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NATIONAL RIVERS AUTHORITY

WATER RESOURCES FUNCTION STRATEGY



NRA

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DRAFT

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WATER RESOURCES STRATEGY

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4. KEY ISSUES

The following subsections identify the key issues which have been identified as requiring attention in the short to medium term.

4.1 DEVELOPMENT OF REGIONAL AND NATIONAL WATER RESOURCE PLANS

Plans for water resource development existed at the time of the formation of the NRA and are now the joint responsibility of water undertakers and the NRA to review and progress. Nationally there was no formal overview of the options and opportunities and this responsibility now rests with the NRA.

Due to the split in responsibilities between the NRA and the water undertakers in relation to water resource planning there is an urgent need to establish joint working relationships if unnecessary future conflict is to be avoided.

Agricultural and industrial abstractors are significant abstractors from both surface waters and groundwaters and these needs must be taken account in the development of water resources.

The NRA has a duty to collate and publish information on resources and demands both for the present and the future and this is a task which should not be undertaken lightly if the publication is to be worthwhile and of use to others.

4.2 DEVELOPMENT AND INTRODUCTION OF A NEW ABSTRACTION CHARGES SCHEME

This is an issue which requires resolution in the short term (by April 1992) and needs to be carried out in order to iron out inconsistencies which exist in the schemes inherited from the previous Regional Water Authorities. The opportunity can also be taken to re-evaluate the scheme structure in the light of the NRA's duty to protect the environment. A future important aspect is to ensure that it is legally sustainable and complies with the findings of various legal challenges made on the validity of the inherited schemes.

4.3 PROGRESSION OF WORK TO ALLEVIATE LOW FLOWS

Considerable public concern has been expressed over the alleged diminution of low flows due to licensed abstraction. Although a preliminary review of problem rivers has been carried out, and the Board has set high priority on their alleviation, a sustained effort will be required to achieve progress.

4.4 IMPLEMENTATION OF A GROUNDWATER PROTECTION POLICY

Protection of the quality of source waters is an important duty of the NRA not only because of the dependence of many abstractors upon a sustained water quality but also to protect the water environment and the integrity of future resource potential. An effective groundwater protection policy will need to be readily understood, cover a wide range of potentially polluting practices and straightforward and efficient in enforcement.

4.5 DEVELOPMENT AND IMPLEMENTATION OF A CONSISTENT ABSTRACTION LICENSING POLICY

At present there is wide variation in the procedures and practices associated with abstraction licensing. There is a need to develop and implement a framework for a methodology which treats similar situations in the same way and which allows flexibility to mobilise local knowledge and skills to

particular situations. In the past insufficient attention has been paid to the enforcement of abstraction licence compliance and the NRA will fail to meet expectations if inadequate resources are not devoted to this activity.

4.6 REVIEW AND PREPARE PLANS FOR PROCESSING AND ARCHIVING OF HYDROMETRIC DATA

Hydrometric data is the keystone of the water resources function and the appropriate information should be available in the right place, at the right time and be of appropriate quality.

Present practice varies between regions and the development of an efficient and economic system is an important module in the formulation of an integrated information system for the NRA.

4.7 DEFINITION OF AREAS FOR THE CONTROL OF LANDBASED PRACTICES

At present the evaluation of the potential of Nitrate Sensitive Areas for controlling nitrate levels in waters is at an early stage, but it will be necessary for the NRA to decide whether to recommend further NSAs to the Minister.

Powers also exist to recommend Water Protection Zones within which certain practices can be restricted by the Secretary of State. Similarly Vulnerable Zones may need to be designated if the EC Nitrate directive is implemented. A key issue is to ensure that there is an integrated approach to catchment controls and that the relationship between the designated areas controls and those identified through the groundwater protection policy are complementary.

5. LEGISLATIVE FRAMEWORK

The legislative framework within which the Water Resources Function operates is the Water Act 1989 and the Water Resources Act 1963.

The fundamental powers and duties are to take such measures as the Authority consider expedient or necessary:-

- i) to conserve, redistribute, or otherwise augment water resources, and
- ii) to secure the proper use of water resources.

There is a duty to collect information on actual and prospective demand for water and the availability of water resources, and an obligation to pay particular regard to water undertakers duties to develop water resources.

Specific benefits of the Water Act 1989 which will help the NRA to achieve the proper management and protection of water resources include:

- * giving groundwaters the same status as other controlled waters;
- * the removal of exemptions from abstraction licensing control for certain domestic and agricultural abstractions;
- * the power to enter into resources operating agreements with water undertakers to secure proper use and conservation of water resources.

Selected statutory powers and duties under the Water Act 1989 are:-

SECTION	DUTY
103(3)	To make maps of the fresh-water limit of relevant rivers and watercourses available to the public.
125(1)	To undertake measures to conserve, redistribute or augment water resources and to secure the proper use of water resources.
7(6)	To have regard to the duties imposed on any water or sewerage undertaker likely to be affected by our powers.
126(1)	To make arrangements, where reasonably practical, with water undertakers for securing the proper management and operation of water resources and associated works used in connection with the carrying out of their functions. We are required to send a copy of such arrangements to the Secretary of State.
127(2)	If directed by the Secretary of State, to consider whether a minimum acceptable flow for a particular inland water ought to be determined or reviewed.
129(8)	To bring the provisions of an abstraction charges scheme, which is in force to the attention of persons likely to be affected by them.
130(1)	To provide water undertakers with information which they reasonably request in connection with their functions and which is in the possession of the Authority.
130(6)	To provide reasonable facilities to all persons for the inspection of specified records kept by the Authority and for taking copies of such records.
143(2)a	To collate and publish information from which assessments can be made of the actual and prospective demand for water and the availability of water resources.

SECTION POWER

- 129 We may require payment for abstraction licences in accordance with our scheme of charges. Schemes made by us after 1st September 1991 will require approval by the Secretary of State following a period in which the proposals have been published in the form of a notice.
- 131/132 To apply to the Secretary of State for a drought order to be made containing specific provisions relating to conservation or augmentation of water resources which are required due to an exceptional shortage of rain. Such provisions include suspension or variation of consent conditions and abstraction licences together with provision for securing additional resources. Provisions apply when the exceptional shortage of rain is accompanied by a situation likely to impair the economic or social well being of persons in the area.
- 111 To apply to the Secretary of State to designate areas as water protection zones within which specified activities may be restricted or prohibited for the purposes of preventing or controlling pollution of controlled waters.
- 112 To apply to the relevant Minister to designate nitrate sensitive areas within which provisions are made to prevent or control the entry of nitrate into controlled waters.
- 127(1) To submit a draft statement to the secretary of state to determine, amend or replace a minimum acceptable flow following consultation with specified bodies and individuals.
- 130(5) To charge, in specified instances, for the use of facilities in connection with the provision of information.

Although it has been amended by subsequent legislation, the 1963 Water Resources Act is the most important piece of legislation affecting water resources activities in the NRA. The Act, as amended, is concerned with:-

- * Assessment of water resources and related matters
- * General provisions as to abstraction of water
- * Control of impounding
- * Revocation and variation of licences.
- * Enforcement of restrictions and protected rights
- * Charges for licences to abstract or impound water.

