seen as an "honest broker" in trying to resolve conflicts of use.

The Authority is planning to increase its recreation expenditure in 1991/92 and 1992/93 with corresponding increases in income. This increase falls mainly in liaison and promotion to ensure the Authority's statutory obligations in these areas are fulfilled.

The Authority intends to review the allocation of income from its assets, some of which may not necessarily get attributed to the recreation account, and investigate other ways of increasing recreation income including new charging and promotion policies.

		ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
		89/90	90/91	91/92	92/93	93/94	94/95
INCOME (£m)	<b>Total</b>	0.1	0.3	0.3	0.3	0.4	0.4
EXPENDITURE (£m)							
NRA facility management		0.5	0.6	0.7	0.8	1.0	0.9
Liaison with others/promotions		0.5	0.8	1.0	1.2	1.2	1.3
Other		0.2	0.3	0.3	0.3	0.3	0.3
	<b>Total</b>	1.2	1.7	2.0	2.3	2.5	2.5
Comprising:							
Revenue		1.0	1.2	1.4	1.5	1.7	1.7
Capital		0.2	0.5	0.6	0.8	0.8	0.8
VARIANCE (£m)	<b>GIA</b>	1.1	1.4	1.7	2.0	2.1	2.1
MANPOWER (FTE)							
Non-Manual		26	26	26	25	25	25
Manual		3	3	3	3	3	3
	<b>Total</b>	29	29	29	28	28	28

## Output and Performance

### Policy:

- guidelines on conservation, access and recreation;
- report on the implications of blue-green algae for water recreation;
- publication of recreation strategy;
- report on NRA recreation assets and charging.

### Operations

An additional nine sites with recreation facilities, making 1,028 sites, will be made available for recreation by the Authority in 1991/92 compared to 1990/91, though this figure is currently projected to decline in future years, due to the undertaking of other operational activity or land sales. A slight increase in visitor levels is anticipated over the Plan period. The number of sites may be revised in the light of the recreation assets report and the visitor numbers are difficult to forecast. More sophisticated methods of measurement are needed for accurate projection.

Whilst fewer new recreation projects are planned in 1991/92 and later Plan years, the percentage of projects likely to be carried out in collaboration with other bodies will rise to 65%. A similar level of collaboration is projected to 1994/95.

	ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
	89/90	90/91	91/92	92/93	93/94	94/95
No. of NRA sites with recreation facilities	1,011	1,019	1,028	979	987	992
No. of visitors (millions)	24.5	24.6	25.6	25.2	26.4	26.6
No. of new projects						
– total	79	99	86	80	80	80
– involving collaboration with other bodies	40	51	56	55	55	55
Collaborative projects as % of total	51	51	65	69	69	69

## Introduction

The public have high expectations that the landscape, scenic, heritage and wildlife value of our rivers and coastal waters will be protected and enhanced. Under the 1989 Water Act, the Authority has important duties and powers in respect of the conservation of inland and coastal waters and their associated land and wildlife, landscape features and archaeological heritage.

Its conservation duties apply to all the Authority's functions and are far wider than those that applied to the Authority's predecessors. This includes furthering conservation, protecting sites of conservation interest and generally promoting conservation. A statutory Code of Practice on Conservation, Access and Recreation gives practical guidance to the Authority on its conservation duties.

The Authority's main operational activities in respect of conservation include: surveying and monitoring wildlife along river corridors and coastal areas; giving conservation advice to protect or enhance the flora and fauna before and after maintenance or new works are carried out; producing management plans for nature conservation sites and other land and waters it controls; screening licence, consent and planning applications; and liaising with other conservation organisations.

Key challenges facing the Authority in conservation include the development of a consistent approach to river corridor surveys. It is also important that other core functions separately identify, allocate funds and carry out effective conservation work, as the protection and promotion of conservation is linked to all NRA work. The Authority will also need to ensure that it has the right balance of expertise, including that needed for built or landscape architecture and other aspects of conservation.

## Aims:

- to conserve and enhance wildlife, landscape and archaeological features associated with waters under NRA control.

## Objectives:

- to develop and implement a strategy for conservation;
- to adopt and implement the Conservation, Access, and Recreation Code of Practice as it affects all other NRA functions;
- to undertake conservation management and to further conservation as part of the NRA's other functions;
- to promote the conservation of the aquatic environment;
- to monitor the conservation status of rivers, estuaries, coastal waters and associated lands;
- to ensure full discussion and proper consideration of conservation through statutory regional committees.

## Performance 1990/91

The Authority successfully achieved the following targets in 1990/91.

### Policy:

- produced a draft conservation strategy and identified an initial suite of output and performance measures;
- prepared draft conservation and archaeology policy statements and draft guidelines on conservation, access and recreation;
- commenced preparatory work to ensure conservation is considered in all NRA activities and to identify and prioritise activities to promote conservation;
- produced recommendations for standard methodology for river corridor surveys and commenced a consistent rolling programme of surveys.

### Operations:

Compared to 1989/90 it also :

- appraised more capital projects and revenue schemes;
- surveyed more lengths of aquatic habitats;
- produced and implemented more management plans;
- screened more licence, consent and other applications;
- undertook more conservation improvement projects and collaborative projects.

## Targets 1991/92:

- to evaluate the implementation of the report of the River Corridors Task Group throughout the NRA by July 1991;
- to publish the conservation strategy by December 1991;
- to determine a sound charging basis that is equitable to other functions and which enables the NRA to further and promote conservation effectively, by December 1991;
- to finalise national conservation, access and recreation guidelines by July 1991 and determine the degree of implementation of the Conservation Guidelines by February 1992.

## Inputs

		ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
		89/90	90/91	91/92	92/93	93/94	94/95
INCOME (£m)	Total	0.1	0.1	0.3	0.1	0.1	0.1
EXPENDITURE (£m)							
Appraisal/surveys		0.4	0.5	0.5	0.6	0.7	0.7
Management plans/improvements		0.2	0.2	0.3	0.3	0.4	0.4
External liaison/promotion		0.2	0.3	0.5	0.6	0.6	0.6
Other		0.5	0.6	0.4	0.5	0.5	0.6
	Total	1.3	1.6	1.7	2.0	2.2	2.3
Comprising							
Revenue		1.1	1.4	1.5	1.7	2.0	2.1
Capital		0.2	0.2	0.2	0.3	0.2	0.2
VARIANCE (£m)							
	GIA	1.2	1.5	1.4	1.9	2.1	2.2
MANPOWER (FTE)							
Non-Manual		30	49	54	56	56	56
Manual		3	3	3	3	3	3
	Total	33	52	57	59	59	59

### Finance

A small increase in income is projected for 1991/92. Increases are not currently projected in future Plan years. Whilst a review of the charging policy is proposed, it is unlikely that future income levels will match the levels of expenditure needed by the Authority to undertake all its statutory conservation duties.

A small increase in expenditure is proposed in 1991/92 to increase the Authority's conservation work. Larger increases in spending are planned in future years. Additional expenditure is primarily for producing site management plans and increasing wildlife surveys and promotional activity. The financial figures above need to be treated with some caution as considerable resources are spent on conservation by other functions – in particular by flood defence. At present these cannot be separately identified using the Authority's inherited management information systems. It is proposed to rectify this through its proposed IAS.

### Staffing

An increase in staff is proposed in 1991/92 compared to 1990/91. In future Plan years staff numbers increase and level out at a figure some 14% higher than in 1990/91.

## Output and Performance

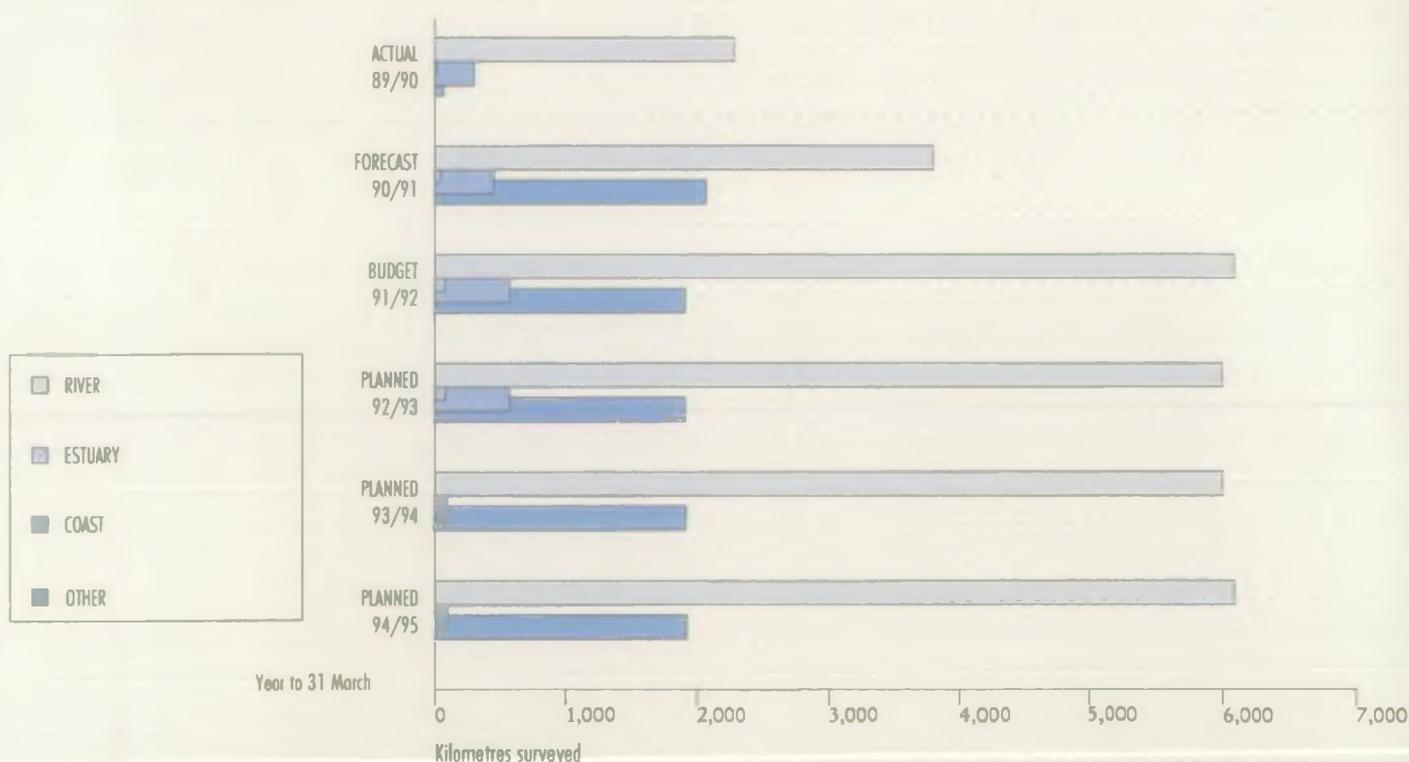
### Policy:

- conservation function strategy;
- development of a consistent approach to river corridor surveys and a report on their implementation;
- conservation charging policy;
- publication of national guidelines on conversation, access and recreation.

*Operations  
Appraisals and Surveys*

A substantial increase in the number of capital and revenue schemes, and associated aquatic habitats surveyed, is planned.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NO. OF REPORTS ON CAPITAL SCHEMES/EIAs</b>						
- river	127	140	180	170	180	190
- estuary	7	21	16	18	17	18
- coast	1	6	19	18	18	17
- other	3	17	21	20	20	20
<b>Total</b>	<b>138</b>	<b>184</b>	<b>236</b>	<b>226</b>	<b>235</b>	<b>245</b>
<b>NO. OF REPORTS ON REVENUE SCHEMES</b>						
- river	312	360	550	550	550	560
- estuary	2	5	8	10	10	10
- coast	0	4	8	8	8	8
- other	15	23	9	9	9	9
<b>Total</b>	<b>329</b>	<b>392</b>	<b>575</b>	<b>577</b>	<b>577</b>	<b>587</b>
<b>LENGTH SURVEYED (km)</b>						
- river	2,280	3,800	6,100	6,000	6,000	6,100
- estuary	14	40	80	80	90	90
- coast	295	450	570	570	80	90
- other	61	2,100	1,900	1,900	1,900	1,900
<b>Total</b>	<b>2,650</b>	<b>6,390</b>	<b>8,650</b>	<b>8,550</b>	<b>8,070</b>	<b>8,180</b>
<b>NO. OF SURVEY REPORTS</b>						
- river	201	330	480	480	490	500
- estuary	2	13	20	15	15	20
- coast	2	13	25	25	25	25
- other	2	44	90	80	85	90
<b>Total</b>	<b>207</b>	<b>400</b>	<b>615</b>	<b>600</b>	<b>615</b>	<b>635</b>



### Site Management

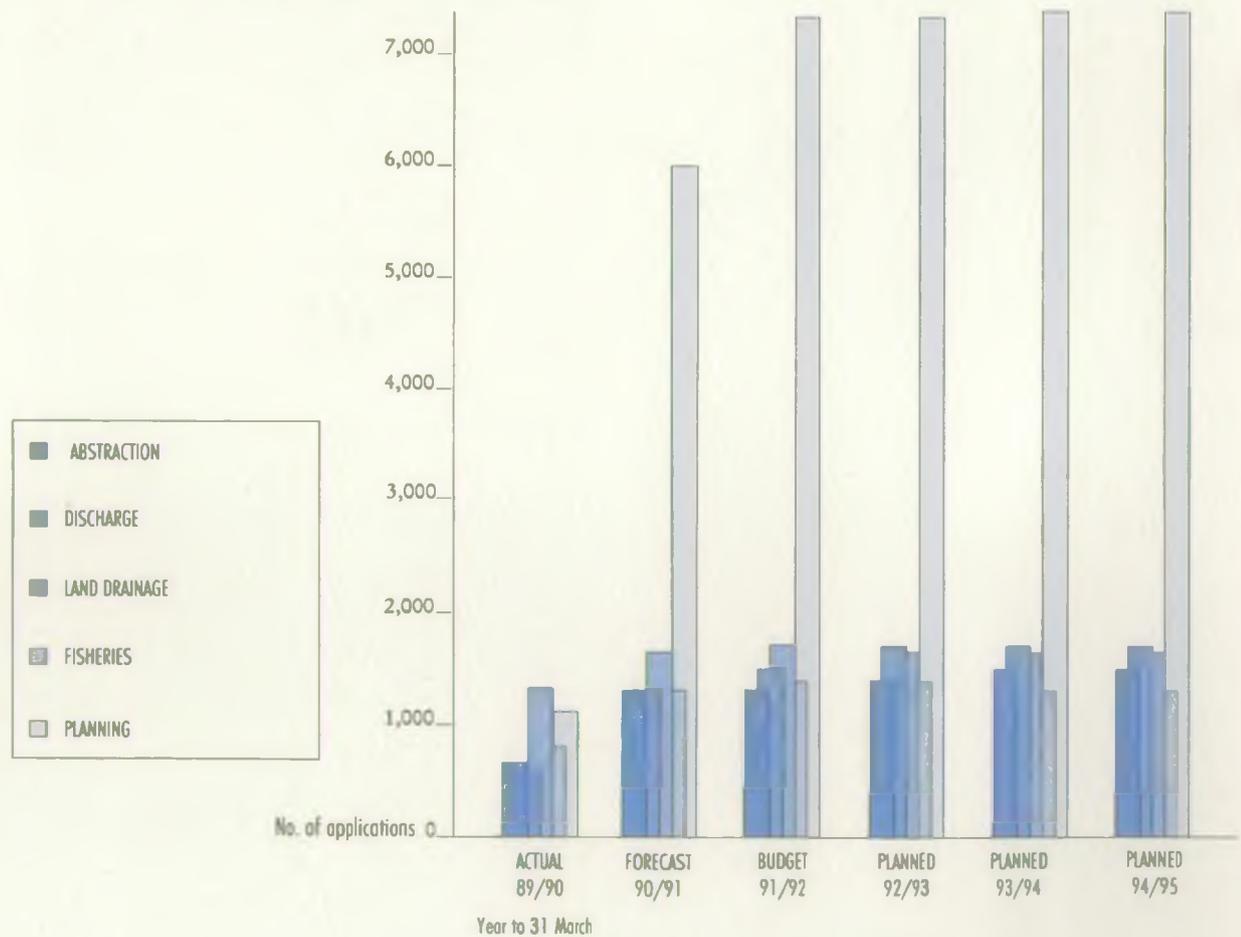
The Authority plans to develop and implement more site management plans, increase the number of sites with interpretation facilities, and consequently anticipates higher visitor numbers to its conservation sites.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of NRA site management plans	28	55	100	95	105	115
No. of implemented site management plans	27	50	60	65	70	75
No. of sites offering interpretation facility	11	21	26	27	30	30
No. of visitors	65,252	555,000	565,000	585,000	695,000	705,000

### Authorisations by Other Core Functions

As part of the Authority's duty to further conservation across all its activities, an increase in the number of licences, consents and other applications screened, and conservation advice given, is planned.

### Applications Screened



	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF APPLICATIONS SCREENED						
- abstraction	660	1,300	1,300	1,400	1,500	1,500
- discharge	592	1,300	1,500	1,800	1,800	1,800
- land drainage	1,329	1,700	1,800	1,700	1,700	1,700
- fisheries	806	1,300	1,400	1,400	1,300	1,300
- planning	1,120	6,000	7,300	7,300	7,400	7,400
<b>Total</b>	<b>4,507</b>	<b>11,600</b>	<b>13,300</b>	<b>13,600</b>	<b>13,700</b>	<b>13,700</b>

#### *Promotions*

More conservation improvements projects will be undertaken, particularly in collaboration with other bodies.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NO. OF IMPROVEMENT PROJECTS						
- involving collaboration with other bodies	29	50	100	65	80	75
- collaborative projects as % of total	65	54	67	65	70	62
<b>Total</b>	<b>45</b>	<b>92</b>	<b>150</b>	<b>100</b>	<b>115</b>	<b>120</b>

## Introduction

As a result of the 1989 Water Act, the NRA was given various legal responsibilities for inland navigation in England and Wales, and inherited various powers under earlier Acts of Parliament made for specific river, estuary and harbour navigations. It also has bye-law making powers for inland waters in England and Wales, where there is a public right of navigation and while no other authority legitimately exercises navigation powers.

The Authority currently undertakes operational activity in respect of navigation in five of its Regions – including lengths of the River Thames, Medway and lower Derwent, the Market Weighton Canal, various East Anglian rivers and the River Dee estuary – and it controls Rye Harbour. These sites are currently managed in various ways, with different bye-laws, licences, regulations and maintenance. Most of the canal network and other navigable rivers are regulated by other authorities.

One of the key challenges facing the the Authority is to assess whether these arrangements are appropriate to a national body and are consistent across England and Wales. There are also close links between navigation and other NRA functions, especially water resources, pollution control, flood defence and recreation, which have to be considered.

The NRA believes that there is a need for a nationally-consistent navigation policy for controlled waters as defined by the Water Act. This does not necessarily mean a single national navigation authority, but all those involved agreeing on some basic objectives and working towards them. Initial discussions with British Waterways Board (BWB) indicate that this will be the most productive way forward.

## Aims:

- to improve and maintain inland waterways and their facilities for use by the public where the NRA is the navigation authority.

## Objectives:

- to develop and implement an NRA navigation strategy taking account of other navigation authorities' views;
- to enforce navigation statutes and bye-laws and to regulate navigation through a consistent series of licences;
- to seek to recover from users, as far as practicable, the specific identifiable costs of providing navigation facilities;
- to undertake programmes of repair and maintenance on NRA navigations;
- to achieve optimal use of NRA navigations and consider the need for the NRA to seek under S158 (2) of the Water Act to make navigation bye-laws for waters where it is not otherwise the statutory navigation authority;
- to ensure proper consideration of navigation issues by the RRACs.

## Performance 1990/91

The Authority successfully achieved the following targets for 1990/91.

### Policy:

- produced a draft strategy for NRA navigations and identified output and performance measures for navigation;
- carried out an initial review of licencing, regulation and charging arrangements, and an initial appraisal of the need for a change in the intensity of use of and income from its navigations;
- undertook initial investigations into assessing additional areas of water, such as upstream of the proposed Tees Barrage, where the NRA might regulate navigation through its powers under S158 of the 1989 Water Act;
- opened discussions with BWB.

### Operations

Compared to 1989/90 the Authority :

- issued more licences and supervised more lockages;
- detected more bye-law offences and took more cases to court resulting in more successful prosecutions;
- repaired more locks and undertook more improvement projects;
- increased navigation income by almost 11%;
- undertook emergency and safety repairs to numerous locks, moorings and landing stages;
- improved water points, pump-out and sanitary facilities and locks;

- produced various navigation promotional material;
- developed co-operation with other navigation bodies;
- carried out various navigation improvement work in conjunction with the private sector and local authorities.

**Policy:**

- to determine and assess the implications for all NRA functions of the operation of navigation by others including BWB by June 1991;
- to complete proposals for charging policy for NRA navigations by July 1991;
- to publish the navigation strategy by December 1991;
- to establish with BWB the appropriate interface for collaboration and sharing of expertise by December 1991;
- to review and consider the future management of navigation in the River Dee estuary, lengths of the River Wye, upstream of the proposed River Tees Barrage and Rye Harbour.

**Inputs**

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	0.6	0.7	0.8	1.0	1.0	1.0
EXPENDITURE (£m)							
Regulation/enforcement		1.1	1.0	1.3	2.1	2.3	2.5
NRA navigations operation and maintenance		1.7	1.7	1.6	1.8	1.9	2.0
Improvements/new works		0.7	0.9	0.7	0.7	0.7	0.7
Liaison/promotion		0	0	0.7	0	0	0
Other		2.5	2.4	2.6	4.0	4.5	4.7
	<b>Total</b>	6.0	6.0	6.9	8.6	9.4	9.9
Comprising Revenue		4.2	4.1	4.7	4.8	5.3	5.7
Capital		1.8	1.9	2.2	3.8	4.1	4.2
VARIANCE (£m)							
	<b>GIA</b>	5.4	5.3	6.1	7.6	8.4	8.9
MANPOWER (FTE)							
	<b>Total</b>	130	129	128	119	119	119
Included in the above are:							
Navigation Inspectors		16	16	16	16	16	16
Manual workers		39	38	38	38	38	38

**Finance**

The Authority will seek to increase navigation income between 1991/92 to 1994/95 through the development of a nationally agreed charging policy aimed at meeting more of the Authority's navigation costs.

The income figures above only reflect that income which the Authority is allowed to retain under the terms of its financial memorandum, all income from boat licence fees being returned to the Treasury.

The Authority has inherited some navigations with a backlog of urgently-needed work in order to maintain its integrity and public safety. Increases in expenditure are proposed between 1991/92 and 1994/95 to maintain and improve the operation of existing facilities and carry out works to improve public safety or reduce water pollution from craft. Additional expenditure on regulation and enforcement is also proposed to ensure increased income from charges.

## Output and Performance

### Policy:

- report on the implications for the NRA on the operation of navigations by others;
- new charging policy and management arrangements for certain NRA navigations;
- commencement of the implementation of the navigation strategy;
- collaboration policy with BWB and other operators of navigations.

### Operations

#### Enforcement and Regulation

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of craft licences	42,959	45,500	46,000	46,000	46,000	46,000
No. of licence checks	349,790	350,700	355,000	355,000	355,000	386,000
No. of licences complying	328,802	333,100	337,000	337,000	337,000	365,000
Compliance (%)	94	95	95	95	95	95
No. of bye-law offences	3,357	2,995	3,375	3,375	3,377	3,400
No. of cases taken to court	67	200	234	200	200	200
No. of successful prosecutions	58	190	230	200	110	200

The Authority anticipates a small increase in craft licences issued and lockages during 1991/92. Increased licence checking will be undertaken to maintain licence compliance at the current level of 95%. Enforcement of bye-laws will be increased which is anticipated will result in more cases being taken to court and offenders successfully prosecuted.

#### Facility Management

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
Length (km)						
- controlled	810	810	810	830	830	830
- operated	810	810	810	830	820	820
- maintained	800	790	790	820	820	820
- repaired	540	540	540	540	540	540
No. of lockages	385,800	386,400	390,000	390,000	390,000	390,000
No. of structures repaired	120	120	130	120	110	110

The Authority plans to control, operate, maintain, repair and improve the same length of navigable river in 1991/92 as in 1990/91. Changes in these activities in later years are based on assumptions of the Authority controlling navigation of the River Tees above the proposed barrage, another body taking over the navigation responsibility for the River Dee estuary and a slight increase in the length of other navigable waters maintained by the Authority.

#### New Works

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of improvement projects	18	21	21	4	3	3
Length (km) improved	1	2	2	4	4	4

More lock structures will be repaired in 1991/92 than in 1989/90 or 1990/91. Currently fewer lock repairs are projected in the future but this will be subject to review. The same number of navigation improvement projects are planned in 1991/92 as last year, but these then decline in future years. This projection will also be reviewed in 1991/92.

PROGRAMMES AND  
PLANS

SUPPORT SERVICES



*Aim:*

- to improve efficiency in the exercise of the NRA's functions.

*Objectives:*

- to continue to provide an efficient secretariat service to the Board of the Authority and Executive Team and harmonise and standardise administrative procedures for regional committees and Regional Advisory Boards;
- to provide administrative support, secretarial, registry, photocopying, typing and other services in order to enable efficient communication within and between Head Office, Regions and the Authority's core functions and support services;
- to provide office, library and information services appropriate to the needs of the Authority;
- to manage and monitor NRA communications, via telephone, facsimile and other means and arrange for the issue of public notices and advertising of the NRA in an efficient and cost-effective manner;
- to ensure that all moves to new accommodation are carried out efficiently, involving staff as appropriate;
- to arrange for the purchase and provision of all office furniture, services, equipment and stationery using national purchasing agreements where practical and economic;
- to operate an appropriate policy for the use of the Welsh language in the conduct of the Authority's business.

*Performance 1990/91*

In relation to its targets for 1990/91 the Authority successfully:

- produced an initial draft strategy for the function;
- developed effective means of dealing with parliamentary questions, input to committees and general liaison with Government departments;
- established a formal system of dealing with customer complaints in agreement with Government, Office of Water Services (OFWAT) and Drinking Water Inspectorate (DWI);
- established procedures for Board and Committee support, improved regional committee involvement in policy and planning processes and undertook a remuneration review;
- published a policy document for the use of the Welsh language on the Authority's business;
- established a system for dealing with enquiries from the public;
- completed office moves in three Regions and secured accommodation for the Head Office move to Bristol and commenced fitting-out the buildings.

*Targets 1991/92*

- to complete accessible databases of Board and Executive Team papers by April 1991;
- to produce a national NRA telephone directory by April 1991;
- to establish, where feasible and cost-effective, national agreements for the supply of goods and services to the NRA, in line with the recommendations of the Procurement Policy Group, in stages between April and November 1991 and to ensure all procurement complies with EC requirements on competitive tendering;
- to relocate most of Head Office to Bristol by July 1991, including the complete fitting-out of the buildings and the establishment of all services and maintenance contracts, and to ensure the effective completion of other office moves in accordance with regional targets;
- to complete the function strategy, including output and performance measures, by November 1991;
- to establish a library and information service for Head Office by November 1991 and review regional arrangements in accordance with regional targets;
- to review the operation of regional committees and produce guidelines to ensure harmonisation of their management and involvement by December 1991;
- to establish a central registry facility for Head Office by December 1991 and review filing and archiving systems in the Regions as appropriate to regional targets;
- to review the potential for a standard series of NRA forms to improve cost effectiveness by February 1992;
- to evaluate the feasibility of an office services policy for the NRA – covering, among others, procurement, energy efficiency and recycling – by March 1992;
- to ensure effective development of the Communications and Office Systems project within the framework of the IS strategy.

## Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	0	0	0	0	0	0
EXPENDITURE (£m)							
Support		8.0	9.8	11.7	12.1	12.7	13.3
Buildings		4.3	8.4	8.9	8.9	9.9	9.3
	<b>Total</b>	12.3	18.2	20.6	21.0	22.6	22.6
Comprising:							
Revenue		11.7	16.3	19.2	19.6	20.8	22.0
Capital		.6	1.9	1.4	1.4	1.8	.6
VARIANCE (£m)							
	<b>Charged to core functions</b>	12.3	18.2	20.6	21.0	22.6	22.6
MANPOWER (FTE)							
- Non-Manual		284	319	351	354	354	359
- Manual		1	2	2	2	2	2
	<b>Total</b>	285	321	353	356	356	361

Regional facilities bought in 1991/92 include the upgrading of word-processing equipment, the establishment of library information databases and computerised purchasing modules to improve efficiency. Increased expenditure also takes account of the administrative effort associated with conforming to EC competitive tendering requirements, but is balanced by a number of specific initiatives to reduce telephone, fax and energy costs. In subsequent years, expenditure rises less than, or in line with, in-built inflation assumptions, reflecting the impact of efficiency initiatives, and staffing levels remain effectively constant.

## Output and Performance

### Policy:

- function strategy and associated output and performance measures;
- regional committee guidelines;
- feasibility study of office services policy;
- user requirements fed into the specification of Office systems arising from the IS strategy.

### Operations:

- new Bristol Head Office building occupied with relevant contracts established;
- national contracts as appropriate for the supply of goods and services to the NRA;
- national NRA telephone directory;
- standard NRA forms, as appropriate;
- Head Office central registry;
- Head Office library and information service.

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of Board meetings serviced	12	11	10	10	10	10
No. of RAB meetings serviced	84	102	100	99	99	99
No. of Regional Committee meetings serviced	222	291	287	290	290	275
No. of parliamentary questions	64	118	119	117	119	120
No. of MPs' letters	1,145	1,148	1,186	1,170	1,185	1,195

The harmonisation of regional committee practices will include a review of the regularity of meetings. Work associated with parliamentary questions and MPs' letters is, of course, demand driven, but the levels experienced to date are expected to continue throughout the Plan period.

## Aim:

- to improve efficiency in the exercise of the NRA's functions.

## Objectives:

- to provide professional, comprehensive, consistent and timely legal advice for the Authority, using both in-house and, where appropriate, consultant legal services;
- to obtain adequate protection for the Authority by the promotion of, or opposition to, primary and sub-ordinate legislation affecting the Authority's functions;
- to formalise arrangements and agreements to protect the Authority's interests in assets generally, including (where appropriate) undertaking the necessary conveyancing;
- to institute criminal proceedings in relation to all legislation relevant to the Authority's functions, adopting a fair approach, showing no undue preference to or discrimination against any person, within prescribed policy guidelines, and to pursue the prosecution of such matters with the utmost vigour;
- to represent the Authority's interests by undertaking all aspects of civil and criminal litigation or alternatively arranging where appropriate the necessary representations, including attendance at all courts, public enquiries held in relation to planning, compulsory purchase, drought or other matters and all tribunals, including the Lands Tribunal and those dealing with industrial relations issues, and by negotiating with third parties including Government departments;
- to review the activities of staff with a view to providing guidance and training where appropriate on the legislative duties and powers of the Authority, particularly the new duties and powers set out in the Water Act;
- to establish an estates terrier comprising all of the Authority's land holdings, lettings and interests in land;
- to optimise the use of the Authority's fixed assets with a view to maximising income therefrom, in so far as it is consistent with operational requirements;
- to facilitate the implementation of capital programmes by the provision of surveying and valuation services to all functions;
- to provide professional, comprehensive, consistent and timely advice on estates matters for the Authority, using both in-house and external consultancy valuation services;
- to maximise reimbursement of NRA costs in court cases taken by the Authority.

## Performance 1990/1991

In relation to its targets for 1990/91 the function successfully:

- provided legal advice in the formulation of new policies (eg. charging for discharges), in monitoring draft legislation (eg. the Environmental Protection Bill) and in the protection of the Authority's interests in local Bills (eg. the Aire & Calder Navigation Bill, the Tees Barrage Bill and the Cardiff Bay Barrage Bill);
- held training seminars on prosecution procedures in several Regions;
- prosecuted over 4,800 cases, of which some 800 were for pollution offences, and recovered in excess of £300,000 in costs representing some 13% of the function's total costs.

## Targets 1991/92

The Authority has set itself the following targets for 1991/92:

- to complete function strategies, including the development of relevant output and performance measures, by November 1991;
- to establish a policy on the role of NRA officers in giving advice to outside organisations and individuals by October 1991;
- to develop further consistent approaches to enforcement across the NRA by November 1991;
- to establish a Head Office-based legal information system and develop the national fisheries prosecution system by November 1991;
- to review the relative benefits of in-house and contracted-out legal services with a view to maximising efficiency by November 1991.
- to review identified categories of bye-laws by January 1992;
- to establish a national property assets database by March 1992;
- to review existing fixed asset management and establish new policy in line with the Financial Memorandum by March 1992;
- to review surveying and valuation services and produce national guidelines by March 1992.

## Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	<b>Total</b>	0	0	0	0	0	0
EXPENDITURE (£m)							
LEGAL							
Advice		.3	.4	.5	.5	.5	.5
Conveyancing		.3	.4	.4	.4	.5	.5
Litigation		1.0	1.2	1.2	1.3	1.3	1.4
Other		.4	.5	.5	.5	.6	.6
	<b>Total</b>	2.0	2.3	2.6	2.7	2.9	3.0
ESTATES							
	<b>Grand Total</b>	.5	.8	1.0	1.0	1.1	1.1
		2.5	3.1	3.7	3.8	4.0	4.1
Comprising:							
Revenue		2.5	3.1	3.7	3.8	4.0	4.1
Capital		0	0	0	0	0	0
VARIANCE (£m)							
	<b>Charged to core functions</b>	2.5	3.1	3.7	3.8	4.0	4.1
MANPOWER (FTE)							
- Legal		72	79	94	91	91	91
- Estates		28	30	34	33	33	33
	<b>Total</b>	100	109	128	124	124	124

The proposed increases in expenditure from 1990/91 to 1991/92 reflect in part the increased staffing levels for legal (19%) and for estates (13%). For the legal function, the inputs planned for 1991/92 reflect an expected increase in the number of offences taken to court. Debt cases are projected to rise almost threefold in 1991/92, and remain at high levels thereafter, reflecting the introduction of the charging for discharges scheme and revisions to existing schemes.

For the estates function, the proposed increases in 1991/92 acknowledge the previous under-resourcing of the function, as well as indicating the increased effort in securing NRA land interests as a result of the growing flood defence programme and the expansion of the hydrometric network.

## Output and Performance

### Policy:

- completed function strategies and output and performance measures;
- policy on the role of NRA officers giving advice externally;
- national guidelines for surveying and valuation;
- revised asset management policy.

### Operations:

- training programmes and materials;
- legal information system;
- acquired land interests;
- national property assets database;
- identified surplus assets.

<i>Outputs</i>						
	ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
	89/90	90/91	91/92	92/93	93/94	94/95
<b>LEGAL SERVICES</b>						
No of Conveyancing Transactions	477	670	800	740	750	760
No. of Bye-law Confirmations	5	7	11	9	4	4
No. of Offences taken to Court	4,646	5,070	5,800	5,500	5,500	5,500
No of Successful Prosecutions	4,377	4,840	5,500	5,200	5,200	5,200
No of successful Debt Cases	129	690	1,900	1,600	1,700	1,700
Fines (£k)	1,420	843	1,365	960	1,060	1,120
Costs Recovered (£k)	206	334	560	390	420	440
<b>ESTATES SERVICES</b>						
No. of Records Placed on Terrier	6,074	3,800	1,200	1,100	1,100	1,100
No. of Registrations of NRA Interests at HM Land Registry	78	120	150	90	90	90
No. of Rent Reviews	637	630	670	630	620	620
No. of Statutory Notices for Land	1,961	2,200	2,200	1,800	1,800	1,800
No. of Wayleaves/Licences Granted	516	620	410	390	390	400

As support services, many of the outputs for these functions reflect the demands imposed by core function activities, particular examples being the number of offences taken to court or the number of statutory notices served for land.

## Aim:

- to improve public understanding of the water environment and the NRA's work.

## Objectives:

- to improve public understanding of the water environment and achieve a high level of public awareness and support for the NRA at home and overseas (particularly in Europe) in its role as Guardians of the Water Environment;
- to develop the corporate image of the NRA by promoting its policies, actions, activities and identity;
- to provide an effective service for the media and public in emergencies involving the NRA;
- to establish and maintain good internal communications;
- to establish the NRA as the definitive source for information and advice on the water environment for schools.

## Performance 1990/1991

In relation to its targets for 1990/91 the Authority:

- produced a design manual of corporate identity guidelines and introduced a range of basic merchandise;
- responded to over 21,000 public and 13,000 media enquiries;
- continued to develop the style and circulation of the NRA's monthly newspaper, *The Water Guardians*;
- produced some 140 publications, 50 displays and nine videos;
- established a framework for the preparation of its public relations strategy;
- was involved in over 4,600 media interviews and some 390 external speaking engagements.

## Targets 1991/92

The Authority has set itself the following targets for 1991/92:

- to commission periodic public awareness surveys of NRA actions and activities, beginning summer 1991;
- to produce corporate media handling guidelines by September 1991;
- to review present PR handling arrangements within the NRA and make recommendations by October 1991 to improve corporate PR effectiveness and efficiency;
- to produce a public relations strategy by December 1991;
- to review NRA publications, film and audio production and make recommendations by January 1992;
- to commission a visual audit of the NRA's identity and develop a corporate identity implementation programme by January 1992;
- to develop an NRA exhibitions and events policy by January 1992 and, by March 1992, develop a planned programme of national participation in such events for 1992/1993;
- to review distribution arrangements for *The Water Guardians* and produce a marketing plan for the newspaper by March 1992;
- to ensure publication of the *Corporate Plan* by August 1991, *Annual Report & Accounts* by October 1991, core function strategies and corporate strategy by December 1991;
- to develop a comprehensive schools policy by March 1992.