6. POLICY STATEMENTS

6.1 HYDROMETRY

1. The NRA will aim to collect, validate and store hydrological data of sufficient breadth, quantity and quality to support the implementation of Water Resources, Water Quality, Flood Defence and other strategies.
2. The NRA will seek to standardise data capture, storage, management and retrieval processes and equipment where that will contribute materially to efficiency and effectiveness; and will seek to develop 'best practice'.

An aim will be to establish a healthy balance between development of common practices and encouragement of local initiatives/ideas.

3. The NRA will aim to operate consistent practice towards provision of and charging for hydrological data to external bodies and individuals within the constraints imposed by Section 130 of the Water Act 1989.

6.2 POLICY STATEMENTS - Resource Planning

1. The NRA interprets its water resources duties as giving it a unique duty of care for the water environment. This duty will underscore all its work on water resources planning.
2. The NRA sees its role towards planning for water resource development as requiring a uniquely wide view of such matters as reliability standards, demands for water, leakage control, drought management plans, strategic water transfers, and water quality, in the context of its licensing and consenting powers of policy 1 above. The NRA will actively seek to influence the decision processes of water resource development from this broad viewpoint.
3. The NRA interprets the 1989 Water Act as requiring public water suppliers to develop necessary new resources. However the NRA expects and intends to ensure that sensible cooperation takes place, and that the requirements of the natural environment and of other legitimate users are allowed for in any development. The NRA may develop new resources itself if appropriate or necessary.
4. The NRA will seek to reduce to acceptable frequency the occasions where shortages of water will require Drought Orders to be sought and granted.
5. The NRA will seek to encourage conservation measures limiting the use of water, in the interests of the environment.
6. The NRA will normally use a planning horizon of 25 years for water resources planning [to take account of the time taken to implement a major scheme and reach full utilisation].
7. The NRA will seek to play an active part in Structure and local Planning, to ensure that water resources needs, pressures and development timescales are adequately allowed for in the planning processes.
8. Through licences and Operating Agreements the NRA will seek to ensure that the operation of new water resource schemes is carried out in a manner which respects and protects the environment.

6.3 POLICY - Abstraction and impounding licensing

1. Licences authorising new net abstraction from rivers will normally contain a provision requiring the abstraction to cease when a prescribed flow is reached, unless the discharge is at or above the point of abstraction or the net abstraction is supported by a corresponding augmentation of flow.
2. The NRA will actively enforce the provisions of abstraction and impounding licences and will prosecute offenders where necessary.
3. The NRA will determine abstraction licences within the statutory 3 month period except applications requiring complex evaluation.
4. The NRA will normally grant abstraction licences for an unlimited period apart from applications relating to sources where the impact is uncertain or where the available resource may be available for a limited period (eg. where effluents provide an essential element of the resource).
5. The NRA will normally require applicants for abstraction licences to demonstrate that the proposed scheme of water supply is sufficiently robust to meet their requirements without the need for Section [] drought orders more frequently than 1 in 100 years.

6.4 POLICY - Alleviation of low flows

1. The NRA will identify catchments with unacceptably low flows as a result of over and will undertake a programme of remedial measures, subject to justification of need and availability of finance.

6.5 POLICY - Water Resources Management

- i) Health and safety measures at operational installation will be kept under constant review and improved as necessary.
- ii) The NRA will continue to maintain and operate schemes under its jurisdiction in a manner to meet the requirements of the schemes.
- iii) The NRA will promote and encourage good operational practice for abstractors aimed at conserving water resources and protecting the water environment.
- iv) The NRA will coordinate drought reporting for England and Wales and will make such information available to government departments and outside organisations.
- v) During times of actual or prospective drought the NRA will liaise with abstractors to discuss present and anticipated resource problems and will aim to ensure that appropriate measures are put in hand to conserve water resources so that an equitable balance is struck between the needs of abstractors and the water environment.
- vi) The NRA will seek to ensure that public water supply consumption is restricted (such as use of hosepipe bans or sprinklers) where water undertakers seek drought orders which impact on the water environment.
- vii) In seeking restrictions on abstractions, due regard will be taken of the duties of water undertakers to supply water to their consumers, and where necessary the legislation will be used to reduce or ban abstractions by industry and agriculture to reasonably satisfy the water undertakers' needs.

6.6 POLICY - Source Protection

- i) The NRA will seek to minimise groundwater pollution from any contaminated site and will pursue remedial action whenever feasible.
- ii) The NRA will consult with local authorities on applications for development on sites where contamination is possible and will object where water resources could be adversely affected unless suitable precautionary measures are included.
- iii) The NRA will recommend to the Secretary of State the introduction of measures within defined water protection zones which prevent or control the entry of any poisonous, noxious or polluting matter into controlled waters.
- iv) The NRA will monitor surface water and groundwater quality in order to fulfil its obligations to protect source waters.

7.1 HYDROMETRY

7.1.1 INTRODUCTION

For the purpose of this review hydrometry is deemed to include the measurement of all hydrological variables concerned with the natural water cycle. Primarily, these variables are river flow, river level, rainfall, ground water levels and data for the assessment of evaporation. But they may include also abstraction and discharge data.

A hydrometric system includes the sensing and recording of the data in the field, the transmission of the data to the administration centre and its subsequent processing and permanent storage.

Sensing of data may range from simple manual observations of water level to sophisticated methods such as ultrasonic where river flow is computed on site. Recording methods embrace everything from manual transcription, charts, tapes and solid state data loggers. Transmission can be manual or via telemetry whilst processing and archiving can range from the storage of printed material to sophisticated computer databases.

The NRA has permissive powers to spend money on hydrometry, but no longer has the 1963 Water Resources Act duty to develop hydrometric networks. However, hydrometric data is an essential prerequisite for many of the NRA's operational and planning functions. These include the monitoring and control of abstractions, flood forecasting and warning, the determination of abstraction licences and discharge consents, quantity and quality planning, flood defence planning etc.

The requirement for hydrometric data can vary tremendously according to functions. For operational purposes like flood forecasting hydrometric data may be needed for only a few hours and then it can be discarded. This can be contrasted with the needs of most planning requirements where a record of sufficient length is essential to ensure an adequate representation of extreme events such as low flows for water resources planning or peak flows for the design of flood alleviation schemes.

7.1.2 TASKS

Operating

- i) The NRA will maintain and develop regional hydrometric networks with a view to identifying and remedying any weaknesses in operation or planning data for any of the NRA functions.
- ii) The NRA will ensure the exchange between regions of information about hydrometric equipment and techniques to assist development.
- iii) NRA will support the work of the British Standards Institute (or other appropriate body) in the standardisation of hydrometric practices.
- iv) The NRA will strive to integrate systems used for real time interrogation with those used for the capture of hydrometric data for long term storage.
- v) Where practicable the NRA will seek to co-ordinate the development of permanent river flow gauging stations and the development of the water quality monitoring network.

Reviews

- vi) Consideration will be given to the opportunities for standardisation of data capture equipment and particularly of interfaces.
- vii) The adequacy and appropriateness of existing hydrometric networks will be reviewed.
- viii) The adequacy of information on abstractions and discharges will be reviewed, and proposals for real-time and other measurement and data collation will be assembled.
- ix) As part of the Information System, a number of activities will be reviewed, and plans made for their pursuit and maybe standardisation as part of new systems; they include
 - data processing systems

- the format and maybe systems for archiving hydrological data; and
- data retrieval formats for both internal and external use.

x) NRA will support or sponsor research into appropriate techniques and equipment for hydrometric measurement and recording.