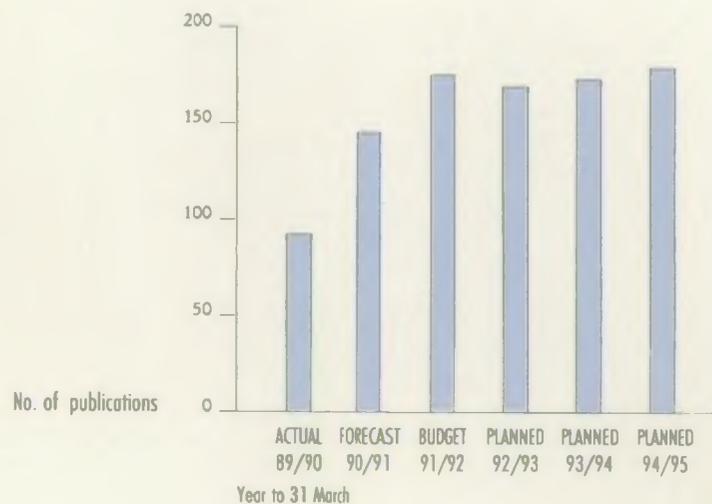
## Inputs

		ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
		89/90	90/91	91/92	92/93	93/94	94/95
INCOME (£m)	<b>Total</b>	0	0	0	0	0	0
EXPENDITURE (£m)							
Public and media response		.4	.6	.6	.6	.7	.7
Publications and promotional material		.3	.7	.7	.8	.8	.9
Events and exhibitions		.2	.4	.5	.5	.5	.5
Other		.2	.2	.3	.3	.3	.3
	<b>Total</b>	1.1	1.9	2.1	2.2	2.3	2.4
Comprising:							
Revenue		1.1	1.9	2.1	2.2	2.3	2.4
Capital		0	0	0	0	0	0
VARIANCE (£m)							
	<b>Charged to core functions</b>	1.1	1.9	2.1	2.2	2.3	2.4
MANPOWER (FTE)							
Non-Manual		30	38	45	44	45	45
Manual		0	0	0	0	0	0
	<b>Total</b>	30	38	45	44	45	45

## Output and Performance

- public awareness surveys;
- media-handling guidelines;
- marketing plan for *The Water Guardians*;
- corporate identity audit and implementation programme;
- published *Corporate Plan, Annual Report & Accounts*, core function and corporate strategies and core function leaflets;
- Schools policy and GCSE schools pack;
- exhibitions and events policy.

### Publications



	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
NEWS RELEASES ISSUED (NO.)	625	1,040	1,100	1,000	1,000	1,000
TELEPHONE AND WRITTEN INQUIRIES (NO.)						
– public	18,355	21,100	25,300	21,200	21,200	21,200
– media	7,819	13,650	14,000	12,700	12,800	12,800
INTERVIEWS AND TALKS GIVEN OR ARRANGED FOR OTHER NRA OFFICERS (NO.)						
– newspapers	1,457	2,500	2,600	2,300	2,300	2,300
– radio	857	1,600	1,600	1,500	1,600	1,600
– TV	369	500	520	480	480	480
– events	253	390	430	380	370	370
PROMOTIONAL MATERIAL (NO.)						
– publications	92	145	175	170	175	180
– videos	16	9	15	11	10	10
– educational packs	1,521	2,000	3,000	2,000	2,500	3,000
– displays	38	50	70	50	50	50
– other	5	10	10	15	15	15
CIRCULATION OF <i>THE WATER GUARDIANS</i> (NO.)	7,410	16,700	18,400	16,900	16,900	16,900
EVENTS ATTENDED (NO.)						
– indoor exhibitions	76	125	145	125	125	125
– outdoor shows	24	31	40	35	35	35
– other	27	58	65	60	60	60

The outputs show the heavy demands placed on the function during 1990/91 where, in many areas, much higher levels of activity than had been planned for were required. It is anticipated that these high levels of activity will continue during 1991/92 and beyond.

Reductions in outputs for 1992/93 to 1994/95 from 1991/92 levels are accounted for in a more co-ordinated national approach to PR as a result of the function strategy.

## Aim:

- to improve efficiency in the exercise of the NRA's functions.

## Objectives:

- to develop and implement an effective and efficient IS strategy appropriate to the needs and resources of the NRA;
- to review the IS strategy annually to ensure it meets changing functional needs;
- to ensure the co-ordination and provision of interim information systems during the transition to the corporate IS strategy in such a way that essential needs are met in a manner consistent with the overall strategy;
- to ensure that national and major regional investment in IS is targeted and justified via the controlling framework operated by the business as a whole;
- to ensure the continuing provision of acceptable interim IS facilities either by agreement with the water utility plcs, other external agencies or directly by NRA Regions and Head Office;
- to ensure that appropriate business and technical resources are available to fulfil the requirements outlined in the 1991/92 IS implementation plan.

## Performance 1990/91

In relation to its targets for 1990/91 the Authority:

- commissioned Phase 3 of its IS strategy;
- co-ordinated its involvement in the water industry's trunked private mobile radio system;
- monitored technology and communications service agreements held with the water utility plcs and undertook audits of the security and confidentiality of certain of the systems provided.

In addition to providing a high standard of operational services to users, the year was dominated by further work on the Authority's IS strategy, Phase 2 of the strategy being presented to the Board in the spring of 1990. Initially the Board did not support the proposed strategy in detail, although they accepted the general principle of the development of national systems where justified. The Board agreed further detailed work was required and accordingly, Phase 3 of the strategy was commissioned to investigate a number of issues including:

- a controlling framework for IS investment;
- IS standards and procedures;
- resourcing strategy;
- strategic technologies and a supporting architecture;
- IS education and training.

In addition, it was agreed that a refined implementation plan would be produced, highlighting the highest priority applications which would be progressed in the short-term. This plan would also include migration issues. Following delays caused by financing and Head Office accommodation restrictions, the project commenced in October 1990. An early output was the establishment of a controlling framework to integrate the control of IS issues into the overall corporate planning process. Phase 3 delivered detailed staged outputs throughout the process, concluding with its final report to the Board in April 1991.

Key applications for 1991/92 have been identified. Two of fundamental importance are the development of the IAS which will be based on a national data-processing centre and a national communications network. The network will connect all regional Headquarters to the London and Bristol Offices and will provide an effective network for voice and data needs.

Other key areas moving forward in 1991/92 are the implementation of the charging for discharges database and the development of a Planning and Performance Measures System, an Office System and a Water Monitoring and Archive System ie. a database of all key operational information on the NRA's business. These applications are essential to the effective and efficient operation of the NRA.

In addition to these national developments, the Regions and Head Office need to continue to provide an ongoing service to users and at the same time be in a position to pick up the national developments as they are delivered.

Guidelines have been issued on the hardware and software types and standards to be adopted to help the Regions develop appropriate migration plans. The NRA intends to adopt an open systems approach wherever practicable so that it is not dependent on any particular proprietary hardware or software.

Moving away from the contracts with the water utility plcs will increase the in-house work load in many of the Regions, and it is essential that the required number and quality of staff are recruited to enable this to be done. Similarly, the importance of the national developments to the NRA makes it essential that the

Head Office recruits good quality IS staff as a matter of priority.

As far as funding of IS is concerned, it is essential that the IS implementation plan for future years identifies the costs of all IS work on a functional and regional basis. All expenditure must be justified on the basis of the benefits that will be achieved from the expenditure.

### Targets 1991/92

The Authority has set itself the following targets for 1991/92:

- to ensure the implementation of the computerised charging for discharges system in Regions by July 1991;
- to provide appropriate IS facilities for the new Head Office building planned for completion by July 1991;
- to begin the phased implementation of the IS strategy, approved by the Board, during the early part of 1991/92 through a formal IS implementation plan agreed through the IS controlling framework. This implementation will commence with identified priority projects including integrated accounting, water archive, water abstraction charging, communications and office systems, and planning and performance measures;
- to facilitate the requisition of the resources necessary for implementation of the 1991/92 Plan by October 1991;
- to provide a planned IS implementation programme for 1992/93 by October 1991;
- to develop and implement performance measures relevant to the management of the IS function by March 1992.

### Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	Total	0	0	0	0	0	0
EXPENDITURE (£m)							
Operating Costs		10.9	18.2	23.2	22.2	23.4	24.3
Comprising:							
Revenue		9.3	14.3	18.2	18.6	19.3	20.4
Capital		1.6	3.9	5.0	3.6	4.1	3.9
VARIANCE £m							
	Charged to core functions	10.9	18.2	23.2	22.2	23.4	24.3
Development Costs (£m) (IS Strategy)		-	1.3	5.0	11.9	12.5	13.0
	Grand Total	10.9	19.5	28.2	34.1	35.9	37.3
MANPOWER (FTE)							
Non-Manual		95	129	176	175	182	190
Manual		0	0	0	0	0	0
	Total	95	129	176	175	182	190

### Finance

The expenditure above is to maintain and consolidate present systems; fulfil IS professional responsibilities (including security and integrity); provide flexible local solutions; migrate (in part) away from the water utility plc contracts; and to implement some of the key applications referred to earlier.

The current cost of maintaining existing IS services within the Regions is estimated at some £23m pa (1991/92). It must be emphasised, however, that this expenditure will not provide any substantial added benefit over present services and will not remove the reliance on the water utility plcs. The maintenance costs of existing systems become increasingly expensive as hardware and software ages.

Some £9m is presently identified and earmarked to finance the 1991/92 IS strategy implementation plan. As the IS plans are firmed up by the prioritisation of requirements through the controlling framework, the expenditure in subsequent years will be identified in detail.

### Staffing

The computing infrastructures and support staff inherited by the Authority's regional units varied substantially (some Regions having only two or three staff). The increases in manpower demonstrate the importance attached by Regions to the provision of local services. In addition, an interim increase of nine Head Office IS staff has been identified to fulfil the national co-ordination of strategy development pending final approval of the formal IS strategy. A further eight staff have been approved as part of the HO IS structure but these are not to be filled with permanent staff until 1992/93, unless approval is obtained prior to this.

Manpower inputs do not include the total resources associated with the implementation of an approved IS strategy and relate to the requirements necessary to maintain existing computing services, the provision of some local improvements, national strategy development and interim national initiatives. The continuation of the IS contracts with the water utility plcs will continue until the major applications in the IS strategy are implemented, however, the transfer of some of the smaller systems and communications networks to NRA responsibility is planned in the near future.

Additional manpower requirements will be identified within the strategic implementation plan. A long-term increase in regional manpower will be required over the next 5-7 years to provide local operations and support as the new strategic applications are implemented, and the Authority withdraws from most computer bureau arrangements with the water utility plcs. Major areas of software development are likely to go out to contract and the increases are limited to those necessary to manage the overall Implementation Plan and subsequent systems operation. It is estimated that the long-term requirement for IS staff in the Authority will level out at some 250-300 FTE. Additional resources over and above currently agreed levels will need to be justified in due course.

## Output and Performance

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
No. of PCs supported per head	.38	.43	.45	.45	.48	.5
No. of mini computers supported	31	58	72	76	86	92
No. of Local Area Networks supported	17	40	53	69	75	76
No. of telemetry out-stations supported	1,581	1,950	2,200	2,450	2,600	2,700

- Strategic implementation plan – updated annually and includes:
  - national application development plan,
  - regional and Head Office migration plans,
  - hardware and communications installation plans,
  - overall financial plan;
- interim IS plans including regional and Head Office migration plans;
- IS resourcing plan (to allow fulfilment of the IS strategy);
- IS training strategy (including an IS awareness programme);
- development of a corporate data model for the NRA to provide a framework within which software applications can be developed;
- development of integrated accounting, water archive, charging for water abstraction and planning and performance applications.

## Aim:

- to improve efficiency in the exercise of the NRA's functions and to provide new knowledge and techniques which increase the ability of the NRA to discharge its duties.

## Objectives:

- to achieve an R&D programme which provides new knowledge and techniques to address the NRA's objectives and to enhance its general operational performance;
- to maximise the cost effectiveness of the NRA's R&D programme by optimum utilisation of research resources, by carrying out technical and financial assessment of R&D, through collaborative working where appropriate, and by taking advantage of R&D carried out by other organisations;
- to ensure effective dissemination and uptake of the results of R&D.

The above are management objectives which relate to all R&D. Because R&D is a support service to other functions, the technical and scientific objectives and targets addressed by the present R&D programme largely reflect the operational needs and short-term targets of the core functions and, to a limited extent, other support services. These programme objectives are listed for each of the 33 topic areas in the 1991/92 programme in Appendix 2.

The development of core function and support service strategies during 1991 should enable the definition of strategic technical and scientific R&D objectives for 1992/93. Also, the programme inherited by the NRA at vesting will be largely completed by the end of 1991/92 (62% and 32% respectively of the R&D budget in 1990/91 and 1991/92 has been allocated to inherited projects). Few of these projects will continue into 1992/93, when the R&D programme will thus become more strategically-orientated.

## Performance 1990/91

In relation to its targets for 1990/91, the Authority successfully:

- expanded the R&D programme to 168 active projects achieved within new R&D management framework (1990/91 budget £3.6m inherited on-going, £2.2m new starts) with 52 projects completed and 100 projects started;
- initiated the integrated management of the R&D programme between Head Office and Regions. Technical and financial management responsibility were devolved to Regions for 98 new project starts and 27 inherited projects;
- established an External Liaison Group with DoE, MAFF, Welsh Office, Scottish Office, Water Services Association and Foundation for Water Research for developing appropriate liaison strategies on major research initiatives;
- achieved an external funding level for the 1990/91 programme of 6% of overall programme cost;
- installed all Regional R&D Co-ordinators and Head Office R&D staff by end February 1991;
- completed the retrospective appraisal of 45 (out of 52) on-going inherited projects;
- held an "Open Forum" meeting with potential research contractors and collaborating research commissioning organisations;
- published a note on *Research and Development in the NRA*;
- compiled and prepared for publication the *Annual R&D Review 1990*;
- completed and began operational trials on a computer data base for technical and financial data on R&D projects (R&D Information System, 1st Edition);
- developed a scheme for NRA Research Fellowships at higher education institutes;
- developed an active interface between the national "R&D Programme" and "Regional Operational Investigations";
- held two open seminars on subjects of key interest to NRA and researchers;
- received positive internal and external response both to the way in which the NRA's R&D programme is developing and to the value of outputs to date.

Overall, progress made on developing the NRA's R&D programme in 1990/91 was good, bearing in mind the fact that the NRA's new management framework for R&D was still being set up. By the end of the year, all programme management staff appointments had been completed in both Head Offices and each Region. Also the "ownership" of Commission programmes by respective core function (operations) staff had become more apparent, although practical ways still need to be developed to take account of the costs to each Region of operations staff involvement.

On specific R&D projects, in Commission A (Water Quality), important work was started to enable the NRA to put a value on improvements or deterioration of the water environment and to support development of environmental quality standards. Significant outputs include enhancements to RIVPACS (for assessing

biological quality) and new data on ecotoxicology, bathing waters and the environmental effects of effluents.

In Commission C (Flood Defence), results from reviews of flood forecasting practice and flood defence operational management (particularly on standards of service) have each enabled an important consensus of best practice and future R&D priorities in these high priority areas to be established. In Commissions B (Water Resources), D (Fisheries), E (Recreation and Navigation) and F (Conservation), entirely new research programmes have been established. The work on environmentally-acceptable flows will take a significant step in establishing a basis for ensuring that the aquatic environment is not damaged by over-abstraction, while that on environmental assessment methodology will ensure that the NRA adopts a consistent and properly considered approach to environmental assessments.

#### Targets 1991/92:

- to develop and commence 75 new projects;
- to complete 95 projects;
- to complete familiarisation of all R&D programme management staff (Regional Co-ordinators and Head Office staff) and achieve effective management by April 1991;
- to review and update existing guidance notes on project development, project supervision and financial control, and contract documentation by December 1991;
- to have appointed Project Leaders and drawn up a programme for development of all projects approved in the 1991/92 programme by June 1991;
- to have an improved R&D Information System (2nd Edition) able to provide effective technical and financial management data on R&D projects/programme throughout the NRA by June 1991;
- to establish effective management of all R&D projects, through Project Leaders/Regional R&D Co-ordinator, by July 1991;
- to have implemented improved procedures for R&D reporting and dissemination by July 1991;
- to hold consultations in each function area to publicise key results of R&D and to provide an appropriate interface with external research-commissioning organisations and potential research contractors for future programme identification, by August 1991;
- to appoint four NRA Research Fellows by September 1991;
- to develop guidelines for responsibilities and resourcing of regional operations staff involved as Commissioners, Topic Leaders and Project Leaders to achieve improved accountability for operations staff involvement by September 1991;
- to develop the R&D support service strategy complete with strategic technical R&D objectives by December 1991;
- to publish the *Annual R&D Review 1991* by October 1991;
- to review the on-going programme, to identify new projects starts and to confirm the proposed R&D programme for 1992/93 by February 1992;
- to increase external funding levels for the 1992/93 programme to 10% of total R&D inputs by March 1992;
- to develop procedures for post-project evaluation and performance indicators for assessing the effectiveness of completed R&D projects by May 1992.

1991/92 is planned as a year for both consolidation and expansion of the R&D programme. With all R&D management staff in post, major efforts will be made to achieve efficient running of the programme – in particular to achieve an effective interface between core function operations staff (“customer”) and R&D management staff. With the development of the R&D support service strategy, it is planned that strong strategic elements will be introduced into the R&D programme review for 1992/93, although some scope will be left for short-term “tactical” research. Efforts will continue to be made to achieve a better interface with, and benefits from, R&D programmes carried out by other organisations (eg. EC, DoE, MAFF, Foundation for Water Research) with similar interests to the NRA.

## Inputs

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m) (external co-funding)						
<b>Total</b>	-	0.4	1.0	1.3	1.6	1.7
EXPENDITURE (£m) <sup>1</sup>						
OVERALL						
R&D <sup>2</sup>	3.9	6.1	9.5	10.7	11.3	11.6
Operational Investigations	0.8	1.8	2.0	1.7	1.6	1.6
COMMISSION/FUNCTION <sup>3</sup>						
A Water Quality	3.3	4.4	5.4	5.3	5.5	5.8
B Water Resources	0.1	0.4	1.0	1.1	1.1	1.1
C Flood Defence	0.1	0.6	1.2	1.6	1.8	1.8
D Fisheries	0.1	0.4	0.8	0.9	1.0	0.9
E Recreation/Navigation	-	0.0	0.1	0.1	0.1	0.1
F Conservation	0.1	0.1	0.4	0.6	0.6	0.7
G General Operations	-	-	0.3	0.5	0.5	0.5
Technical Services	0.2	0.2	0.2	0.3	0.3	0.3
Fellowships	-	-	0.1	0.3	0.4	0.4
MANPOWER (FTE) <sup>4</sup>						
Non-manual	5.5	11	14	15	15	15
Manual	0	0	0	0	0	0
<b>Total</b>	5.5	11	14	15	15	15

### Notes:

1. Includes £1.3m on project transferred from DoE on 1 April 1990.
2. R&D project, Technical Services and Fellowships expenditure (either internal or external).
3. R&D Project Leaders, Topic Leaders and Commissioners input included in core function data.
4. Covers only manpower specifically allocated to R&D programme management.

In 1991/92, planned expenditure by the NRA on the R&D programme will increase from £6.1m in 1990/91 to £9.5m, representing 2.1% of the NRA's total planned expenditure. This provides for £9.2m on R&D projects, with £0.2m on technical services provided by external centres of expertise and £0.1m on the introduction of the NRA Research Fellowship scheme. Budgets for all Commissions show increases over 1990/91 budgets – the doubling of budgets for Commissions B, C, D and F reflect the minimal inherited R&D programmes supporting these core functions. The peak in Commission A expenditure in 1991/92 is due to a bunching of new starts in late 1990/91 together with the significant number of on-going inherited projects – mainly scheduled for completion before 1992/93. The average project size is planned to increase to £48k/project/annum reflecting the perceived benefits to management and project effectiveness of having fewer, larger projects. Expenditure on projects in each Topic area is listed in Appendix 2.

Regional Operational Investigations (as reported in Regional Plans) are in fact budgeted and managed regionally and are indicated in the table above only to draw attention to the need to maintain an effective interface between these and the R&D programme.

In terms of source of funding, the planned 1991/92 R&D programme of £9.5m is charged to GIA and charging for discharges (£7.3m), water resources (£1.0m) and flood defence (£1.2m). This includes the cost of Regional R&D Co-ordinators.

## Output and Performance

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
Projects underway	90	168	198	178	172	168
Projects started	–	101	75	75	70	60
Projects completed	23	45	95	75	70	65
PERFORMANCE INDICATORS						
Average project size (£k/annum)	41	36	48	54	63	68
Relative size NRA R&D budget (% total NRA planned expenditure)	1.2	1.8	2.1	2.1	2.3	2.3
Extent of external co-funding (% total R&D programme cost)	7	6	10	14	15	15

The number of projects underway will peak in 1991/92. This reflects partly the move to fewer, larger projects and partly the completion of various short reviews and project identification studies initiated at the start of the programme. Significant effort is planned in 1991/92 for improving dissemination of outputs to NRA staff.

R&D performance measures fall into three distinct areas, relating to throughput, programme management and value to the NRA. The first two of these are already in operation and indicate primarily output levels, economy and efficiency. The third area deals with the function's effectiveness and will be developed over a longer time-scale with the R&D support service strategy.

### *Throughput (General Indicators)*

These are primary indicators/measures of resource commitment and outputs for each Region, Commission and for the NRA as a whole:

- number of projects underway in period;
- number of projects started in period;
- number of projects completed in period;
- average project size (cost) in period.

For each Commission and the NRA as a whole:

- proportion of overall core or NRA expenditure committed to R&D, expressed as a percentage as (R&D Annual Inputs/Total Annual Expenditure);
- extent of co-funding of R&D projects by external organisations, expressed as a percentage as (External Annual Inputs/Total Annual Inputs).

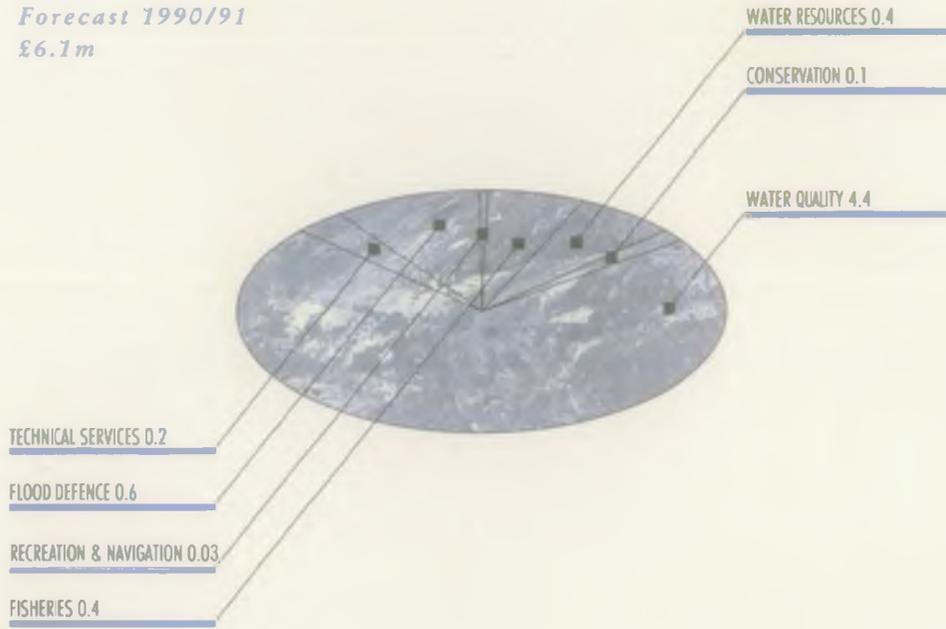
### *Notes:*

1. *Period is typically a financial year.*
2. *R&D Inputs for performance monitoring comprise an estimate of total R&D cost, based on actual project costs plus a standard adjustment for NRA internal management costs. For each Commission, this adjustment is based on number of projects and average project size.*
3. *Total Annual Expenditure includes both Capital and Revenue expenditure.*

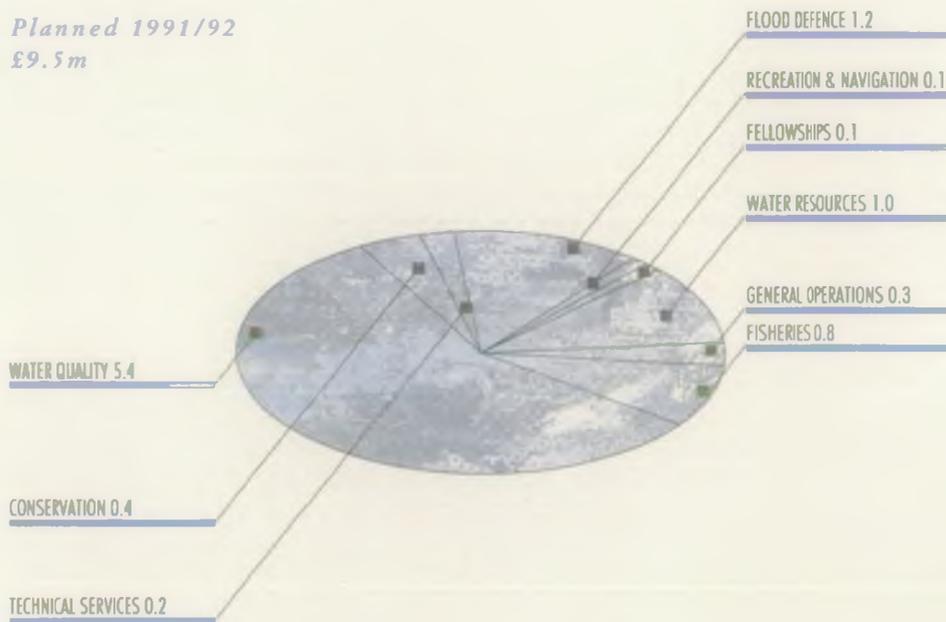
## Research and Development Programme

Costs by Commission

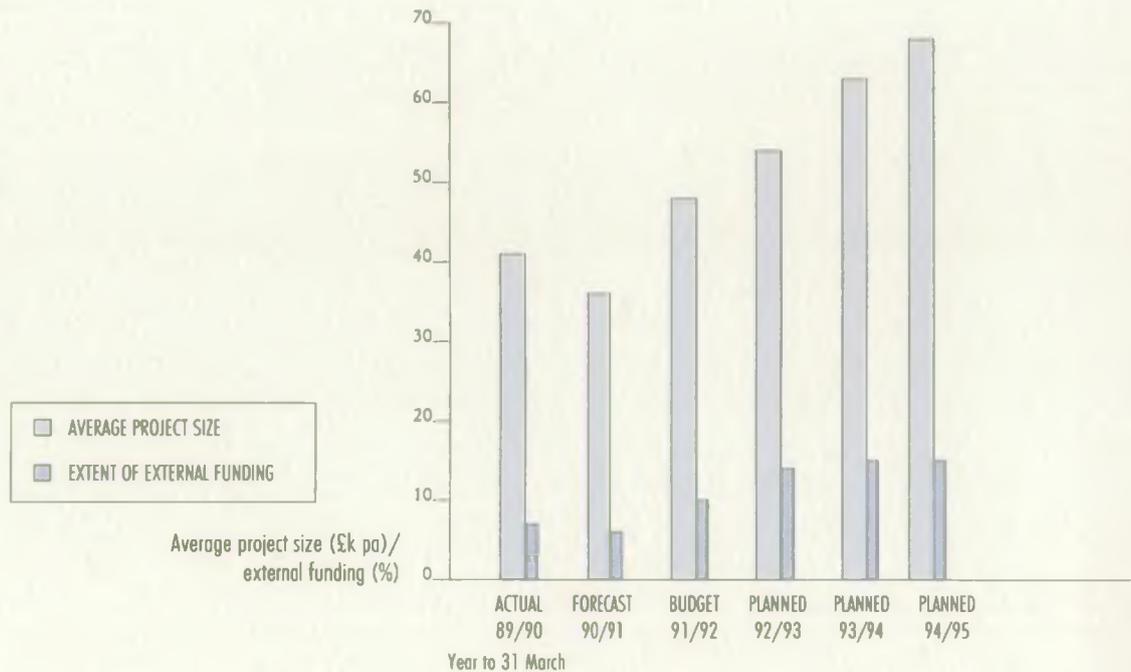
Forecast 1990/91  
£6.1m



Planned 1991/92  
£9.5m



*Research and  
Development Performance*



*Programme Management*

These are measures of whether individual projects and the programme as a whole achieve their own targets. Individual projects are assessed by their performance against the targets, timescales and costs which were identified at time of Project Investment Appraisal.

The basic unit of performance measurement at project level is subsequently used to provide further measures of performance at Regional, Topic, Commission and overall Programme level. Performance is assessed every six months. The basic project management measures are:

$$\frac{(\text{Original Project Costs} - \text{Cost to Date})}{\text{Estimated Remaining Cost}}$$

*Economy Indicator*

$$\frac{(\text{Original Projected Duration} - \text{Elapsed Time to Date})}{\text{Estimated Remaining Time}}$$

*Efficiency Indicator*

For well-defined and managed projects and programmes, these ratios will remain close to unity. Substantial changes in project objectives will be accompanied by agreed variations to targets, timescales and costs in the Project Investment Appraisal, and will not therefore result in a poor performance index.

*Value to the NRA*

Effectiveness measures can be difficult to apply to some types of R&D. These will be developed, over the next five year period, from concepts set out in the R&D support service strategy. Effectiveness will be assessed by examining 'targeting of NRA needs; quality of output (by peer review); uptake and dissemination' and, where possible, financial benefits.

*Aim:*

- to provide challenge and opportunity for employees and show concern for their welfare.

*Objectives:*

- to develop employee Health & Safety and Welfare policies in line with legislation and best practice and in particular to consider: safety and safety awareness, occupational health and welfare;
- to develop recruitment, outplacement and retirement policies and practices in line with the Authority's needs;
- to research and assess the impact of EC social harmonisation issues on employment matters in order to conform with legislation and to attract and retain employees;
- to initiate consideration of the implications of introducing a multi, cross-functional skills approach to jobs in order to maximise effective utilisation of employee resources and to avoid waste through unnecessary overlap and demarcation;
- to maintain fair and consistent terms and conditions through a review of job-evaluated employee gradings, cars provision, payment and pensions systems and to ensure effective communication on these issues;
- to pursue the aim of improved communications through the production of an employee handbook and the development of: job descriptions, systems and methods of communication and other personnel policies;
- to continue training needs analyses in order to improve job performance and assist manpower planning, recruitment, management development programmes, the creation of job descriptions, training and personnel policies and systems;
- to investigate manpower planning strategies appropriate to the NRA and to determine and design personnel information systems, noting staff grading and manpower utilisation issues.

*Performance 1990/91*

In relation to its targets for 1990/91 the Authority:

- developed a revised Head Office structure for London and Bristol locations and commenced recruitment to new posts;
- produced a draft personnel strategy, including the derivation of initial output and performance measures;
- implemented a graduate recruitment scheme, appointing 29 graduates from over 1,000 applicants;
- completed needs analyses to identify job skill levels for the water quality function;
- assimilated all senior managers onto Hay-evaluated scales;
- began work on restructuring non-salary benefits for all employees by identifying variations in terms and conditions;
- revised national agreements to provide a common basis for terms and conditions;
- successfully concluded the first set of national salary negotiations;
- put in place the framework for the introduction of a uniform 37-hour week without incurring additional cost;
- let advertising and recruitment contracts to ensure consistent application of interim national policy in these areas;
- formulated a draft training policy.

Other achievements include:

- the completion of a national Health & Safety Policy;
- the introduction of Health & Safety Codes of Practice relating to electro-fishing, lone-workers and kinetic handling;
- the completion of training programmes associated with the NRA COSHH manual published in 1989/90.

*Targets 1991/92*

The Authority has set itself the following targets for 1991/92:

- to develop an integrated graduate-level recruitment and training programme in line with identified needs by August 1991;
- to undertake training needs analyses for each function for staff above NJSC grade 7 in selected Regions by March 1992;

- to establish guidelines for the conduct of management audit by August 1991;
- to produce an employee handbook and explanatory video on the NRA Pension Scheme by September 1991;
- to set policy for implementing the recommendations of Staff Inspection Reports by September 1991;
- to develop national Health & Safety and Training Resource facilities and complete two regional Health & Safety audits by October 1991;
- to complete the personnel function strategy, including the development of relevant output and performance measures, by November 1991;
- to review recruitment and advertising policies and procedures and to set up a standardised administration system to ensure timely and efficient resourcing and filling of vacancies by November 1991;
- to design and develop a single Occupational Health Service by December 1991;
- to provide training for Directors, RGMs and Senior Managers on performance appraisal by December 1991;
- to develop a co-ordinated management development policy and programme by January 1992;
- to define and rationalise boundaries between NJSC and Senior Managers' jobs by January 1992;
- to develop, with professional institutes, training programmes for engineering, scientific and finance functions by March 1992;
- to complete job evaluation of all NJSC employees by March 1992;
- to introduce a cost-effective car policy for all NRA employees by March 1992.

## Inputs

		ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME (£m)	Total	0	0	0	0	0	0
EXPENDITURE (£m)							
Recruitment		.9	1.5	1.8	1.7	1.8	1.9
Health & Safety		.3	.5	.6	.6	.6	.7
Employee Relations		.5	.7	1.0	1.0	1.1	1.2
Training		.8	1.1	1.6	1.6	1.6	1.7
Other		.6	1.2	1.5	1.4	1.4	1.4
	Total	3.1	5.0	6.5	6.3	6.5	6.9
Comprising:							
Revenue		3.1	5.0	6.5	6.3	6.5	6.9
Capital		0	0	0	0	0	0
VARIANCE (£m)							
	Charged to core functions	3.1	5.0	6.5	6.3	6.5	6.9
MANPOWER (FTE)							
Non-Manual		91	110	122	126	127	127
Manual		0	0	0	0	0	0
	Total	91	110	122	126	127	127

Total expenditure for 1991/92 shows an increase on forecast 1990/91. This increase provides for additional staffing within the function of 12FTE to redress the neglect of some functional areas of responsibility, such as training, and to properly resource others, eg. Health & Safety. Further increases in staff numbers arise from the recruitment of staff inspectors to Head Office and the strengthening of other functions both at Head Office and in the Regions.

The activity split shows that a significant proportion of the function's expenditure is in the area of recruitment, where, as the Authority continues to increase its establishment during 1991/92, considerable effort will be expended. Specific areas of expenditure relating to projects that began in 1990/91 and will continue into 1991/92, include the use of consultants and outside contracted services associated with the relocation of Head Office to Bristol and in the establishment of consistent terms and conditions of employment in line with corporate planning objectives.

Beyond 1991/92, planned expenditure shows a slight drop in 1992/93 as recruitment and advertising expenses reduce with the smaller planned increases in the total establishment, and thereafter, increases at below the assumed rate of inflation.

### Output and Performance

	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
STAFF TURNOVER (%)						
Non-Manual	7	5	6	5	5	5
Manual	5	4	5	4	4	4
<b>Total</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
TRAINING						
Average Training Days per Employee						
Non-Manual	2	2	2	2	2	2
Manual	1	1	2	2	2	2

Other outputs include:

- identification of terms and conditions appropriate to the Authority's status as a single national employer and an Non-Departmental Public Body (NDPB);
- target numbers of graduates recruited and training undertaken to prescribed programmes in appropriate disciplines;
- guidelines for staff inspection and policy for its implementation;
- professional training programmes for civil engineers, water resources and finance staff;
- explanatory pensions booklet and video;
- Health & Safety Resource Centre;
- Health & Safety audit in two Regions;
- revised recruitment and advertising policy and administration;
- occupational health service;
- 120 senior staff (Directors, RGMs and Senior Managers) trained on performance assessment;
- management development programme;
- criteria for senior management population.
- job evaluation for NJSC employees;
- new car policy for all staff;
- training needs analysed.

## Aims:

- to ensure that dischargers pay the costs of the consequences of their discharges, and as far as possible to recover the costs of water environment improvements from those who benefit;
- to improve efficiency in the exercise of the NRA's functions;

## Objectives:

- to ensure the financial management of the NRA is conducted within the framework of the Water Act 1989 and the Financial Memorandum issued by Government and within the Scheme of Delegation approved by the Board;
- to provide financial input to the Authority's corporate planning process and ensure operating budgets are prepared to required timescales;
- to ensure the Authority's various charging schemes comply with objectives set and agreed by the Board;
- to negotiate and obtain Government grants in respect of functions sponsored by DoE, MAFF and the Welsh Office;
- to prepare such information relating to the financing of the NRA as required of the NRA by DoE, MAFF or the Welsh Office;
- to produce monthly and quarterly financial and management accounts, to include balance sheet statements, consolidating the position for all Regions and Head Office;
- to prepare annual accounts to comply with best accounting practice and with both statutory and sponsoring body requirements, for incorporation in the Authority's *Annual Report & Accounts*;
- to develop and operate robust financial management information systems throughout the NRA and secure greater integration and standardisation of policies and practice;
- to provide national support and advice on specialist aspects of finance, such as insurance and competitive tendering for goods and services;
- to develop and operate the audit function as a tool of management control.

## Performance 1990/91

In relation to its targets for 1990/91 the Authority:

- completed and agreed its first set of annual accounts by August 1990;
- developed a new charging scheme for discharges and submitted it to DoE by December 1990;
- appointed new insurance brokers and introduced new insurance arrangements by March 1991;
- achieved a smooth transfer of existing finance staff to Bristol and recruited new staff in the first phase of the Head Office relocation by January 1991;
- produced a comprehensive Accounting Manual by March 1991;
- completed input to the Authority's second *Corporate Plan*, the 1991 PES submissions, and the operating budget for 1991/92 by April 1991;
- agreed policies and the financial regime in relation to tendering by the in-house work force by March 1991;
- completed a feasibility study involving external consultants to examine the creation of a national data-processing centre by March 1991;
- produced user requirements for the IAS by March 1991;
- made substantial progress in completing the 1990/91 internal audit plan by March 1991;
- commenced a review of the investment management arrangements in respect of the NRA's own Pension Scheme and the former Water Authorities Superannuation Fund (WASF).