Change

xi) The NRA will seek to establish accurate telemetered or other data and records for important abstractions and discharges, to supplement 'natural' hydrological data.

xii) Following vii) above, programmes will be developed for construction of additional stations and for closure of unnecessary ones.

xiii) Following viii), policies on licence and discharge consent conditions to allow for data collection will be developed; and programmes for implementation will be assembled and pursued formally with relevant abstractors and dischargers.

xiv) Following ix), and still as part of the ISS, programmes for migration to any worthwhile common systems identified will be assembled for all regions.

7.1.3 OUTPUTS AND TIMESCALES

Output

Timescale by:-

- i) Report on the adequacy of the spatial and temporal data collection, including monitoring of abstraction
- ii) Representation of NRA personnel on BSI committees leading to production of standards
- iii) Contribution of water resources input to development of integrated real time and archive data as part of the IS strategy Water Archive recommendations
- iv) Report recommending appropriate standardisation of equipment and interfaces
- v) Annual review of R&D needs for hydrometry
- vi) 5 year capital works programme for hydrometry
- vii) Guidelines on the establishment and financing of new abstraction gauges

7.2 RESOURCE PLANNING

7.2.1 INTRODUCTION

The 1989 Water Act, section 125, lays down a duty on the NRA to 'take all such action as it may consider necessary or expedient for the purpose

- of conserving redistributing or otherwise augmenting water resources,
- of securing the proper use of water resources.

At the same time the above 'shall [not] be construed as relieving any water undertaker of the obligation to develop water resources..' for its own purposes under Section 37. Section 37 requires every water undertaker to 'develop and maintain an efficient and effective system of water supply'.

The law thus leaves an essential ambiguity in roles and responsibility for water resources assessment, promotion and development. The Director General of Water Services also has a formal role as well as undoubted potential influence on water undertakers. As a result the policy statements of the NRA have particular significance, and the NRA's formally endorsed strategies in this area are likely to be tested and examined in detail whenever controversial development proposals are under public scrutiny.

Another significant duty of the NRA (section 143) is 'to collate and publish information from which assessments can be made of the actual and prospective demand for water, and of actual and prospective water resources..'

Context for Resources Planning

Water Resources Planning in England and Wales takes place in the context of a generally highly populated and highly developed environment. As a consequence, most of the 'easy' options for reliable supplies of water have been taken up and used. Per capita demands for public water supply are still rising in most parts of the country, and any major scheme to abstract water from a river or from underground sources is likely to be strenuously resisted because of its possible effects on the environment. Similarly plans to build large new reservoirs or even major pipelines will be strongly opposed. As a consequence, the plans and processes for water resources development will place heavy demands for information, expertise and judgement on all those involved. The NRA will be involved both because of its responsibilities mentioned above, and because it is the licensing authority, and any new development will require a new licence or licences.

The prospect of delicate decisions of judgement between (say) public water supply needs for water and the environment's similar needs and expectations of high-profile public scrutiny, mean that the NRA's policies and strategies towards water resources planning and development need to be particularly carefully thought out and considered.

7.2.2 TASKS

Operational

- i) The NRA will review existing plans and options for water resources development, in liaison with water undertakers and other users as appropriate.
- ii) Where spare resources exist within one water utility the NRA will seek to maximise the use of such spare resources to meet deficiencies in other utilities where such action would minimise environmental impact (not only in the short term but also in the long term).
- iii) Subject to environmental criteria being satisfied, bulk transfers of raw water via the river network are preferred to piped transfers.
- iv) Water discharged as effluents to tidal waters is discouraged and where practical effluents should be returned as far upstream as possible.
- v) Existing and future demands and available resources will be audited for public water supply, industry and agriculture and information will be published at least every 3 years. Resources and demands for water undertakers will be monitored on an aggregation of supply zones at a level of detail sufficient to portray surpluses and deficits.
- vi) The NRA will examine whether existing and planned resources are adequate to meet demands and to protect the water environment from 'emergency' abstraction during dry periods.
- vii) The NRA will publish periodically a review of resources development plans. Steps will be taken to ensure construction of adequate resources.
- viii) The NRA will undertake a programme of catchment resource evaluations and will identify development potential for the benefit of potential abstractors. The evaluations will provide an input as necessary to multi-functional catchment management planning.
- ix) The NRA will actively seek and arrange liaison with OFWAT, with water undertakers, and with representatives of major

abstractors, to improve understanding and cooperation in water resources planning.

- x) The NRA will identify areas and timescales where water resources availability could be a material matter in major development, and will offer advice proactively as well as reactively to the local authorities.

Reviews

- xi) The NRA will review opportunities for possible large-scale inter-basin transfers, and will publish an overview statement.
- xii) The NRA will review from time to time the evidence and forecasts of climatic change, and its influence on evaluation of future resource needs and plans. It will aim to indicate how (if at all) climate uncertainty might be allowed for, by publishing a position statement from time to time. If appropriate, it will consider the suitability of certain lengths of hydrological evidence as a basis for planning ahead.
- xiii) The variety of resource assessment models will be reviewed, and where appropriate standard model(s) will be adopted or developed. Such models will include simulation of systems over historic or synthetic time periods to evaluate system criteria and will also include planning models which examine development schedules over planning periods.
- xiv) Bearing in mind the changes since many compensation water releases from reservoirs were set, such releases will be reviewed and modified where appropriate for the benefit of abstractors and of the water environment.

Change

- xv) The NRA will seek to agree standard analytical approaches to demand forecasting and yield assessment. In particular yield assessments will be expected to relate to operational performance during design drought conditions. These will be applied with particular attention to systems drawing upon environmentally sensitive sources and those with a deficit, and thus requiring additional resources. It will examine with others the need for common standards of public water supply reliability, with respect to raw water availability.

xvi) The NRA will seek to encourage consideration of the use of water resources by establishing, agreeing and monitoring against demand management targets. It will pay particular attention to the use of water by the major abstractors especially in relation to control of leakage, opportunities for recycling and demand management. The greatest pressure for these measures will arise when developments are proposed which have a significant impact on the water environment or where existing systems have a similar impact.

7.2.3 OUTPUT AND TIMESCALES

Output

Timescale by:-

- i) Creation and implementation of Resource Planning Forums
- ii) Region reviews of plans for water supply, industry and agriculture
- iii) Publication of report on present and future resources and demand (Sec 143)
- iv) Regional reviews of contingency measures to be used in event of resources being unable to meet unconstrained demand
- v) Reports on detailed use and returns of water for key catchments and statement of their development potential
- vi) Establishment of formal Resource Planning Forums to progress and agree resource development on a sub/pan-regional basis with representation from appropriate interested parties.
- vii) Report on strategic resource development option for England and Wales
- viii) Reports on NRA preferred options for water resources development by region/sub-region/pan-region as appropriate.
- ix) Publication of position statement on climate change
- x) Internal procedure/practice for use on mathematical models for resource planning
- xi) Review of compensation water requirements
- xii) Publication of NRA position on demand forecasting, yield assessment and standards of service.
- xiii) Agreements with undertakers appropriate targets for leakage re-use and demand management.