## Targets 1991/92

The Authority has set itself the following targets for 1991/92:

- to have completed a review of existing purchasing arrangements by August 1991;
- to produce the 1990/91 annual accounts for approval by the Board by the end of July 1991;
- to improve interim in-year financial management information reporting for Head Office management by July 1991;
- to review treasury management to maximise income from interest by September 1991;
- to secure agreement to, and commence implementation of, a comprehensive strategy for financial services by November 1991;
- to introduce new capital appraisal and zero-based budgeting arrangements by December 1991;

- to review taxation, PAYE and VAT practices and produce new policy by December 1991;
- to obtain Board approval to the Authority's 1992/93 budget and charges by February 1992;
- to implement external consultants' recommendations regarding future arrangements for the organisation of the Authority's accounting services by March 1992;
- to achieve the 1991/92 internal audit programme by March 1992;
- to implement agreed elements of the IAS by April 1992;
- to provide input to the Authority's third *Corporate Plan* to the required timescales.

## Inputs

		ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
		89/90	90/91	91/92	92/93	93/94	94/95
INCOME (£m)	<b>Total</b>	0	0	0	0	0	0
EXPENDITURE (£m)	<b>Total</b>	4.8	6.3	7.5	7.5	7.8	8.2
Comprising:							
Revenue		4.8	6.3	7.5	7.5	7.8	8.2
Capital		0	0	0	0	0	0
VARIANCE (£m)	<b>Charged to core functions</b>	4.8	6.3	7.5	7.5	7.8	8.2
MANPOWER (FTE)							
- Non-Manual		267	302	324	328	331	336
- Manual		0	0	0	0	0	0
	<b>Total</b>	267	302	324	328	331	336

During 1991/92, total expenditure is planned to increase by almost 20% and staffing by 7% (22 FTE) on 1990/91 levels. Thereafter, increases are planned at less than the assumed rates of inflation.

Additional resources for this first year of the Plan are principally to support new income-generating initiatives such as charging for discharges, S28 order charges for fishery owners and land drainage consent application charges, as well as existing charging schemes undergoing revision, such as that for water abstraction. In addition, the provision of financial information from the Regions for Head Office management, annual reporting and corporate planning purposes is resource-intensive; the increases will make good the identified shortfall. Once implemented, the IAS will improve efficiency throughout the organisation, but while it is in its definition and implementation stages, the project will require significant manpower resource from finance and other functions.

## Output and Performance

Quantified activity-related outputs have not been identified for finance as they have for other functions, but the following discrete outputs will be produced during 1991/92:

- *Corporate Plan* input;
- PES submission and grant claims;
- budget statement;
- monthly financial reports;
- audit reports;
- management accounts;
- quarterly and annual accounts;
- *Annual Report & Accounts* input;
- purchasing review;
- elements of the IAS implemented;
- financial services strategy;
- revised accounting services organisation.

*Finance*

This section presents summarised financial planning data for the period 1990/91 to 1994/95. More detailed commentary is provided in the individual sections for each core function and support service. Table FP1 shows the Authority's total operating costs broken down by subjective budget headings together with an analysis between revenue and capital costs. Table FP2 shows the Authority's total operating costs, broken down by functional budget headings. Both tables are constructed on a cash basis and the inflation rates are assumed as 9% (1991/92); 7% (1992/93); 5% (1993/94) and 5% (1994/95).

*Operational Income*

The main feature of income is its planned increase in the functions supported by DoE GIA from £10.5m in 1990/91 to £56.5m by 1994/95. This is due to two factors:

- the launch of the charging for discharges scheme in 1991/92 which will provide additional income of £25m in 1991/92 rising to £44m in 1994/95;
- the proposed revision of the angling licence structure in 1992/93. This is planned to increase income by £2m in 1992/93, rising by inflation to an increase of £3m by 1994/95.

Potential fisheries income from S28 sources has not been included from 1992/93 onwards as this charging scheme is still in the early stages of development. Also, navigation income is shown net of boat licence income which is collected on behalf of, and passed to, the DoE. This amounts to £1.9m in 1991/92, £2.1m in 1992/93 and £2.2m in both 1993/94 and 1994/95.

Water resources income increases by £14.3m from the forecast 1990/91 level in line with increased spending plans in 1991/92. For 1992/93 the new National Abstraction Charges Scheme will have been introduced.

Flood defence income levies have been incorporated for 1991/92 at the agreed level presented to the February 1991 Board meeting. This increases income by £21.5m from that originally submitted by the Regions. For 1992/93 and onwards, flood defence income is expected to rise in line with inflation, except for the MAFF grant which is forecast to rise by 14% in 1992/93, 11% in 1993/94 and 2.5% in 1994/95.

*Government Grants*

The planned GIA was set for 1991/92, 1992/93 and 1993/94 by the DoE Public Expenditure Survey settlement issued in November 1990. After discussion with DoE in September 1991, the 1991/92 GIA contribution was reduced by £12.7m to a maximum of £93.9m due to slower than anticipated staff recruitment and modified capital expenditure plans. Consequential adjustments may be needed for expenditure in subsequent years and these will be considered in future planning rounds. The 1994/95 figure has been obtained from the latest information received from DoE in March 1991. Equivalent capital grant figures for flood defence were obtained from MAFF and the Welsh Office.

*Total Operating Costs – by Subjective Analysis*

<i>Table FP1</i>						
£k	ACTUAL	FORECAST	BUDGET	PLANNED	PLANNED	PLANNED
	89/90	90/91	91/92	92/93	93/94	94/95
<b>SALARIES</b>						
Costs	48,321	74,448	87,130	103,543	100,164	104,929
Superannuation	4,325	7,523	8,817	10,409	10,742	11,198
NIC	4,334	5,931	6,968	8,047	8,302	8,668
Other	3,081	2,210	2,977	3,127	3,282	3,445
<b>WAGES</b>						
Costs	22,844	26,705	27,841	30,499	31,525	32,701
Superannuation	1,582	2,574	2,727	2,996	3,098	3,211
NIC	2,046	2,258	2,381	2,632	2,720	2,823
Other	4,084	997	1,044	1,110	1,143	1,167
<b>Sub Total</b>	<b>90,617</b>	<b>122,646</b>	<b>139,885</b>	<b>162,363</b>	<b>160,976</b>	<b>168,142</b>
<b>OTHER COSTS</b>						
Power	3,166	4,643	4,427	4,295	4,436	4,598
Hire and Contracted:						
PLC Services	52,365	27,102	26,984	26,945	27,994	29,205
Other Services <sup>1</sup>	109,053	130,706	162,704	176,177	194,130	201,780
Equipment, Tools and Materials	46,093	44,694	56,161	60,949	62,161	63,699
Travel and Subsistence	7,108	10,387	12,250	13,004	13,416	13,861
Insurance	1,415	1,509	1,860	1,997	2,085	2,152
Other Costs	24,346	28,412	31,455	31,406	33,852	35,797
Interest (Received)	(5,600)	(16,682)	(15,876)	(16,813)	(18,196)	(19,308)
<b>Sub Total</b>	<b>328,563</b>	<b>353,417</b>	<b>419,850</b>	<b>460,323</b>	<b>480,854</b>	<b>499,926</b>
Unfunded Pensions	5,591	10,250	11,200	12,000	12,600	13,200
<b>Total</b>	<b>334,154</b>	<b>363,667</b>	<b>431,050</b>	<b>472,323</b>	<b>493,454</b>	<b>513,126</b>
<b>ANALYSIS</b>						
Revenue	221,488	232,879	276,554	314,293	328,724	342,786
Capital Divided:						
Flood Defence	74,536	93,891	117,796	123,020	130,875	136,465
Others (DoE)	38,130	36,897	36,700	35,010	33,855	33,875
<b>Total</b>	<b>334,154</b>	<b>363,667</b>	<b>431,050</b>	<b>472,323</b>	<b>493,454</b>	<b>513,126</b>

*Notes to Table FP1:*

- Other services include: consultants; contract labour; contract payments; fees payable; hired staff; hire of plant, vehicles and transport.*

### Total Operating Income and Costs – by Function

£k	ACTUAL 89/90			FORECAST 90/91		
	INCOME	EXPEND	(DEFICIT)/ SURPLUS	INCOME	EXPEND	(DEFICIT)/ SURPLUS
Pollution Control		47,601	(47,601)		50,659	(50,659)
Fisheries	7,448	15,046	(7,598)	6,822	16,749	(9,927)
Recreation	129	1,229	(1,100)	297	1,710	(1,413)
Conservation	80	1,312	(1,232)	101	1,642	(1,541)
Navigation	619	5,978	(5,359)	737	5,960	(5,223)
<b>Sub Total</b>	<b>8,276</b>	<b>71,166</b>	<b>(62,890)</b>	<b>7,957</b>	<b>76,720</b>	<b>(68,763)</b>
Research and Development <sup>1</sup>					5,100	(5,100)
Capital Restructuring		24,072	(24,072)		14,187	(14,187)
Personnel Buyouts					3,200	(3,200)
Unfunded Pensions		5,591	(5,591)		10,250	(10,250)
Additional HO Costs <sup>2</sup>					2,000	(2,000)
IS Strategy					1,300	(1,300)
<b>Sub Total</b>	<b>8,276</b>	<b>100,829</b>	<b>(92,553)</b>	<b>7,957</b>	<b>112,757</b>	<b>(104,800)</b>
Grant-in-Aid	74,260		74,260	104,800		104,800
ESC	20,980		20,980			
<b>Sub Total</b>	<b>103,516</b>	<b>100,829</b>	<b>2,687</b>	<b>112,757</b>	<b>112,757</b>	
Water Resources	82,686	65,790	16,896	60,009	60,426	(417)
<b>Sub Total DoE</b>	<b>186,202</b>	<b>166,619</b>	<b>19,583</b>	<b>172,766</b>	<b>173,183</b>	<b>(417)</b>
Flood Defence – Other	171,292	150,735	20,557	167,168	164,584	2,584
– MAFF	16,800	16,800		25,900	25,900	
<b>Total</b>	<b>374,294</b>	<b>334,154</b>	<b>40,140</b>	<b>365,834</b>	<b>363,667</b>	<b>2,167</b>

#### Notes to Table FP2:

- GIA and charging for discharges funded R&D only; flood defence and water resources elements are contained in the relevant core function expenditure – see R&D chapter for full programme details.
- Additional Head Office Costs are analysed as follows:

£m	1991/92	1992/93
Fitting out	1.5	–
Additional Staffing (Phase 1 and 2)	1.4	1.9
Total	2.9	1.9

For 1993/94 and 1994/95, additional staff costs arising from Phase 1 and 2 headcount increases are not separately disclosed, but allocated to functions as normal Head Office recharges.

#### Total Expenditure/Funding

The main movements in total expenditure between the Plan years and how they are funded can best be presented as follows.

	Movements			
	1990/91 to 1991/92 £m	1991/92 to 1992/93 £m	1992/93 to 1993/94 £m	1993/94 to 1994/95 £m
Total Expenditure	+ 67.4	+ 41.2	+ 21.1	+ 19.7
Funded by:				
Discharge Income	+ 25.0	+ 12.5	+ 4.6	+ 2.0
Fisheries Income	+ 1.1	+ 2.1	+ 0.5	+ 0.5
Recreation/Conservation/ Navigation Income	+ 0.4	–	–	–
GIA	(–10.9)	+ 3.1	(–1.0)	+ 2.4
Water Resource Income	+ 14.3	+ 1.4	+ 2.1	+ 2.5
Flood Defence Income	+ 29.8	+ 21.7	+ 15.8	+12.7
Dec/(Inc) Surplus	+ 7.7	+ 0.4	(–0.9)	(–0.4)
<b>Total Movements</b>	<b>+ 67.4</b>	<b>+ 41.2</b>	<b>+21.1</b>	<b>+19.7</b>

Table FP2

BUDGET 91/92			PLANNED 92/93			PLANNED 93/94			PLANNED 94/95		
INCOME	EXPEND	(DEFICIT)/ SURPLUS									
25,000	61,480	(36,480)	37,450	72,350	(34,900)	42,000	78,450	(36,450)	44,000	80,591	(36,591)
7,996	19,507	(11,511)	10,000	21,900	(11,900)	10,500	23,950	(13,450)	11,030	24,587	(13,557)
338	1,939	(1,601)	338	2,238	(1,900)	347	2,450	(2,103)	358	2,553	(2,195)
272	1,682	(1,410)	118	2,018	(1,900)	123	2,200	(2,077)	129	2,302	(2,173)
831	6,879	(6,048)	1,000	8,600	(7,600)	1,000	9,420	(8,420)	1,000	9,884	(8,884)
<b>34,437</b>	<b>91,487</b>	<b>(57,050)</b>	<b>48,906</b>	<b>107,106</b>	<b>(58,200)</b>	<b>53,970</b>	<b>116,470</b>	<b>(62,500)</b>	<b>56,517</b>	<b>119,917</b>	<b>(63,400)</b>
	7,300	(7,300)		8,000	(8,000)		8,400	(8,400)		8,800	(8,800)
	5,418	(5,418)									
	5,000	(5,000)		5,000	(5,000)						
	11,200	(11,200)		12,000	(12,000)		12,600	(12,600)		13,200	(13,200)
	2,900	(2,900)		1,900	(1,900)						
	5,000	(5,000)		11,900	(11,900)		12,500	(12,500)		13,000	(13,000)
<b>34,437</b>	<b>128,305</b>	<b>(93,868)</b>	<b>48,906</b>	<b>145,906</b>	<b>(97,000)</b>	<b>53,970</b>	<b>149,970</b>	<b>(96,000)</b>	<b>56,517</b>	<b>154,917</b>	<b>(98,400)</b>
93,868		93,868	97,000		97,000	96,000		96,000	98,400		98,400
<b>128,305</b>	<b>128,305</b>		<b>145,906</b>	<b>145,906</b>		<b>149,970</b>	<b>149,970</b>		<b>154,917</b>	<b>154,917</b>	
74,311	70,128	4,183	75,739	75,582	157	77,822	77,822		80,274	80,274	
<b>202,616</b>	<b>198,433</b>	<b>4,183</b>	<b>221,645</b>	<b>221,488</b>	<b>157</b>	<b>227,792</b>	<b>227,792</b>		<b>235,191</b>	<b>235,191</b>	
190,890	200,590	(9,700)	208,335	214,535	(6,200)	220,062	225,262	(5,200)	231,825	236,525	(4,700)
32,027	32,027		36,300	36,300		40,400	40,400		41,410	41,410	
<b>425,533</b>	<b>431,050</b>	<b>(5,517)</b>	<b>466,280</b>	<b>472,323</b>	<b>(6,043)</b>	<b>488,254</b>	<b>493,454</b>	<b>(5,200)</b>	<b>508,426</b>	<b>513,126</b>	<b>(4,700)</b>

The large increase in expenditure of £67.4m between 1990/91 and 1991/92 can now be seen clearly to be funded mainly by:

- charging for discharge income being received for the first time (£25m), partially offset by a decrease in GIA (£10.9m);
- an increase in available water resources (£14.3m) and flood defence income (£29.8m).

#### Revenue Expenditure

The main feature is highlighted in Table FP1 which shows a 19% (£43.7m) increase in revenue expenditure from the forecast 1990/91 to the planned 1991/92 level.

The most significant increases include:

- increased salary costs (£15.8m)
- increased R&D expenditure (£2.2m)
- increase in travel and subsistence expenses (£1.9m)
- increase in other costs (mainly rents and utilities) (£3.0m)
- hired and contracted (other services) & equipment tools and materials. (Flood defence maintenance of existing defences accounts for over £10m of this increase) (£14.0m)

For future years, most costs increase at or slightly below inflation apart from some notable exceptions which arise because:

- personnel buyout expenses cease from 1993/94 and onwards;
- additional Head Office fitting-out costs are completed by 1993/94 and onwards.

#### *Capital Expenditure*

Flood defence capital spend increases by £23.9m between 1990/91 and 1991/92. Most of this increase (£18m) is due to the improvement and development of flood defences. Additional monies were made available for capital spend as a result of the finalised levy position in February 1991.

For all Plan years the assumed maximum capital expenditure available from the new account procedures is set at £15m which is the latest estimate available. This increases capital spend by nearly £10m in all planned years.

Other significant influences regarding capital expenditure include:-

- the completion of the Capital Restructuring Programme by 1992/93. In 1991/92 the planned level is £5.4m as compared with a forecast for 1990/91 of £14.2m;
- the inclusion of the new Bristol Head Office fitting out capital costs in 1991/92 only of £0.8m. (Total costs are estimated at £1.5m, the remainder being revenue).

#### *Surpluses/Deficits*

For DoE GIA functions no surpluses or deficits are planned, as the total expenditure including exceptional items less income matches the GIA provisions made exactly.

The water resources function shows a surplus arising in 1991/92 of £4.2m with income virtually matching expenditure from 1992/93 onwards.

Flood defence balances see a steady decline over the four Plan years by £25.8m. This represents 35% of the balances outstanding as at 31st March 1991.

### Introduction

This section considers manpower analysis systems within the NRA and analyses the proposed changes to the Authority's staffing levels.

In September 1990, our first *Corporate Plan* was published for the year 1990/91. The report showed many deficiencies in the NRA inheritance from its predecessor water authorities in meeting the challenges that it faced. Total manpower was predicted to rise from a starting point on Vesting Day, 1st September 1989, of 6,539 to 6,737 at the end of March 1990, to 7,127 by the end of March 1991 and 7,391 by the end of March 1992. The number in employment at the end of March 1991 was 7,111.

We are now a year further on and have completed our second *Corporate Plan*. In completing this work it has become evident that a part of the deficiency of the NRA inheritance is the inability, to a sufficient degree of accuracy and consistency, both to allocate manpower to functional categories and to assess existing and proposed levels of manpower requirements against existing and proposed levels of output. This is caused by large organisational variations in the NRA's Regions (these exist largely as established by the predecessor water authorities) and lack of common management information systems, in particular a standard manpower classification and common payroll/personnel system. How this has been addressed in the production of this Plan and proposed developments for the future are outlined in this section.

The Plan itself shows an upward revision to the numbers of staff required as against last year's Plan; in particular, an 8% growth in the establishment target for 1991/92 to 7,984 FTE, compared with 7,391 in last year's Plan. In fact, slippage in staff recruitment, staff turnover and an in-year GIA adjustment have meant that the likely year end establishment for 1991/92 will be 7,750 FTE. The establishment target however remains 7,984 FTE and the reasons for this increase in establishment target are analysed below.

### Manpower Analysis Systems

The NRA inherited limited information systems from the regional water authorities and most of the major systems, including payroll, continue to be run through external contracts with the water utility plcs. Only now is the NRA's own IS strategy reaching implementation stage, allowing the Authority to dispense with such bureau arrangements.

In addition, Regions have different organisational structures, and allocate responsibilities for both core and support functions in different ways. In the absence of a standard manpower classification system, the manpower data in the first *Corporate Plan* were analysed into eighteen categories as shown in Table S1 below.

Obvious inter-regional differences in manpower functional allocation led to some refinement in discussion with Regions and the result as published for planned 1990/91 is shown in the first column of Table S1. However, this analysis was felt to be less than satisfactory, particularly in the support service area where some 23% of the manpower was in the "Others" category. As a result, considerable work has been carried out subsequently within the existing constraints of systems and structures, to refine the functional manpower analysis.

- Much more detailed definition of the manpower categories has been produced in order to assist Regions in their manpower allocation.
- The number of categories used has been reduced from 18 to 16 in order to give a more accurate reflection of actual internal manpower allocation. In particular laboratory services have been placed with pollution control, which reflects more accurately the nature of their work. The small number identified in planning have been reallocated to the functions they serve.
- The "Others" category has been more carefully analysed and, where possible, staff allocated to functions. This has reduced this category from 436 to 50, ie. from 23% of support services to 5%.

The figures in the first *Corporate Plan* for 1990/91 and 1991/92 have been reworked on the revised basis and are shown in columns two and three of Table S1. Column four of that table shows what is now planned for 1991/92 in this second *Corporate Plan* and shows an overall increase of 8%, some 600 employees.

Because of the magnitude of the increase in planned growth, a particularly detailed analysis has been carried out in the four categories where 94% of this growth is planned namely water resources, pollution control, conservation and information systems.

*Comparison of Projected 1991/92 Manpower from 1990/91 Plan and 1991/92 Plan* *Table S1*

	90/91 PLAN	90/91 PLAN (ADJUSTED)	90/91 PLAN (ADJUSTED)	91/92 PLAN
	PLANNED 90/91	PLANNED 90/91	PLANNED 91/92	PLANNED 91/92
<b>CORE FUNCTIONS</b>				
Water Resources	526	593	596	784
Pollution Control	800	1,231	1,381	1,638
Flood Defence	3,275	3,639	3,661	3,660
Fisheries	425	432	456	460
Recreation	25	25	30	30
Conservation	16	16	21	71
Navigation	125	127	128	130
<b>Sub Total</b>	<b>5,192</b>	<b>6,064</b>	<b>6,273</b>	<b>6,773</b>
<b>SUPPORT SERVICES</b>				
Administration	420	342	353	353
Legal Services	80	80	80	94
Estates	27	27	29	34
Public Relations	30	30	35	45
Information Systems	113	113	113	176
Research and Development	21	21	21	15
Finance	290	290	317	324
Personnel	110	100	121	122
Others	436	50	50	50
Laboratory Services	392	0	0	0
Planning	16	0	0	0
<b>Sub Total</b>	<b>1,935</b>	<b>1,063</b>	<b>1,118</b>	<b>1,211</b>
<b>Total</b>	<b>7,127</b>	<b>7,127</b>	<b>7,391</b>	<b>7,984</b>

### *Future Steps*

As part of the continuing development of national systems in the Authority, the following actions have now been approved by the NRA Board.

- A standard manpower classification system is to be established. This will be managed centrally and will classify manpower on a common basis regardless of existing regional structures, to enable more accurate analyses to be carried out, both internally (ie. inter-regionally) and externally. This development will be key to the provision of more reliable base information for output and performance measurement.
- A manpower assessment system is to be introduced as part of the NRA's commitment to efficiency, effectiveness and economy and to ensure consistency of manning and service delivery between Regions. This will be based on:
  - more closely defining the scale and nature of the tasks undertaken by the NRA;
  - defining common staffing levels for the same task in different Regions;
  - establishing appropriate productivity levels from both internal best practice and from external comparisons;
  - deriving staffing numbers required to service the workload efficiently and consistently across the Regions.
- An integrated payroll/personnel system will be developed, to produce accurate manpower and associated cost analysis. This will become operational in April 1992 and will supersede existing subcontracted payroll systems and the Head Office operated manpower classification system. This further development will then provide the base data for output and performance measurement.

### *Planned Increases 1991/92: Justification*

Each of the increases in the four categories of water resources, water quality, conservation and information systems has been analysed for each Region with justification supplied, identifying the numbers in FTE and the additional key outputs. An overview of the changes is given below.

### Water Resources

It has become apparent since the foundation of the NRA that some parts of the UK have major problems as far as water resources are concerned. This is caused in part by an imbalance in population distribution, with the main centres of population being in the South, South-East and East Anglia which receive the lowest rainfall. Several difficulties already exist as a result of over-abstraction, including low-flows and the environmental stress this produces on fauna and flora. The increase in numbers of water resources staff from 596 to 784 represents a major effort by the NRA to control existing abstractions and, through the development of new water transfer schemes, to address this major problem area.

### Pollution Control

This shows a growth from 1,381 FTE to 1,638. The reasons for this fall into three main areas:

- the expansion of the NRA marine fleet in order to enable the Authority to carry out its statutory responsibilities with regard to coastal and estuarial water monitoring;
- the final stages of the development of the NRA network of laboratories, in particular the completion of the laboratories in Exeter shared between the Wessex and South West Regions;
- the provision of additional manpower for those Regions where the NRA inheritance was poor, enabling the Authority to bring all Regions to the same resourcing level.

### Conservation

The numbers planned for conservation are shown as growing from 21 FTE to 71. The NRA regards the conservation of the flora and fauna in and around the inland and coastal waters of England and Wales as an important responsibility. Also, historically, predecessor bodies put only limited resources into this area of work. This increase recognises these two factors, ensuring adequate resources are available for the function.

<i>Total Number of Personnel by Function – Non-Manual and Manual (FTE as at 31st March) Table S2</i>						
	ACTUAL 89/90	FORECAST* 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>CORE FUNCTIONS</b>						
Water Resources	519	661	784	777	782	782
Pollution Control	1,034	1,375	1,444	1,605	1,623	1,619
Flood Defence	3,458	3,559	3,660	3,679	3,698	3,705
Fisheries	391	422	437	464	469	473
Recreation	29	29	29	28	28	28
Conservation	33	52	57	59	59	59
Navigation	130	129	128	119	119	119
<b>Sub Total</b>	<b>5,595</b>	<b>6,227</b>	<b>6,539</b>	<b>6,731</b>	<b>6,778</b>	<b>6,785</b>
<b>SUPPORT SERVICES</b>						
Administration	285	321	353	356	356	361
Legal Services	72	79	94	91	91	91
Estates	28	30	34	33	33	33
Public Relations	30	38	45	44	45	45
Information Systems	95	129	176	175	182	190
Research and Development	7	14	15	14	14	14
Finance	267	302	324	328	331	336
Personnel	91	110	122	126	127	127
Others	38	50	50	51	51	51
<b>Sub Total</b>	<b>911</b>	<b>1,071</b>	<b>1,211</b>	<b>1,216</b>	<b>1,228</b>	<b>1,246</b>
<b>Total</b>	<b>6,506</b>	<b>7,298</b>	<b>7,750<sup>1</sup></b>	<b>7,947</b>	<b>8,007</b>	<b>8,031</b>

#### Notes:

1. Forecast actual as at March 1991 was 7,111 FTE in post.
2. This figure compares with an establishment target for 1991/92 of 7,984 FTE and reflects the effects of slippage in staff recruitment, staff turnover and the GIA adjustment referred to in the Executive Summary.

### Information Systems

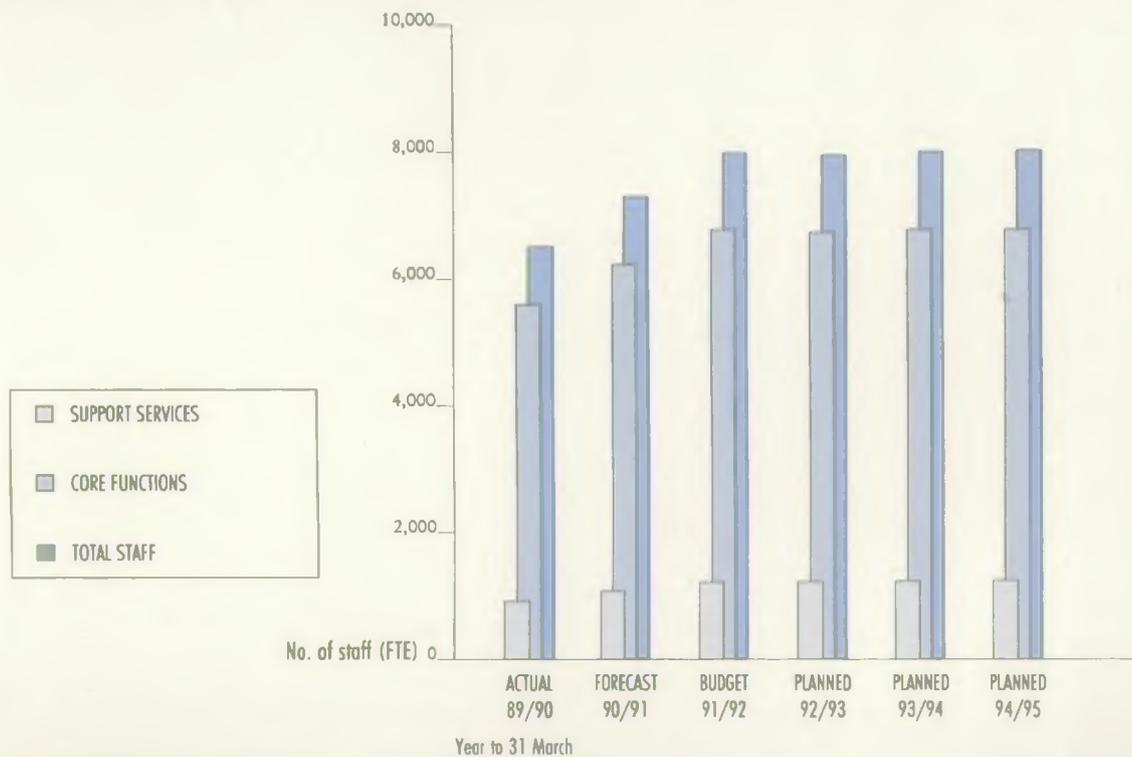
The number of staff shown against information systems increases from 113 to 176. The NRA is still very much in a development phase, involving the introduction of new systems as a result of the IS strategy. A number of priority applications have been identified, in particular the water archive, the IAS, the office communications network and a performance measurement system. Implementation for some elements of these will begin in 1991/92, requiring considerable additional resources.

Careful analysis will be made as to whether the necessary resources need be provided in-house or whether much of this work can be sub-contracted.

### Manpower Projections

Further manpower information is tabulated below, showing the total number of personnel by function (Table S2), complemented and uncomplemented staff (Table S3) and grading structure (Table S4).

### Core Function and Support Service Staffing

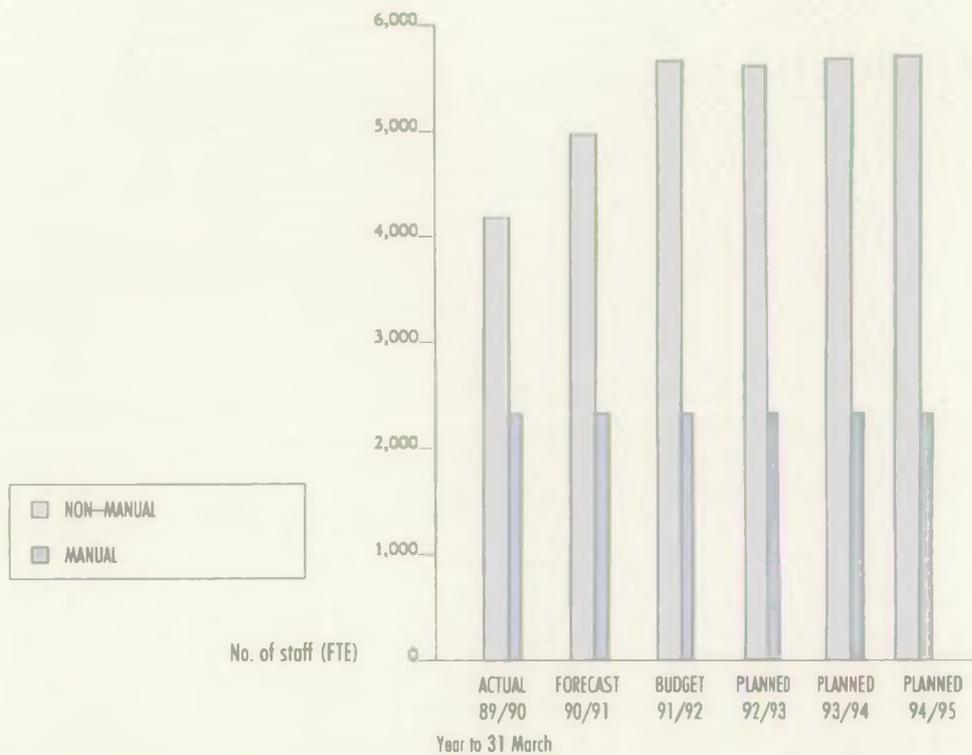


Total Number of Personnel – Complemented vs Uncomplemented Posts (FTE as at 31st March) Table S3						
	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>COMPLEMENTED POSTS</b>						
Permanent Staff	6,404	7,118	7,610	7,869	7,940	7,970
Limited Period Staff	95	176	139	77	66	60
Consultants	7	4	1	1	1	1
Other	0	0	0	0	0	0
<b>Sub Total</b>	<b>6,506</b>	<b>7,298</b>	<b>7,750<sup>1</sup></b>	<b>7,947</b>	<b>8,007</b>	<b>8,031</b>
<b>UNCOMPLEMENTED POSTS</b>						
Limited Period Staff	47	83	35	26	26	26
Casuals	2	3	2	2	2	2
Consultants	0	1	0	0	0	0
Other	2	5	5	5	5	5
<b>Sub Total</b>	<b>51</b>	<b>92</b>	<b>42</b>	<b>33</b>	<b>33</b>	<b>33</b>
<b>Total</b>	<b>6,557</b>	<b>7,390</b>	<b>7,792</b>	<b>7,980</b>	<b>8,040</b>	<b>8,064</b>

Notes:

1. Refer to note 2 on page 93.

### Manual and Non-Manual Staffing



	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
<b>NON-MANUAL STAFF</b>						
Senior Staff	160	165	194	194	194	194
NJSC Grade 7 >	1,142	1,324	1,351	1,402	1,411	1,417
NJSC < Grade 6	2,852	3,440	3,881	4,017	4,074	4,097
Other	28	39	0	0	0	0
<b>Sub Total</b>	<b>4,182</b>	<b>4,968</b>	<b>5,426</b>	<b>5,613</b>	<b>5,679</b>	<b>5,708</b>
<b>MANUAL STAFF</b>						
NJIC Adults	2,116	2,130	2,122	2,132	2,126	2,121
NJIC Youth	5	7	7	7	7	7
NJCC Craftsmen	199	189	191	191	191	191
NJCC Apprentices	4	4	4	4	4	4
Other	0	0	0	0	0	0
<b>Sub Total</b>	<b>2,324</b>	<b>2,330</b>	<b>2,324</b>	<b>2,334</b>	<b>2,328</b>	<b>2,323</b>
<b>Total</b>	<b>6,506</b>	<b>7,298</b>	<b>7,750</b>	<b>7,947</b>	<b>8,007</b>	<b>8,031</b>

**Notes:**

1. Refer to note 2 on page 93.

## Performance 1990/91

Whilst the Authority's first *Corporate Plan* did not discuss efficiency or productivity initiatives to any extent or set quantified targets for improving economy, efficiency and effectiveness and value for money, during 1990/91 the Authority took action to improve its efficiency and productivity in the areas as set out in the examples below.

### *General*

- The Authority has begun to examine critically working practices and procedures and has sought to identify and develop more cost-effective ways of implementing new policies.
- Specific R&D projects are examining ways of improving the Authority's operations, eg. through the development and introduction of automation and new technology.
- Inter-regional co-operation and sharing of expertise, equipment, facilities and manpower between different core functions has been developed in many areas.

### *Personnel*

- The Senior Managers' payroll and expense claim procedures have been centralised and rationalised.
- A study has commenced to examine existing casual and essential car user allowances and car leasing arrangements and to develop alternative, more cost-effective means of providing employee vehicle transport.
- A nine-day working fortnight was introduced for manual staff at no cost to the Authority, which has resulted in better utilisation and productivity of plant and other equipment.
- Management audits were commenced in two Regions (Welsh and Thames) and organisational reviews commenced in the Anglian and Southern Regions.
- Staff suggestion schemes, quality circles and performance review teams have been developed in some Regions.

### *Finance*

- A feasibility study to examine a possible National Accounting Service/Centre was commissioned and completed.
- A procurement group was established to investigate possibilities of central purchasing of services and equipment.
- An initial review and appraisal of the use of the flood defence in-house work force was undertaken.

### *Information Systems*

- Regions have adopted standard interim software packages for some or all of the following: corporate planning, monthly and annual reporting, financial reporting, personnel recruitment, R&D and planning liaison. Some efficiency savings will also come about as some Regions withdraw on a phased basis from bureau arrangements with the water utility plcs as the IS strategy is implemented.

### *Laboratories*

- The external analysis of "Red List" substances has been brought in-house in the Anglian and Severn-Trent Regions. The Welsh Region has provided a "Red List" analytical service for other Regions.
- Optimum use of laboratory capacity has been made in the Severn-Trent Region by undertaking a limited amount of commercial work.
- Thames and Wessex Regions have improved automatic water quality monitoring facilities and Wessex Region contracted out more laboratory work pending the completion of the South West Region laboratory which will eventually carry out Wessex's analyses.
- 24-hr and two-shift working has been introduced to some laboratories to increase throughput and cost-effectiveness.

### *Transport and Plant*

- Use of transport and plant has been critically assessed in some Regions and, where appropriate, reduced in size and rationalised. Utilisation targets have been set and non cost-effective vehicles have been disposed of.

### *Energy*

- The Authority has adopted a policy of using unleaded petrol (or diesel) and large numbers of its vehicles have been converted to these fuels.
- Use of off-peak electricity and fluorescent strip lighting has been adopted wherever practicable.

### Miscellaneous

- Better working practices in respect of flood defence works eg. grass cutting and stone pitching are being developed and introduced.
- On the extremity of regional boundaries, adjacent Regions' solicitors have undertaken litigation through local courts, thus reducing costs.

### New Initiatives 1991/92

#### Corporate Management

New organisational arrangements are to be introduced in 1991/92. The Management Committee has been disbanded and an Executive Team and Operations Team created. The Executive Team will comprise the Chief Executive and Directors, including a new Director of Operations responsible for ensuring implementation of policy and management of the Authority's ten Regions. The Operations Team will comprise the Director of Operations and the ten Regional General Managers.