7.3 ABSTRACTION AND IMPOUNDING LICENSING

7.3.1 INTRODUCTION

The NRA controls the abstraction and impoundment of water through a system of licences issued under the provisions of the Water Resources Act 1963 as amended by the Water Act 1989 and other legislation. It has inherited responsibility for [] surface, [] groundwater and

[] impounding licences, many of which do not contain the level of environmental protection now considered acceptable.

The NRA now receives over [] new licence applications each year and processes 1000's more licence variations, successions and enquiries. The determination of these new applications is invariably complex requiring a careful evaluation of the impact of the proposal on the environment and other abstractors.

As Regulators of the water environment, compliance monitoring and enforcement are key aspects of the NRA's work which was largely ignored by predecessor organisations. Already the NRA has probably brought more prosecutions in its short life-time than have been brought in the last 20 years.

The strategy outlined in the following sections highlights the key aspects of licensing which need to be addressed in order to bring the NRA into a progressive consistent and effective environmental protection authority.

7.3.2 TASKS

- i) The ten individual Regional approaches to the determination of abstraction and impounding licensing have been established over a period of almost 30 years. Whilst each Region will be operating within the statutory framework, there will inevitably be differences in approach which may be unacceptable within a national organisation. The NRA will therefore review existing practices and where necessary determine improvements to establish a nationally consistent methodology across all Regions.
- ii) Whilst many rivers in England and Wales have prescribed flows, minimum maintained flows and hands-off flow conditions as part of a licence condition or other statutory requirement, there are no statutory minimum acceptable flows (MAF's) which have been set under the Water Resources Act 1963 or the Water Act 1989. The NRA will investigate the benefits of setting statutory MAF's as an alternative to the other powers available.
- iii) In order to make the determination of abstraction licences more systematic and to communicate its position with outside organisations, the NRA will prepare maps showing rivers or groundwaters (as appropriate) where:-
 - no further abstraction licences will be granted
 - no further licences will be granted unless flows are augmented
 - 'winter only' abstractions are permitted
 - resources are uncertain eg. some groundwater units
- iv) At present there is no comprehensive knowledge of the impact of abstraction upon river flows. At key points within all major catchments, an assessment will be made of the quantitative effect of abstractions from groundwater and surface water upon dry weather flows in the catchment. Residual flow diagrams will be produced for these catchments and particularly environmentally sensitive rivers. Automation of this process is anticipated in association with IS strategy implementation.
- v) The NRA's water resources costs are recovered on a year on year basis through the Scheme of Abstraction Charges. - The existing national scheme will be replaced with a new scheme

which will recover costs as reasonably equitably as possible and will reflect the impact of abstraction on the water environment.

7.3.3 OUTPUTS AND TIMESCALES

<u>Output</u>	<u>Timescale by:-</u>
i) Principles of abstraction licensing and determination policy	March 1991
ii) Detailed abstraction licensing and determination guideline	March 1992
iii) Report on practicality of setting MAFs	March 1992
iv) Maps of licensing potential	March 1993
v) Residual flow diagrams for environmentally sensitive rivers	March 1994

7.4 ALLEVIATION OF LOW FLOWS

7.4.1 INTRODUCTION

The NRA has already identified approximately [40] sites which suffer from low flows as a result of over abstraction or bed leakage leading to an adverse environmental impact or significant loss of amenity. The majority of these sites are probably the result of abstractions from groundwater lowering of the natural water table leading to a diminution of base-flows. In many cases the abstractions are authorised by Licences of Right which were granted under the Water Resources Act 1963. These licences were granted by predecessor organisations who were legally obliged to licence such abstractions as existed at the time of the introduction of the Act. The alleviation of the resulting low flows is a high priority for the NRA, but the remedial measures are expensive, running into millions of pounds. The works available to improve the flow regimes are varied and can include:-

- Flow augmentation from underground or surface sources.
- Bed lining
- Piping flows over leaky catchments
- Agreeing alternative abstraction regimes.

The strategy outlined in the following paragraphs describes the steps which will be taken by the NRA to bring about the required improvements.

7.4.2 TASKS

- i) The NRA will maintain a national schedule of sites suffering from low flows which will be kept under permanent review in the light of improving information. The schedule will rank the sites in priority order, to ensure a nationally consistent point of view and to ensure that financial resources are directed to best advantage.
- ii) Priority schemes will be progressed in accordance with the published plan subject to available finance.

7.4.3 OUTPUTS AND TIMESCALES

Output

Timescale by:-

- | | |
|--|--|
| i) Complete schemes to alleviate low flows in:-
R X at Y
etc
etc
etc
etc | _____

_____ |
| ii) Reports on progress in alleviating low flow problems and identification/rejection of rivers for further action | June 1991
June 1992
June 1993
June 1994 |
| iii) Report on methods to appraise benefit and prioritise rivers suffering from unacceptable low flow. | Aug 1992 |

7.5 WATER RESOURCES MANAGEMENT

7.5.1 INTRODUCTION

The NRA has entered into 8 operating agreements with water undertakers. These agreements define how the sources are operated and contain provision for the NRA to make payments for the benefits associated with releases to the river system. Not all water resource schemes which make releases to the river system are covered by such agreements and there is a possibility that further agreements could be entered into for the benefit of the water environment. There may be further potential for making agreements which change the way in which sources are operated. For example, sources which are not fully deployed may be able to provide releases for the benefit of other users or the environment for a defined period.

The NRA is responsible for the operation or operating policies for certain major water resources schemes such as the Ely-Ouse Essex scheme, Kielder reservoir, Clywedog reservoir and the Shropshire groundwater augmentation schemes. The principal objective of these schemes is the provision of releases for the benefit of abstraction and require in- depth modelling studies and control rule development to ensure efficient and effective control.

Not least amongst the NRA's water resources management activities is its role in relation to actual or prospective drought conditions. Close liaison is maintained with abstractors during such periods in order to obtain an overview of the situation and prospects for the future. The NRA compiles routine reports on the water situation during drought periods and makes them available to central government departments and other outside organisations. Drought puts significant strain upon staff resources where additional effort is required in:-

- assessing the water situation
- liaising with abstractors
- evaluating contingency measures
- predicting future scenarios
- media communications
- dealing with drought orders

7.5.2 TASKS

- i) The NRA has 8 operating agreements with water undertakers aimed at securing the proper use of resources. These agreements will be reviewed in the light of operational experience and proposals developed for their improvement where appropriate.
- ii) New opportunities will be investigated for operating agreements which would benefit the water environment or provide additional resources for other users.
- iii) Planned maintenance programmes will be developed for installations which are the responsibility of the NRA.
- iv) Operational policies for NRA schemes will be reviewed and published.
- v) Regular reports at an appropriate frequency will be prepared by the NRA covering the water resource situation, impact on abstractions and the environment and plans for ameliorating potential drought problems.
- vi) The need for additional predictive models for drought management will be assessed and suitable models will be developed/obtained and applied.
- vii) The need for databases of groundwater and surfacewater information will be reassessed for drought management and reporting purposes and implemented within the framework of the IS strategy.

7.5.3 OUTPUTS AND TIMESCALE

Outputs

- i) Reports reviewing adequacy of operating agreements and opportunity for additional ones.
- ii) Preparation of planned maintenance programmes
- iii) Review and publication of operating agreements
- iv) Routine water situation reports
- v) Report on review of available predictive models for drought management
- vi) Review of data needs for groundwater and surfacewater situation information for regional and national purposes

Timescale by:-

7.6 SOURCE PROTECTION

7.6.1 INTRODUCTION

Protection of the quality of waters which are used or are available for use is an important activity in maintaining and developing a sustainable water resources strategy.

In England and Wales up to 50,000 different abstractions take place daily from inland waters and from groundwaters. Maintenance of a satisfactory water quality is crucial to almost all users and particular emphasis is placed on the need to prevent pollution of sources as against taking action to alleviate problems once they have occurred.

Of particular significance is the protection of groundwater sources due to the protracted time it takes for aquifers to recover from pollution.

In recent years the quality of some groundwater sources has become unreliable as a result of activities in the catchment areas. The causes have included industrial development (leakages, spillages and disposals of oils and chemicals), intensified farming (slurry spreading, silage extraction (suspended sediments, chemical spillages), residential development (septic tanks, leaky sewers and heating oil pipes, paved area runoff to soakway) and waste disposal (mainly illegal disposal of waste liquids).

The NRA has inherited a range of different practices relating to the protection of groundwater sources. Its predecessors in some regions had no formal policy and much reliance was placed upon the local planning authorities to protect groundwaters through the control of new developments.

The need for a comprehensive policy was recognised upon the formation of the NRA and its production is already at an advanced stage.

The importance of source protection was recognised in the drafting of the Water Act 1989 and powers now exist for the designation of Nitrate Sensitive Areas (NSAs) and Water Protection zones.

Ten pilot NSAs were recommended by the NRA and these have now been designated by the Minister of Agriculture and the affect on levels of nitrate resulting from voluntary controls on farming practices will be monitored over the next 5 years.

A further set of control areas called Vulnerable Zones will be designated in England and Wales if the expected introduction of the draft EC Nitrate Directive takes place.

7.6.2 TASKS

- i) Current effort expended on groundwater sampling is extremely variable and is generally inadequate to meet the authorities requirements. A baseline review of present groundwater quality monitoring will be carried out. Recommendations for adequate monitoring will be made and a programme of work initiated to enhance the network.
- ii) Little statistical analysis has been carried out of groundwater quality data. More rigorous analysis will be carried out leading to the derivation of standard sampling frequencies.
- iii) A national groundwater protection policy will be developed and applied consistently throughout England and Wales. It will include measures to protect existing abstractions and also groundwater resources in general.
- iv) Detailed work will be carried out to delineate vulnerable zones for surface and groundwaters associated with the anticipated introduction of the EC nitrate directive.
- v) A study will be undertaken to identify water protection zones and the necessary measures required in these zones to protect water sources.
- vi) The NRA will monitor nitrates contained in public water supply sources obtained from the 10 existing Nitrate sensitive areas and will review the need for recommending further NSAs (in the light of the proposed Nitrate directive).
- vii) The NRA recognises that in the past inadequate attention has been given to the vital tasks of routine inspection visits and education in connection with pollution prevention. A planned programme will be prepared which demonstrates the NRA's commitment to pollution prevention.

7.6.3 OUTPUTS AND TIMESCALE

Outputs

Timescale by:-

- i) Report reviewing present groundwater quality monitoring network
- ii) Report on required additional monitoring boreholes
- iii) Boreholes constructed
- iv) Report on standard sampling frequencies for groundwater quality monitoring
- v) Production of aquifer protection policy
- vi) Mapping of vulnerable zones for EC nitrate directive
- vii) Report on recommended water protection zones and associated source protection measures
- viii) Reports on nitrate levels in NSAs
- ix) Proposals for additional NSAs
- x) Guidelines on the extent and frequency of pollution prevention activities to be carried out by NRA staff
- ix) Publication of periodic information leaflets to educated potential polluters

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NATIONAL RIVERS AUTHORITY

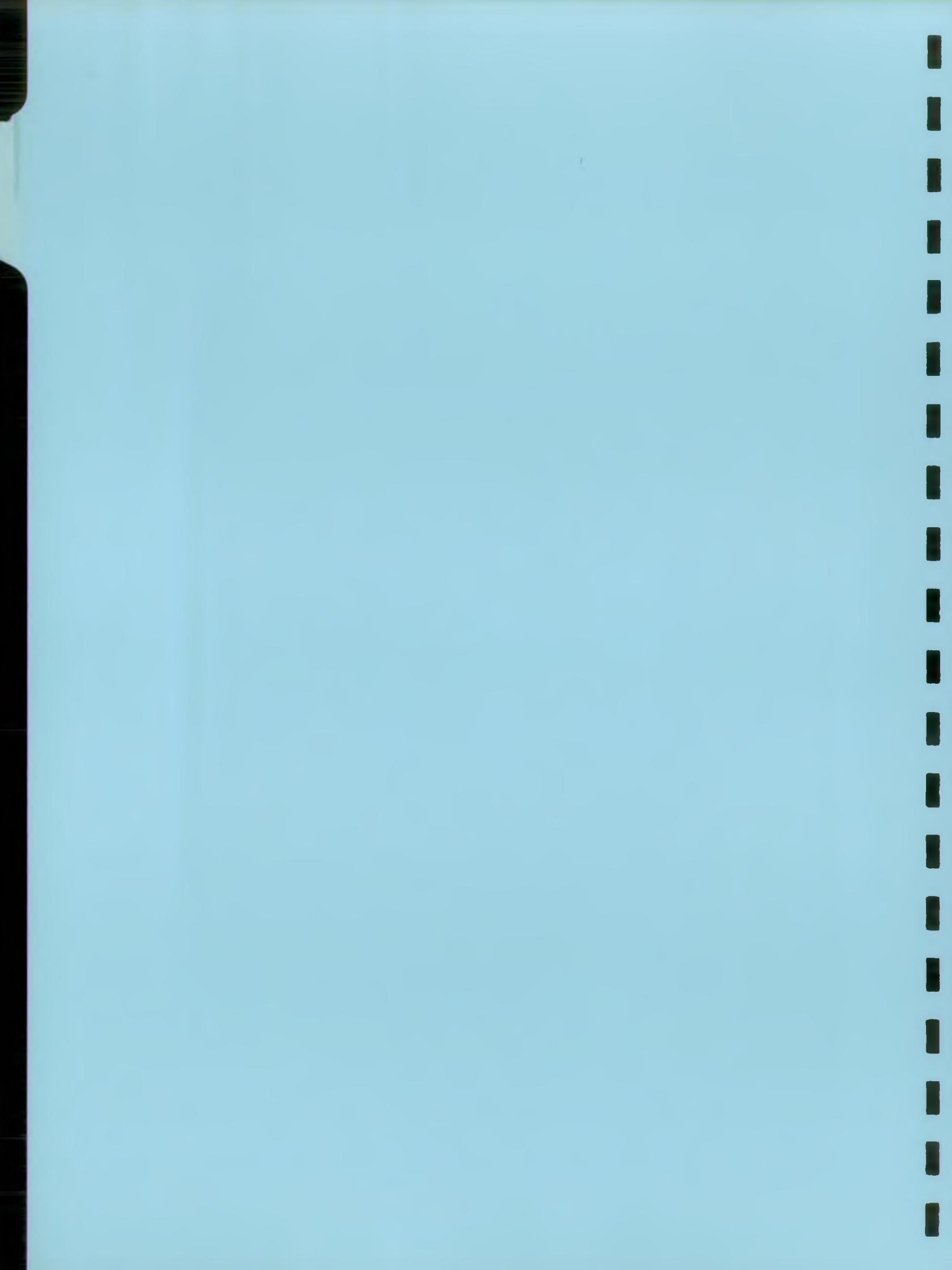
POLLUTION CONTROL FUNCTION STRATEGY



NRA

APRIL 1991

DRAFT



Water Quality Functional Strategy

Water Quality Functional Strategy

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Chapter 1

Introduction

The National Rivers Authority (NRA) was formed as a result of the Water Act (1989); it inherited responsibility for the control of pollution in controlled waters of England and Wales from the various water authorities on 1 September 1989.