During 1991/92, the Authority intends to develop and implement a formal Performance Review System to receive reports and the findings of audit investigations into specific areas across all its core functions and services, and make recommendations for improved performance and productivity.

#### Financial Targets for Efficiency Savings

As part of its 1990/91 corporate planning process, the Board agreed that the Authority should seek to achieve 1.5% efficiency savings per annum. This percentage is the same figure applied to Government departments by the Treasury.

The Authority's budget for 1991/92 includes £4.8m of efficiency savings which are detailed below. The impact of these initiatives is also included in later years' finances.

#### Efficiency Savings 1991/92

	CAPITAL (£k)	OPERATING (£k)	FTE
Water Resources	-25	-384	-3.25
Pollution Control	135	-379	11.75
Flood Defence	-30	-2,364	-37.00
Fisheries	-10	-137	-0.5
Recreation	0	-11	.00
Conservation	0	0	.00
Navigation	0	-63	5.00
Administration	0	-162	-1.00
Legal Services	0	-103	1.00
Estates Management	0	-18	.00
Public Relations	0	0	.00
Information Systems	-15	-45	.00
Research and Development	0	-5	.00
Personnel	0	-219	.00
Finance	0	-100	2.00
Multifunctional	-100	-758	4.00
<b>Total</b>	<b>-45</b>	<b>-4,748</b>	<b>-18.00</b>

The Authority has also set itself efficiency savings targets up to 1994/95 as follows:

	92/93 £m	93/94 £m	94/95 £m
Total Operating Costs (excluding depreciation)	472.3	493.4	513.1
Required Efficiency Saving of 1.5%	7.1	7.4	7.7

The Authority will also be seeking to increase productivity by getting increased output from the same resources.

#### *Financial Accounting and Auditing*

The Authority is developing, and will be progressively introducing, an IAS during 1992, which will incorporate common coding and cost allocation methods. A national data-processing centre is also planned. These developments are anticipated to produce significant gains in the Authority's efficiency and effectiveness.

The Authority's 1991/92 Audit Plan places particular priority on reviewing:

- purchasing and contracting for goods and services;
- contracts with the water utility plcs,
- use of consultants and in-house work force;
- operation of transport and plant;
- utility services and energy management.

#### *Information Systems*

Improved efficiency will result from the development and phased introduction of the following IS applications:

- communications network;
- charging for discharges and water abstraction charges software;
- integrated accounting system;
- water archive;
- planning and performance monitoring.

#### *Personnel and Management Audit*

The Authority intends to improve the efficiency of its personnel management by introducing a standard job evaluation scheme, standard manpower classification and personnel systems, and by extending its programme of management audit. Staff Inspectors will also be appointed to Head Office.

#### *Scientific and Technical Development*

Particular emphasis will be placed on the development and introduction, where cost effective, of automated instrumentation and new technology. This will particularly apply to water quality monitoring and analysis.

The scope for the development of specific centres of specialisation to serve several Regions and reduce duplication will also be examined.

APPENDICES



## CORPORATE PLANNING PROCESS 1990/91

### Plan Production

#### *Review of 1989/90 Process*

As a result of a review of the way in which the Authority's first Plan was produced, it was decided that greater attention would be paid this year to:

- ensuring the Board and Regional Committees had a greater input to the process;
- ensuring key elements from draft function strategies, mainly objectives and output and performance measures, should feed in to the Plan's production;
- developing improved planning instructions with clear priorities and realistic resource planning assumptions;
- identifying efficiency savings and productivity initiatives;
- producing similar Regional Plans in order that links between policy, pounds, people and "products" could be more fully explored;
- improving the "star chamber" plan assessment process and reducing the number of iterations after the Chancellor's autumn PES statement;
- increasing the use of information technology.

#### *1990/91 Process*

Details of the Authority's corporate planning process are set out in the Authority's first *Corporate Plan*.

The production of this Plan was co-ordinated through the Corporate Planning Policy Group, chaired by the Chief Executive.

The Board, Regional Committees, Management Committee, function groups and over 500 officers were involved in the planning process. Liaison with DoE, MAFF and Welsh Office was maintained at regular intervals.

Account has been taken of the final version of DoE's Corporate Planning Guidance issued in December 1990 as Appendix A to the Authority's financial memorandum.

The Plan was produced in four main stages :

#### *Issues and Priorities*

In May 1990, a 1991/92 corporate planning "issues" paper was produced. This was considered by Management, the Statutory Regional Committees and function groups. From these discussions the Authority's overall corporate planning priorities for 1991/92 were drawn up, and submitted to the Board for agreement. They formed the framework within which planning then proceeded.

#### *Instructions and Resource Planning*

At the end of September 1990 detailed planning instructions, a mock Regional Plan and software for the collection of data were issued to Regions. The instructions contained the corporate planning priorities and detailed resource planning assumptions for operational income, Government grants and revenue and capital expenditure.

#### *Regional Plan Production*

In October and early November 1990, draft Regional Plans with input from Regional Committees were prepared. These, along with a Head Office Plan, were assessed and analysed via the "star chamber" process in November. During December 1990 the proposals within these Plans were then amended to take account of both the "star chamber" process and the Chancellor's Autumn PES statement.

#### *Corporate Plan Production*

During January and February 1991, this overall *Corporate Plan* was prepared. The Plan was approved by the Board in May 1991 and then submitted to the Secretary of State for the Environment.

### Plan Contents

#### *Policy*

The Plan assumes the application of nationally agreed policies. Where such policies do not exist or are unlikely to be formulated within the Plan period, the continuation of inherited regional policies is assumed.

#### *Finance and Manpower*

The Plan is constructed assuming the Authority will receive the indicative grants from DoE and MAFF for 1991/92 to 1993/94. Financial figures have an October 1990 price base and inflation and salary and wages costs have been assumed to increase by 9%, 7%, 5%, and 5% each year between 1991/92 and 1994/95.

## Operational Income Planning

### *Water Resources*

The Plan is based on the continuation of existing regional charging schemes in 1991/92. Figures for 1992/93 onwards assume the introduction of a new full national charging for abstraction scheme to recover costs attributable to water resources account.

### *Pollution Control*

The Plan is based on the continuation of national consent application charge introduced from October 1990, and from July 1992 the introduction of full national charging for discharges scheme to recover costs relevant to the scheme and within the water quality account. Income from charges for discharges for 1991/92, 1992/93, 1993/94 and 1994/95 is assumed at the following levels £25m, £37.5m, £42m and £44m respectively.

### *Flood Defence*

The Plan is based on the continuation of the standard national charge for land drainage consents introduced from 1st January 1991, and income from MAFF capital grants according to the 1990 PES and regional Flood Defence levies at or above inflation.

### *Fisheries*

The Plan is based on the continuation of existing regional licencing schemes in 1991/92. Figures for 1992/93 onwards assume the introduction of a new national angling licence scheme with income estimates of £10.0m, £10.5m and £11.0m for 1992/93, 1993/94, and 1994/95 respectively. Additional fisheries income has been applied to fisheries (75%) and water quality accounts (25%).

### *Recreation*

The Plan is based upon figures continuation of existing regional charging arrangements with increasing emphasis on cost recovery during the Plan period.

### *Conservation*

The Plan is based upon continuation of existing regional practices.

### *Navigation*

The Plan is based upon continuation of existing regional charging schemes with increasing emphasis on cost recovery during the Plan period.

### *Other Activities*

The Plan is based upon continuation of existing regional practices.



## Government Grants Planning

### NRA (PES) Grant Allocations (£m)

	89/90	90/91	91/92	92/93	93/94	94/95
<b>1988</b>						
DoE <sup>1</sup>	40.0	72.9	67.0	68.7	N/A	N/A
MAFF <sup>2</sup>	17.8	22.9	26.3	N/A	N/A	N/A
<b>1989</b>						
DoE	–	93.3 <sup>3</sup>	83.2	71.6	73.4	N/A
MAFF	–	25.9	28.13	33.23	N/A	N/A
<b>1990</b>						
DoE	–	–	106.6 <sup>4</sup>	97.0	96.0	98.4
MAFF	–	–	32.0	36.3	40.4	41.4

#### Notes:

1. DoE provides GIA for pollution control, fisheries, recreation, conservation and navigation.
2. MAFF provides capital grants for flood defence works based on Medium-Term Plans.
3. This figure was increased by £11.3m during 1990/91 to £104.8m.
4. This figure was reduced by £12.7m during 1991/92 due to slower than anticipated staff recruitment and modified capital expenditure plans.

N/A – not available.

## Capital and Revenue Planning Assumptions

	PLANNED 89/90	PLANNED 90/91	PLANNED 91/92	PLANNED 92/93	PLANNED 93/94
Staff Costs	9%	9%	7%	5%	5%
Staff Buyouts	–	0.5%	2%	–	–
Goods and Services	Price Base	9%	7%	5%	5%
(Inflation)					
Energy (Electricity, Gas, Oil) and Water	Local tariffs applied				
Local Authority Rates	Local tariffs applied				
Water Resources (CCA Deprec)	Price Base	9%	7%	5%	5%
Head Office Costs (excl R&D and IS strategy)	10.9m	11.3m	12.8m	13.5m	N/A

### *Comparison with Other NRA Publications*

It is important to note that the financial and manpower data presented here for 1989/90 and 1990/91 cannot be directly compared with the Authority's published 1989/90 *Annual Report & Accounts* or its 1990/91 *Corporate Plan*.

For example, financial data in the annual accounts is presented on an accruals and not a cash basis, and some of the expenditure headings are different. Manpower data in the Authority's first *Annual Report & Accounts* includes some but not all part-time and temporary full-time staff equivalents.

The handling of depreciation and interest, allocation of support service and Head Office costs, and subjective budget headings differ between this and the Authority's first *Corporate Plan*.

Laboratory, multifunctional and other unallocated staff were treated as support service staff in the Authority's first *Corporate Plan*. In this Plan, laboratory staff rightly have been allocated to Pollution Control, and multifunctional and other staff allocated to the Core Function bearing the cost.

The development of standard financial coding and cost allocation, and a standard manpower classification and cost allocation methods, are being given urgent attention as part of the Authority's IS strategy.

### *Plan Implementation and Monitoring*

The Corporate, Regional and Head Office Plans will be implemented through detailed work programmes, management action plans, more detailed business plans, and through personal target-setting as part of the Authority's individual performance appraisal system.

The achievement of this Plan will be monitored by the Board and Management Committee through quarterly accounts, monthly reports on finance and manpower, and monthly reports from each Region (and function groups). It is also proposed to establish a formal Performance Review System involving the Board in 1991/92.



## APPENDIX 2

### SCHEDULE OF R&D TOPICS

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS	
	1990/91	1991/92	1992/93		
<b>COMMISSION A – WATER QUALITY</b>					
<i>A1 Rivers</i> – to investigate catchment-wide aspects and science of river quality management including the effects of flow regimes, sediments, discharges, intermittent and diffuse inputs, and to develop techniques to determine consent standards and ameliorate pollution.	On-going	326	385	90	<ul style="list-style-type: none"> <li>– investigations of economic benefits of water quality enhancement;</li> <li>– investigation of influence of river/estuary water quality on nitrification;</li> <li>– development of methods for assessing river quality for intermittent/point sewage discharges, including dynamic quality model (link with WS plcs);</li> <li>– assessment of aesthetic problems, including foaming and discolouration;</li> <li>– development of concept of River Protection Zones including risk control measures in “at risk” catchments;</li> <li>– review of emergency arrangements and remedial measures for pollution incidents.</li> </ul>
	New starts	159	75	125	
	<b>Total</b>	<b>485</b>	<b>460</b>	<b>215</b>	
<i>A2 Uplands</i> – to develop an understanding of the processes governing water quality in upland areas, including the effects of forestry, other land use changes and atmospheric pollution, and to develop methods to ameliorate adverse impacts.	On-going	66	139	53	<ul style="list-style-type: none"> <li>– investigation of processes in catchments with poor water quality, including Llyn Brianne acid waters project;</li> <li>– investigation of remedial techniques, including liming and forest buffer strips;</li> <li>– development of practical land/water management guidelines.</li> </ul>
	New starts	39	0	0	
	<b>Total</b>	<b>105</b>	<b>139</b>	<b>53</b>	
<i>A3 Agriculture and aquaculture</i> – to investigate the effects of agricultural activities, including fish farms, on water quality and to influence and develop methods to ameliorate pollution and other adverse impacts.	On-going	423	403	80	<ul style="list-style-type: none"> <li>– investigation of sources, pathways, and impact of pollutants, including organics, nitrates and pesticides;</li> <li>– development of field practices/procedures and management for control monitoring of pollution;</li> <li>– reviews/recommendations on design practices and operational procedures for collection, storage, treatment and disposal of farm wastes.</li> </ul>
	New starts	22	167	122	
	<b>Total</b>	<b>445</b>	<b>570</b>	<b>202</b>	
<i>A4 Tidal waters</i> – to improve the understanding of the processes governing the quality of estuarine and near-shore waters and to develop techniques to identify deleterious effects and for monitoring and control of pollution.	On-going	142	210	–	<ul style="list-style-type: none"> <li>– review and prioritisation of tidal waters R&amp;D;</li> <li>– investigation of processes affecting environmental quality in estuaries including eutrophication, mixing zone study and sediment/water interchange;</li> <li>– investigation of transport and fate of pollutants, including Red List substances;</li> <li>– establishment of threshold levels of metal contamination and nutrients for compliance with statutory quality objectives.</li> </ul>
	New starts	70	395	60	
	<b>Total</b>	<b>212</b>	<b>605</b>	<b>60</b>	
<i>A5 Lakes and reservoirs</i> – to improve the understanding of the processes governing the quality of lakes and other standing bodies of water and develop methods for their monitoring and control of environmental quality.	On-going	–	159	150	<ul style="list-style-type: none"> <li>– development of effective system of quality monitoring and classification;</li> <li>– investigation of processes affecting environmental quality and the means controlling adverse phenomena, including toxic algae and eutrophication;</li> <li>– development of analytical technique for blue-green algal toxins.</li> </ul>
	New starts	138	250	250	
	<b>Total</b>	<b>138</b>	<b>409</b>	<b>400</b>	
<i>A6 Chemical contaminants</i> – to improve understanding of the chemistry and biochemistry of chemical contaminants, plus their sources, transportation and fate, and to assess their significance for water quality management in the aquatic environment, in order to facilitate their control and to develop responses to existing problems of contamination.	On-going	399	643	39	<ul style="list-style-type: none"> <li>– investigations into nature of partitioning of contaminants between water and sediments, and related toxicity effects;</li> <li>– investigations into distribution, pathways, effects and bio-accumulation of metals and other persistent pollutants;</li> <li>– development of models to predict behaviour and toxicity effects of organic pollutants and metals;</li> <li>– assessment of impact of pesticides on river ecosystems;</li> <li>– assessment of contribution of airborne pollutants to organic pollution of surface waters;</li> <li>– identification of specific organic contaminants using discharge samplers.</li> </ul>
	New starts	160	187	187	
	<b>Total</b>	<b>559</b>	<b>830</b>	<b>226</b>	

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS	
		1990/91	1991/92		1992/93
<b>A7 Microbiology</b> – to identify micro-organisms of concern in controlled waters, microbial standards related to legitimate water uses and the practicalities of and, where appropriate, the environmental impacts of methods of control.	On-going	548	878	335	<ul style="list-style-type: none"> <li>– review of pathogenic organisms in controlled waters of concern to public health;</li> <li>– investigation of environmental behaviour of microbial contaminants, including cryptosporidium;</li> <li>– determination of environmental impact of treated marine effluents, including disinfection;</li> <li>– development of microbial standards for recreation in controlled waters, including bathing water epidemiology;</li> <li>– development of monitoring and analytical techniques for micro-organisms.</li> </ul>
	New starts	164	35	35	
	Total	712	913	370	
<b>A8 Biology</b> – to provide biological information on aquatic environments for use in the support and development of biological methods for the assessment and monitoring of environmental quality.	On-going	129	237	162	<ul style="list-style-type: none"> <li>– investigation of biological environment of rivers including dead zone effects;</li> <li>– evaluation of relevance/problems of biology in headwater streams;</li> <li>– further development of predictive tools for aquatic communities, including RIVPACS;</li> <li>– development of approaches to biological monitoring of tidal waters;</li> <li>– evaluation of data from 1990 survey to assess interrelationship of aquatic biology with (a) land use and (b) physical/chemical water quality data.</li> </ul>
	New starts	74	46	33	
	Total	203	283	195	
<b>A9 Chemical analysis methods</b> – to develop and improve methods of chemical analysis which enable the NRA to carry out, in an effective and efficient manner, the analyses required for environmental monitoring and control.	On-going	35	129	72	<ul style="list-style-type: none"> <li>– improvements of analytical quality control;</li> <li>– development of analytical methods including methodology for organics, organotin compounds and detergent analysis;</li> <li>– development of ion chromatography techniques for identification of trace elements.</li> </ul>
	New starts	116	–	–	
	Total	151	129	72	
<b>A10 Instrumentation</b> – to develop and appraise accurate, reliable and robust instruments which measure parameters used as indices for the monitoring and control of water quality and provide data in a readily usable format.	On-going	69	270	154	<ul style="list-style-type: none"> <li>– development/improvement of sensors, particularly for broad toxic spectrum and ammonia;</li> <li>– assessment and specification of suitable data processing techniques;</li> <li>– establishment of monitoring equipment testing and demonstration facility for instrumentation;</li> <li>– specification of operating quality control procedures for monitoring equipment.</li> </ul>
	New starts	116	95	100	
	Total	175	365	254	
<b>A11 Chemical monitoring programmes</b> – to assess techniques and develop protocols and codes of practice for sampling and survey design, for the collection, preservation and storage of samples and for related data handling and information presentation.	On-going	82	33	–	<ul style="list-style-type: none"> <li>– development of Code of Practice for assuring standards of water quality data;</li> <li>– development of quality control procedures related to taking samples;</li> <li>– production of program for river quality data analysis in order to identify appropriate monitoring strategy.</li> </ul>
	New starts	60	40	–	
	Total	142	73	–	
<b>A12 Ecotoxicology</b> – to develop and apply techniques to determine the ecotoxicological, biological effects and bio availability of contaminants discharged to rivers, estuaries and coastal waters.	On-going	283	278	–	<ul style="list-style-type: none"> <li>– investigation of ecotoxicological effects of contaminants on aquatic environment, including body burdens and to assist in setting environmental quality standards;</li> <li>– specification of requirements for NRA toxicological database;</li> <li>– development of new specific biological techniques for assessing water quality;</li> <li>– development of toxicity-based consents for monitoring complex discharges.</li> </ul>
	New starts	45	45	45	
	Total	328	323	45	