Under the Water Act (1989), the NRA has statutory duties and responsibilities relating to the environmental quality of the aquatic environment which are both general and specific. A general duty is imposed on the NRA to conserve and enhance the natural beauty and amenity of inland and coastal waters, and of land associated with them. The NRA is also specifically responsible for water quality in all controlled waters. Such waters include groundwaters, fresh waters, estuaries, and "relevant" territorial waters - essentially those which extend seaward for a distance of three nautical miles from a specified baseline.

The NRA has also inherited from its predecessor Water Authorities responsibility, as the competent authority, for certain European Community (EC) Directives through the transitional provisions of Schedule 26 of the Water Act, and in the form of Statutory Instruments. The NRA also has a role to play in relation to waste disposal on land, under Part 1 of the Control of Pollution Act (COPA) 1974, and is a statutory consultee in relation to planning, licensing and use of land for waste disposal. These responsibilities were transferred to the NRA under Schedule 25 of the Water Act. The Environmental Protection Act 1990 has also conferred statutory consultee status on the NRA in respect of IPC.

Statutory Background to Water Quality

In order to meet its responsibilities the NRA has been granted powers both to control and remedy pollution. Many of these were contained in earlier legislation and were brought together and in some cases extended by the Water Act 1989.

The most far reaching provisions of the Act are contained in sections 104 and 105 which empower the Secretary of State for the Environment to prescribe, by regulations, a system of classifying water quality and establishing water quality objectives for controlled waters. Section 106 then requires the NRA to exercise its powers so as to ensure that such objectives are achieved, and also places an obligation on the NRA to monitor the extent of pollution in controlled waters.

Section 107 and 108 describe the offences relating to the pollution of controlled waters and discharging effluents without the consent of the NRA and the NRA is empowered to enforce those provisions.

A number of defences and exceptions are set out in Section 108 which include compliance with a discharge consent, emergencies, and discharges from abandoned mines.

Section 108 and Schedule 12 of the Act empowers the NRA to issue consents for discharges of sewage effluent, trade effluent and other matter to controlled waters. The precise procedures to be followed are delineated in the Act and these include a requirement to advertise applications for consent so that members of the public can make their views known.

All applications for consents to discharge, records of consents given, related certificates under paragraph 1(7) of Schedule 12, samples of water or effluent, and any related information, must be entered on a Register which the NRA has to maintain and make available to the public under Section 117 of the Water Act.

NRA may recover the cost - by charging - for the issuing of consents, but any charging scheme has to be approved (Schedule 12, paragraph 9) by the Secretary of State. such a scheme was introduced in October 1990. The NRA may also recover the costs - again by charging - for its work carried out in relation to monitoring the nature of effluents and the impact they have on the receiving environment.

Section 110 enables the Secretary of State to make provision - by regulations - for those who have custody or control of poisonous, noxious or polluting matter, to take precautionary measures to prevent pollution from them. The NRA itself can make by-laws under Section 114 to prohibit washing and cleaning activities in controlled waters, and the use of sanitary appliances on vessels. The NRA can also carry out works and operations under Section 115 to prevent polluting matter from entering controlled waters and - except for waste water from abandoned mines - can recover the cost of such work from those who caused or knowingly permitted the material to be present.

Section 115 also entitles the NRA, in situations where poisonous, noxious or polluting matter has been or is present in controlled waters, to remove or dispose of the matter, remedy or mitigate its presence, and restore the water to its previous condition. Again any reasonable costs incurred may be recovered by the NRA.

The Secretary of State can, under Section 111, designate water protection zones and prohibit certain activities within them, but can only do so upon application by the NRA or water undertaker; no such applications have yet been made. A special case is that of designating nitrate sensitive areas (Section 112) for which the Secretary of State and Minister of Agriculture, Fisheries and Food have responsibility. Both the Secretary of State and the Minister may also approve codes of good agricultural practice under Section 116, but can only do so after prior consultation with the NRA.

Description of the function

The Water Quality Function is concerned with those duties and powers described above. Along with quantity, quality is the prime attribute of the nation's water resource. Water quality management is, thus, directed at meeting the quality requirements of the various uses of water such as wildlife conservation; fisheries; water for agriculture, industry and public supply; amenity; recreation and waste water disposal. There needs to be, therefore, very close links between the Water Quality function and those for Water Resources, Fisheries, Conservation and Recreation (and hence Navigation). There is also a close working relationship with the Flood Defence function because of the possible

impact of engineering works on quality.

The function forms part of the overall responsibilities of the Chief Scientist. There is a small co-ordination team at Head Office led by the Head of Water Quality. Each Region has an Environmental Quality Manager reporting to the Regional General Manager but with a functional link to the Chief Scientist.

The Environmental Quality Committee is concerned with developing advice on water quality policy and practice and on co-ordinating its implementation across the Regions. The Committee is chaired by the Head of Water Quality and is comprised of the ten Environmental Quality managers with the Chief Scientist in attendance.

The Environmental Quality Committee has a number of sub groups reporting to it. At present these are:

- Farm Wastes
- Laboratory Managers
- Mathematical Modelling and Data Analysis
- North Sea Group
- Public Register
- Sampling Programmes - Effluents, Rivers, Tidal Water and Groundwaters
- Severn Estuary Committee
- Aquifer Protection (also reporting to the Water Resources Committee)
- Water Quality Survey
- Biology

An Environmental Quality Manager also represents the committee on the R&D Committee.

The organisation of the Water Quality work varies in detail in each Region but the main components are as follows. Each Region has a field staff of "Pollution Control" officers concerned with the monitoring of waters and effluents, discharge consent formulation and enforcement, pollution prevention and the handling of pollution incidents and emergencies. They are supported by biologists, analytical chemists, consent administration staff and scientists involved in water quality planning and data analysis.

The NRA's aim is to be virtually self-sufficient in analytical facilities and a network of eleven chemistry laboratories is being developed. the Function is a major user of Information Systems and its data handling requirements include the statutory public register of consent and monitoring information. The Function also receives support from NRA's Legal Services, particularly for pollution prosecutions.

Chapter 2

Current Situations

Controlled waters are defined in the Water Act 1989. This Act also allows for the Secretary of State to derive a classification scheme for controlled waters, and to set WQOs; the system of classification has to be prescribed by regulations, but the classifications themselves have no legal effect unless incorporated into WQOs. The NRA has set out its views on classification schemes for all controlled waters and submitted these to the DoE, at the latter's request; a response is awaited. The DoE has, however, indicated that it intends to introduce WQOs from 1992 onwards. In preparation for this, the NRA has undertaken a River Quality Survey (RWS) in 1990 in order to compare the situation with previous (1980, 1985) surveys, and to form a basis for the future, particularly with regard to the initial setting of the statutory WQOs. The NRA's views are that compliance with a statutory WQO would require that a body of water achieved the criteria of a given class, met any specified use-related quality objectives, and complied with any relevant EC Directives. In the first instance, the NRA will suggest to the Secretary of State what the WQOs should be, and how they might be achieved; the Secretary of State, however, will take advice from other sources. Once set, it is a duty on both the Secretary of State and the NRA to ensure - regardless of cost - that the WQOs are met by the dates set. Compliance will also depend on there being suitable Water Quality Standards (WQs) to match the WQOs.