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS
	1990/91	1991/92	1992/93	
<b>A13 Standards and legislation</b> – to undertake strategic research on environmental quality standards and to appraise proposals for new standards and limit values for environmental waters, effluents and processes, particularly related to EC directives.	On-going	98	109	–
	New starts	25	60	–
	<b>Total</b>	<b>123</b>	<b>169</b>	<b>–</b>
<b>A14 Groundwater pollution</b> – to understand, monitor and control the groundwater quality environment by aquifer protection policies, effective pollution control measures and by the determination of geochemical, biochemical and hydrological processes, both natural and induced, which apply in differing hydrogeological environments in time and space.	On-going	517	377	55
	New starts	52	20	–
	<b>Total</b>	<b>569</b>	<b>397</b>	<b>55</b>
<b>Total Commission A</b>	On-going	<b>3,117</b>	<b>4,250</b>	<b>1,190</b>
	New starts	<b>1,230</b>	<b>1,415</b>	<b>957</b>
	<b>TOTAL</b>	<b>4,347</b>	<b>5,665</b>	<b>2,147</b>
<b>COMMISSION B – WATER RESOURCES</b>				
<b>B1 Hydrometric data</b> – to develop and improve hydrometric instrumentation and related techniques, including related data storage, retrieval and processing, to ensure that methods are consistent, cost-effective and reliable throughout the NRA and that output data can readily be utilised for management purposes.	On-going	–	105	100
	New starts	77	–	–
	<b>Total</b>	<b>77</b>	<b>105</b>	<b>100</b>
<b>B2 Flow regimes</b> – to improve the understanding of the inter-relationship between river flow and environmental factors with regard to both availability of water resources and impact on the aquatic environment so as to achieve a balance between water consumption and environmental protection.	On-going	–	197	176
	New starts	104	165	100
	<b>Total</b>	<b>104</b>	<b>362</b>	<b>276</b>
<b>B3 Water resources management</b> – to develop and improve water resource assessment and management techniques to secure optimum strategies and policies for the use of water resources taking account of both catchment-wide and national interests.	On-going	–	86	50
	New starts	32	55	55
	<b>Total</b>	<b>32</b>	<b>141</b>	<b>105</b>
<b>B4 Groundwater</b> – to understand, monitor and control the groundwater quality environment by aquifer protection policies, effective pollution control measures and by the determination of geochemical, biochemical and hydrological processes, both natural and induced, which apply in differing hydrogeological environments in time and space.	On-going	99	312	60
	New starts	55	0	–
	<b>Total</b>	<b>154</b>	<b>312</b>	<b>60</b>

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS	
	1990/91	1991/92	1992/93		
<i>B5 Effects of climate change on water resources</i> – to assess the implications of climate change on water resources, through contributing to other climate change research programmes, so as to develop possible scenarios for the different Regions of the NRA.	On-going	–	49	–	– extension of DoE programme on effects of climate change on water resources; – assessment of implications of sea-level rise on surface and groundwater resources.
	New starts	30	–	–	
	Total	30	49	–	
Total Commission B	On-going	99	749	386	
	New starts	298	220	155	
	TOTAL	397	969	541	
<b>COMMISSION C – FLOOD DEFENCE</b>					<i>In Topics C2, 5, 6, 7 and 8, linkages have been developed with parallel work by MAFF.</i>
<i>C1 Engineering hydrology and hydraulics</i> – to provide a better understanding of the specialised fields of engineering hydrology and hydraulics for the practising engineer to improve design and maintenance techniques across the spectrum of flood defence installations.	On-going	–	40	45	– preparation of design manuals for two stage channels (link with SERC); – investigation of performance and design of infiltration techniques; – review of regional rainfall patterns and related change.
	New starts	45	37	37	
	Total	45	77	82	
<i>C2 River flood forecasting</i> – to develop a system for flood forecasting, including use of weather radar information, that will provide accurate forecasts of river stage heights with improved lead times.	On-going	4	90	82	– evaluation and development of weather radar techniques to measure and forecast rainfall distribution; – improvements to accuracy and reliability of run-off/flow forecasting models.
	New starts	67	105	95	
	Total	71	195	177	
<i>C3 Catchment appraisal and control</i> – to develop methods to optimise the NRA's flood defence investment strategy in relation to the overall catchment environment and other NRA functions, and to influence catchment development so as to maintain the economic and environmental integrity of that investment throughout its life.	On-going	–	55	–	– improvement of effectiveness of flood defence planning and development control, including interaction with local authority; – review of European and overseas planning practice; – development of approaches and techniques for classifying/presenting information on flood plains and river channels; – development of methods for assessing public attitudes relevant to flood defence.
	New starts	44	50	20	
	Total	44	105	20	
<i>C4 Operational management</i> – to develop the framework for management of NRA flood defence so as to ensure that work programmes throughout the NRA are consistent, prioritised, adequately justified and cost-effective, and that the interests of other NRA functions are recognised.	On-going	110	250	169	– development of methods for surveying and classifying condition of assets; – development of improved approach to quantifying and programming improvement or maintenance work; – description of methods for grass and weed management; – assessment of effectiveness of maintenance strategies by post-project appraisal.
	New starts	93	–	–	
	Total	203	250	169	
<i>C5 River structures (design and construction)</i> – to ensure that river structures are functional, flexible in concept, designed to harmonise with their environment and cost-effective in terms of capital investment and recurrent operational and maintenance costs.	On-going	–	75	60	– development of improved understanding of sediment and gravel processes in England and Wales, including effects on structures; – survey methods of bank protection involving natural materials, and develop pilot sites; – improvement of operation of pumping stations and trash screens; – investigation of new techniques to stabilise slopes/embankments.
	New starts	29	40	45	
	Total	29	115	105	

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS	
	1990/91	1991/92	1992/93		
<i>C6 Coastal and estuarine structures</i> – to ensure that cost-effective and environmentally sympathetic engineering options are adopted for coastal and estuarine flood defence, in particular through an improved understanding of processes in the coastal zone.	On-going	–	101	120	<ul style="list-style-type: none"> <li>– review of design/performance of (a) timber, and (b) revetment systems;</li> <li>– development of an estimating manual for coastal engineering works;</li> <li>– review of available materials/sources of beach nourishment;</li> <li>– including economic aspects;</li> <li>– continued investigation into management and regeneration of saltings.</li> </ul>
	New starts	77	70	70	
	<b>Total</b>	<b>77</b>	<b>171</b>	<b>190</b>	
<i>C7 Effects of climate change on flood defences</i> – to assess the impact of sea level rise on existing flood defences and the coastal environment so as to develop future defence strategy, design standards and investment requirements.	On-going	–	48	3	<ul style="list-style-type: none"> <li>– investigation of beach profile development as a consequence of sea-level rise;</li> <li>– assessment of economics of different strategies for modification/ redevelopment of sea defences.</li> </ul>
	New starts	46	30	30	
	<b>Total</b>	<b>46</b>	<b>78</b>	<b>33</b>	
<i>C8 Response to emergencies</i> – to evaluate the overall standards required by the NRA in flooding emergencies and to establish the best methods of response, including flood and storm tide warnings, dissemination of information and operational response procedures.	On-going	114	782	529	<ul style="list-style-type: none"> <li>– assessment of requirements (political, legal, etc.) for providing emergency services, and desirable NRA level of service;</li> <li>– identification/specification of communication equipment and plant use in emergencies;</li> <li>– improvement in validation of nearshore wave models.</li> </ul>
	New starts	523	422	387	
	<b>Total</b>	<b>637</b>	<b>1204</b>	<b>916</b>	
<b>Total Commission C</b>	On-going	–	123	50	
	New starts	122	90	90	
	<b>TOTAL</b>	<b>637</b>	<b>1204</b>	<b>916</b>	
<b>COMMISSION D – FISHERIES</b>					
<i>D1 Fisheries resources</i> – to undertake relevant research into the individual or population biology of fishes in order to provide basic resource information for operational management.	On-going	–	134	76	<ul style="list-style-type: none"> <li>– determination of distribution/level of abundance of specified fish stocks, including rare fish, eels and elvers;</li> <li>– identification of key parameters and variability of salmon and sea-trout populations;</li> <li>– development of an NRA fisheries classification system.</li> </ul>
	New starts	46	40	70	
	<b>Total</b>	<b>46</b>	<b>174</b>	<b>146</b>	
<i>D2 Environmental and biological influences</i> – to develop an improved understanding of the effect of environmental and biological influences on fish populations so that results from monitoring programmes can be correctly interpreted and effective fisheries management carried out when natural or man-made changes occur.	On-going	299	331	121	<ul style="list-style-type: none"> <li>– investigation of effects of environment on fish populations, particularly change in agricultural land use;</li> <li>– investigation of effect of flow regimes and channel characteristics on fish populations;</li> <li>– evaluation of fish disease as WQ indicator and its effect on populations;</li> <li>– development of protocol for determining cause of, and reporting, fish kills;</li> <li>– investigations of fish movement by tracking.</li> </ul>
	New starts	45	115	100	
	<b>Total</b>	<b>344</b>	<b>446</b>	<b>221</b>	
<i>D3 Fisheries management</i> – to develop and implement management strategies which assist the NRA to maintain, improve, regulate and develop fisheries in ways that are adequately justified and cost-effective.	On-going	–	82	69	<ul style="list-style-type: none"> <li>– evaluation and development of specific techniques for assessment and monitoring of fish stocks, including tracking, electric fishing and hydroacoustic techniques;</li> <li>– review/evaluation of physical works (a) habitat improvement (b) fish passes.</li> </ul>
	New starts	39	60	60	
	<b>Total</b>	<b>39</b>	<b>142</b>	<b>129</b>	
<b>Total Commission D</b>	On-going	299	547	266	
	New starts	130	215	230	
	<b>TOTAL</b>	<b>429</b>	<b>762</b>	<b>496</b>	

TOPIC TITLE/OBJECTIVES	PROJECT EXPENDITURE, £K			KEY ELEMENTS	
	1990/91	1991/92	1992/93		
<b>COMMISSION E – RECREATION AND NAVIGATION</b>					
<i>E</i> To develop specific directions and guidelines that will enable the NRA to promote the amenity and recreational potential of water and associated land, and to manage effectively navigation on waters and their related facilities where it is navigation authority. NRA's statutory responsibilities.	On-going	–	70	35	<p><i>Single-Topic Commission</i></p> <ul style="list-style-type: none"> <li>– development of measures to ameliorate and reduce adverse impacts on riparian environment of significant activities, including erosion by boat wash;</li> <li>– assessment of impact of recreation on wildlife;</li> <li>– development of methods for survey and assessment of recreational and amenity use/value of rivers.</li> </ul>
	New starts	29	60	–	
	<b>TOTAL</b>	<b>29</b>	<b>130</b>	<b>35</b>	
<b>COMMISSION F – CONSERVATION</b>					
<i>F</i> To develop methods and standards of working, which are consistent and effective from the conservation viewpoint, compatible with the NRA's other duties where possible, and justifiable in terms of costs and the	On-going	25	165	47	<p><i>Single-Topic Commission</i></p> <ul style="list-style-type: none"> <li>– provision of basic data on aquatic flora, species/habitat relationships;</li> <li>– development of methods for survey, assessment and post-project appraisal conservation value of controlled waters;</li> <li>– development of specific conservation strategies, crayfish conservation, wetland creation, bankside buffer zones and engineering works in gravel-based rivers;</li> <li>– development of NRA strategy for conservation in coastal waters, including survey methodology;</li> <li>– development of biological classification for small water bodies, addressing conservation and water quality;</li> <li>– investigation of conservation value of sea defences.</li> </ul>
	New starts	73	267	258	
	<b>TOTAL</b>	<b>98</b>	<b>432</b>	<b>305</b>	
<b>COMMISSION G – GENERAL OPERATIONS</b>					
<i>G1 General planning</i> – to develop methods and techniques, and to provide basic information which supports general NRA activities which relate to all core functions.	On-going	–	–	–	<ul style="list-style-type: none"> <li>– investigation of extent to which ecological issues determine the overall management options for any catchment;</li> <li>– identification of (a) standard list of uses of controlled waters and (b) public perception issues in support of developing catchment management planning guidelines;</li> <li>– development of integrated catchment modelling;</li> <li>– provision of economic framework/overview to NRA responsibilities;</li> <li>– investigation of effectiveness of NRA influence on planning issues.</li> </ul>
	New starts	–	190	80	
	<b>Total</b>	<b>–</b>	<b>190</b>	<b>80</b>	
<i>G2 Response to emergencies</i> 4	On-going	–	–	–	
	New starts	–	–	–	
	<b>Total</b>	<b>–</b>	<b>–</b>	<b>–</b>	
<i>G3 Information technology</i> – to enable the NRA to make best use of developments in information technology.	On-going	–	–	–	<ul style="list-style-type: none"> <li>– investigation of opportunities for use of expert system technology;</li> <li>– appraisal of benefits of using remotely-sensed information.</li> </ul>
	New starts	–	120	200	
	<b>Total</b>	<b>–</b>	<b>120</b>	<b>200</b>	
<b>Total Commission G</b>	On-going	–	–	–	
	New starts	–	310	280	
	<b>TOTAL</b>	<b>–</b>	<b>310</b>	<b>280</b>	
<b>TOTAL PROGRAMME EXPENDITURE</b>	On-going	3,654	6,563	2,453	
	New starts	2,283	2,909	2,267	
	<b>TOTAL</b>	<b>5,937</b>	<b>9,472</b>	<b>4,720</b>	

**Notes:**

1. Programme expenditure for 1991/92 includes £0.3m over-programming in Commission A which will be taken up by (a) slippage of start dates, (b) external co-funding or (c) reduction of scope of projects on investment appraisal.
2. Programme expenditure for 1992/93 includes the cost of on-going projects from 1991/92 only.
3. 1990/91 programme expenditure is at 1990 prices; 1991/92 and 1992/93 expenditure at 1991 prices.
4. The project in G2 is a Priority 2 project and is unlikely to proceed at present.

EXTRACT FROM NRA  
POLICY GUIDELINES  
ON  
LICENCE  
INSPECTION

Criticality Class	Indicative Licence Type	Inspection Frequency
Non-Critical	Non-chargable licences <0.02 M1/D.	Every 5 years
Less Critical	All licences not included in other criticality classifications.	Every 3 years
Critical	<p>Significant public water supply and spray irrigation from surface sources.</p> <p>Licences subject to restriction conditions related to river flow or level.</p> <p>Significant industrial licences from surface sources when associated with reduction in quality or quantity of returned water.</p> <p>Significant groundwater licences.</p> <p>Spray irrigation licences subject to 2-part charging tariff.</p>	Every Year
Highly critical	<p>Licences requiring positive action by the licence holder to augment or maintain flows support abstractions.</p> <p>Licences participating in river augmentation schemes.</p> <p>Licences requiring continuous telemetered monitoring as part of river or ground water management scheme.</p>	At least once per annum but more frequent during periods of greatest importance to the water environment (eg. dry periods)

*Note:*

Local circumstances may dictate how "significant" should be defined but in the absence of such criteria the classification should be based on:

- surfacewater abstractions which exceed 10% of the Dry Weather Flow;
- groundwater sources where the mean annual abstraction exceeds 10% of the reliable yield.

## APPENDIX 4

### FLOOD DEFENCE LAND USE BAND DESCRIPTIONS

#### *Description of Typical Land Use*

- A. A reach containing urban elements of residential and non-residential property, distributed over a significant proportion of its length, or densely populated areas over some of its length. Any agricultural influence is likely to be over-riden by urban interests. Amenity uses such as parks and sports fields may be prominent in view of the floodplain's proximity to areas of population density.
- B. Reaches containing residential and/or non-residential property, either distributed over the full length of the reach, or concentrated in parts but characterised by lower densities than B and A.
- C. Limited numbers of isolated rural communities or urban fringe at risk from flooding, including both residential and commercial interests. Intensive agricultural use could also be included.
- D. Isolated, but limited numbers of residential and commercial properties at risk from flooding. Agricultural use will probably be the main customer interest, with arable farming being a feature. In developed pockets of largely urban use, amenity interest may be prominent.
- E. There are likely to be very few properties and major roads at risk from flooding in these reaches. Agricultural use will be the main customer interest with either extensive grassland or, where the flood plain extent is small, arable cropping being the most common land uses. Amenity interests are likely to be limited to public footpaths along or across the river.

## APPENDIX 5

### GLOSSARY

COSHH	Control of Substances Hazardous to Health	NAO	National Audit Office
DoE	Department of the Environment	NDPB	Non-departmental Public Body
DWI	Drinking Water Inspectorate	NFU	National Farmers Union
EC	European Commission	NJSC	National Joint Staff Council
EIA	Environmental Impact Assessment	NRA	National Rivers Authority
EPA	Environmental Protection Act	NSA	Nitrate-sensitive Area
ESC	Environmental Services Charge	OFWAT	Office of Water Services
FTE	Full Time Equivalents	PES	Public Expenditure Survey
GEC	Grant Earning Ceiling	RAB	Regional Advisory Board
GIA	Grant-in-aid	RFAC	Regional Fisheries Advisory Committee
HMIP	Her Majesty's Inspectorate of Pollution	RFDC	Regional Flood Defence Committee
IAS	Integrated Accounting System	RRAC	Regional Rivers Advisory Committee
IPC	Integrated Pollution Control	S28	Section 28
IPCC	Inter-governmental Panel on Climate Change	STW	Sewage Treatment Works
MAFF	Ministry of Agriculture, Fisheries and Food	SVC	Spring Viraemia of Carp
MTP	Medium-Term Plan	WQO	Water Quality Objective
		WRc	Water Research Centre



## NRA OFFICES

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### *Head Office - London*

30-34 Albert Embankment  
London SE1 7TL  
Tel: (071) 820 0101

### *Head Office - Bristol*

Rivers House  
Waterside Drive  
Aztec West  
Almondsbury  
Bristol BS12 4UD  
Tel: (0454) 624 400

### *Wessex Region*

Rivers House  
East Quay  
Bridgwater TA6 4YS  
Tel: (0278) 457 333

### *Thames Region*

Kings Meadow House  
Kings Meadow Road  
Reading RG1 8DQ  
Tel: (0734) 535 000

### *Severn-Trent Region*

Sapphire East  
Streetsbrook Road  
Solihull  
West Midlands  
B91 1QT  
Tel: (021) 711 2324

### *Anglian Region*

Kingfisher House  
Goldhay Way  
Orton Goldhay  
Peterborough PE2 0ZR  
Tel: (0733) 371 811

### *Yorkshire Region*

Rivers House  
21 Park Square South  
Leeds LS1 2QG  
Tel: (0532) 440 191

### *Welsh Region*

Rivers House/Plas-yr-Afon  
St. Mellons Business Park  
St. Mellons  
Cardiff CF3 0LT  
Tel: (0222) 770 088

### *Southern Region*

Guildbourne House  
Chatsworth Road  
Worthing  
West Sussex BN11 1LD  
Tel: (0903) 820 692

### *North West Region*

Richard Fairclough House  
Knutsford Road  
Warrington WA4 1HG  
Tel: (0925) 53 999

### *Northumbria Region*

Eldon House  
Regent Centre  
Gosforth  
Newcastle-upon-Tyne  
NE3 3UD  
Tel: (091) 213 0266

### *South West Region*

Manley House  
Kestrel Way  
Exeter EX2 7LQ  
Tel: (0392) 444 000

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