The development of WQs is addressed primarily via the R&D programme, but cannot be progressed until the DoE has clarified its position on WQOs. The NRA would, in any case, look to the DoE for guidance on standards relating to matters of public health. It has, however, challenged the epidemiological basis of the values used in the EC Bathing Water Directive, a view supported by the House of Commons Select Committee on the Environment, and financially supports the DoE's studies on this subject.

The NRA is the "competent body" for certain environmental EC Directives in England and Wales. It has responsibility for some 16 Directives and these are, in themselves, unique forms of WQOs. The NRA is also the competent body for carrying out certain obligations placed on the UK as a result of inter-governmental agreements - primarily as a result of the 2nd and 3rd North Sea Conferences.

The Water Act permits the NRA to request a review of a WQO after consultation with water undertakers and others. In arguing the case for the resetting of a statutory Quality Objective, the NRA will have to be in the position of being able to assess the value of the benefit to be gained through an improvement, or the cost of the detriment if matters are not improved.

The Water Act also allows for general pollution prevention measures to be introduced. The first set - on farm silage, slurry and fuel oil - has just appeared. The NRA has also asked the DoE to set in hand the preparation of regulations to cover timber preservatives, pesticides, and other chemicals used and stored in bulk quantities and the storage of oil on industrial premises. As further regulations are produced, they will also

have to be implemented: the NRA will need to judge the balance necessary - in terms of resources - between this other means of improving water quality. A broad-brush review of water quality problems has been produced for the Royal Commission on Environmental Pollution; this identified a number of issues. Two of particular concern were farm waste and contaminated land. A report is in course of preparation on the former. A particular problem with the latter has been a lack of information: the NRA has therefore sought - and obtained - power in the Environmental Protection Act (EPA) so that Registers of current waste disposal sites, and of previously contaminated land, will be locally available.

The NRA has inherited a wide range of consents, with varied and ambiguous content, which it needs to overhaul. Interim guidance has been issued and a thorough review of consent and compliance has been completed: the latter - "Discharge Consent and Compliance: A Blueprint for the Future", was published for public consultation in 1990, and work has begun to implement the recommendations for new consents and revising existing consents on a time schedule which has yet to be decided.

A complication to the NRA's consenting role is the introduction of a system of integrated pollution control under the EPA from April 1991 onwards. A Memorandum of Understanding has been drawn up with Her Majesty's Inspectorate of Pollution, which has the responsibilities for bringing in IPC; this delineates the boundaries between the two organisations' areas of responsibility and covers costs recovery arrangements for the NRA. It is difficult to estimate the work which will arise.

Effluent and associated environmental monitoring programmes are currently being reviewed; the former are likely to change as the new consenting policies are introduced, but both aspects have implications not only for inter-regional consistency but in order to form the basis of a cost-recovery charging scheme. Public Registers exist, but these need to be over-hauled within the NRA's IT/IS Strategy. The extent of compliance with consents, both regionally and nationally, has yet to be studied.

It is the intention to develop the NRA's laboratories into a national network, with all of them capable of carrying out basic routine work but with some developing areas of special expertise. Initially the task is to complete the basic network, the major gaps being that of the Exeter laboratory to serve the South West and Wessex Regions, and the Southern laboratory at Waterloo. There is also an intention to significantly increase the use of automatic monitoring equipment of all kinds.

Enforcement policies for different categories of polluting events, and for breaches of consent, has varied from region to region. Categories of environmental polluting events have been derived, and a general approach to enforcement action in relation to such pollution has been developed and implemented; but a general approach to breaches of consent - particularly for industrial discharges - has yet to be finalised, and will be complicated by the introduction of integrated Pollution Control.

Powers to mitigate and remedy the results of polluting events exist, but there is still a need for a policy with regard to using them. recovering resulting costs, however, is a complicated legal area.

Initial arrangements for handling emergencies have been produced, but further work is required to produce a more advanced system across all functions and all regions.

Monitoring programmes have been in existence for a long time. These are primarily freshwater based; nation-wide surveillance studies of rivers and estuaries have also been undertaken quinquennially. As already stated, the next review is being carried out in 1990 for the DoE, to compare with that of 1985, and this review will roll on into 1991 to provide a wider baseline against which the NRA can compare the future state of such waters. There is a general need to maintain and, where necessary, to improve the quality of such waters prior to the introduction of statutory WQOS. Priorities for improvement need to be set, and areas and sources of pollution targeted. This needs to be based on a catchment-wide basis. Catchment planning is the subject of a NRA Working Group, and will be used as a means of achieving WQOs.

Obtaining a national data base requires substantial investment in information systems and technology, which is currently being addressed. In the past, information on compliance with EC Directives had been sent direct from the Water Authorities to the DoE. These, and other relevant data, have now to be collated by Head Office prior to submission to the DoE - otherwise only the DoE will have a national picture of the NRA's work in this area. Related information - on polluting events, consents, prosecutions and so on - have also to be collated centrally in order to appraise the NRA's overall performance, its regional diversity, and to respond nationally to parliament and the media.

The overall R&D strategy needs to mature into one which reflects the aims and objectives of the NRA's water quality functions, and balances this with its other functions in a coherent overall approach. Emphasis is likely to be based on "catchment-accountability" modelling.

Chapter 3

DERIVATION OF STRATEGY

This strategy has been produced by a sub-committee from the Environmental Quality Managers Group. The sub-committee consisted of:

P Chave	-	Head of Water Quality
I Adams	-	Thames Region
A Edwards	-	Yorkshire Region
B Waters	-	Severn Trent Region

Consultations were made with the Chief Scientist - Dr R J Pentreath and two Board Members - David Kinnersley and Professor Ron Edwards, and the strategy was discussed by the full Environmental Quality Committee.

The strategy takes account of the strategy in the NRA corporate plan, the requirements of current National and International legislation and where appropriate proposed legislation which will be implemented in the near future.

Chapter 4

ISSUES, CHALLENGES AND OPPORTUNITIES - PROPOSED STRATEGY

The strategy of the water quality function reflects the statutory duties placed upon the NRA by the 1989 Water Act.

These are reflected in the aims of the NRA.

1. Water Quality Objectives

Water Quality Objectives are the cornerstone of the Water Act and they represent a joint plan between the Secretary of State and the NRA to ensure that controlled waters will be of sufficient quality for the activities required of them.

Water Quality Objectives provide the statutory basis for quality maintenance and the NRA's improvement plans. The objectives need to be set as short term targets but with the longer term objectives kept firmly in mind. Catchment planning will be used to build the Water Quality Objectives within particular geographical areas. This will need to take account of all the uses of the Waters in the catchment (eg.abstraction, fisheries, recreation etc.) and also the topography and local geography.

Water Quality Objectives will be reviewed on a regular five year basis and the NRA will need to develop standard methods for catchment planning, a regular monitoring strategy, routine methods to enable the reviews to be comparable in all Regions.

Initially, emphasis will be placed on developing strategies for groundwaters and coastal waters. Where modifications to Water Quality Objectives are appropriate, they will be regulated by the Secretary of State.

Water Quality Objectives will be set for all controlled waters which include ground waters, surface waters, lakes and reservoirs, estuaries and coastal waters.

2. Pollution Control

There are three aspects of pollution control which need to be linked together into a basic strategy in order to ensure that catchment control can be used to meet the Water Quality Objectives:

- (i) Regulation of Point Sources;
- (ii) Prevention of Diffuse Sources; and
- (iii) Alleviation of Pollution Incidents.

(i) Regulation of Point Sources

Discharges from point sources account for a very large proportion of the polluting load to controlled waters. Water quality Objectives can only be achieved by controlling these discharges. A strong enforcement policy will be implemented using the regulation and consenting processes as laid out in the Water Act 1989. The strategy for regulation will be as follows.

- (a) Review and determine all inherited consents, taking into account statutory requirements of Environmental Quality Objectives and Regulations under the Water Act

enacting quality requirements from European Directives (see Appendix 1).

- (b) Production of a "Consenting Manual" for the implementation of the proposals set out in the "Kinnersley" Report (Ref 1).
- (c) Enforcing discharge consents through the monitoring programme.
- (d) Prosecution of dischargers consistently contravening their discharge consent conditions.
- (e) Maintaining and updating consent registers to ensure maximum income from the charging for discharge scheme.
- (f) The NRA will control nutrient levels using guidelines in the Municipal Waste Water Directive where it is appropriate in order to control and reduce eutrophication.

With the enactment of the Environmental Protection Act 1990 consenting processes for certain discharges will pass to HMIP under the scheme for Integrated Pollution Control. The NRA will ensure that Water quality Objectives are taken fully into account before these consents are set by a well integrated liaison with HMIP on a local basis using as a basis the memorandum of Understanding agreed between the two organisations. Strong links will also be maintained with other regulatory organisations such as MAFF, HSE, Waste Disposal Authorities and Local Authorities to ensure that point source pollution is controlled.

(ii) Prevention of Diffuse Sources

Pollution from diffuse sources is not easily controlled. The discharges do not usually enter the environment at a single point or are of an intermittent nature and cannot be sampled. Discharge consents are not applicable or are difficult to enforce in these situations. The strategy for the prevention of pollution from these sources is set out below.

- (a) The NRA will press for Regulations under the Water Act whereby the Secretary of State will require control by those persons having custody of poisonous, polluting and noxious matter. The first regulations controlling farm slurry, silage and agricultural fuel oil has been laid before Parliament. Other materials requiring this approach are industrial fuel oil, stored pesticides, wood preservatives and polyelectrolytes.
- (b) The NRA would seek to use its powers under the Water Act to take action where an actual or perceived pollution risk exists. The NRA would also seek to recover costs in those cases where remedial work had to be carried out to prevent pollution.
- (c) The NRA will develop a policy for the identification of protection zones which would be designated by the Secretary of State under the Water Act. The requirement for protection zones would be part of the process of meeting long term quality objectives within catchment planning. Prohibited activities within the protection zones will be defined and requisite enforcement procedures developed.

(d) The effectiveness of the ten designated nitrate sensitive areas will be reviewed and other sites recommended as necessary.

(e) Monitoring and surveillance of groundwater quality will identify aquifers susceptible to contamination. This will be used to develop additional pollution prevention programmes in sensitive catchments.

(f) Litter can be a source of pollution which is difficult to control. Links will be maintained with local groups and combined with the national bodies such as the Tidy Britain group to ensure catchments are cleared up and then kept clean.

(iii) Alleviation of Pollution Incidents

The NRA has powers to carry out work to alleviate the effects of a pollution and to subsequently recharge the costs if the polluter is identified. However, many incidents cause significant pollution before they are identified and the NRA strategy in this area will be directed towards possible prevention actions and early identification of incidents.

(a) The NRA will maintain strong links with other Regulatory bodies (MAFF, HSE, HMIP) to ensure that activities and materials which could cause pollution are properly controlled.

(b) The NRA will maintain its links and inputs into major trade organisations such as BASIS and recommend such actions as are necessary at major agricultural stores to prevent the escape of pollutants in the event of accidents.

(c) The NRA will investigate the possibilities of using automatic detection and alarm systems in sensitive areas.

(d) Liaison with the emergency services has always been the mainstay of information on pollution incidents. Links will be maintained and improved to ensure that all modern communication facilities are used.

3. Monitoring

The NRA has a statutory duty under the Water Act 1989 to monitor the extent of pollution in controlled waters. Without this detailed information on the state of controlled waters it will not be possible to set statutory Water Quality Objectives. Once Water quality Objectives have been set, suitable monitoring programmes will need to be maintained to assess the required compliance. Thus the development and implementation of appropriate monitoring and analysis programmes becomes an essential strategic objective. The NRA strategy for monitoring and analysis will be as follows.

(a) The NRA will further develop the present monitoring and analysis policy for freshwaters, estuaries and coastal waters to ensure that statutory requirements for Water Quality Objectives are being met.

- (b) The monitoring programmes for each region will be reviewed to give a consistent level of surveillance for all controlled waters.
- (c) The monitoring programme will ensure a consistent approach to the control and reporting for EC Directives.
- (d) The monitoring programme will be used to reinforce the charges required in operations to meet the Water Quality Objectives.
- (e) Analytical capability will be extended by the introduction of automatic monitoring devices. The development of hand held devices will be progressed to ensure fast, accurate data is available for pollution incidents.
- (f) Suitable instruments for data logging and data transmission will be developed to allow fast access to stored data.
- (g) The use of novel techniques such as aerial and satellite observation will be investigated to see how these can be used to identify eutrophic areas, identify and track pollution incidents and to identify land use in setting Water Quality Objectives.
- (h) The use of marine boats will be developed to give rapid assessment of offshore pollution incidents and to provide long term monitoring capability for PARCOM and NSTF commitments.
- (i) NAMAS accreditation of the laboratories will be sought. This will ensure that results within the NRA are comparable and that data provided through European and International obligations is of the required quality.
- (j) The eleven laboratories in the NRA will provide a nationwide service which can be used by other external bodies with national analytical requirements (HMIP etc).
- (k) A strategy for the progression of a national water archive will be developed to allow the easy transfer of data between Regions and Head Office. This will be developed in conjunction with the information technology strategy.

4. External Liaison

There are numerous organisations whose actions impinge on those of the NRA and which influence our activities. It is important that the NRA maintain liaison with these organisations to enable policy decisions to be taken in the context of other National work. The NRA will maintain links to plan future policy strategy.

- (a) DOE - As the parent ministry, the Secretary of State has ultimate responsibility for National policy on water quality and for agreeing policies.
- (b) MAFF - A statutory consultee over consents for coastal discharges and for coastal Water Quality Objectives.

- (c) HMIP - A statutory body for the implementation of IPC. Formal liaison set out in the Memorandum of understanding.
- (d) NCC - Involved in long term planning for Water Quality Objectives.
- (e) OFWAAT.WSA - Bodies controlling and representing the functions of drinking water provision and the treatment of sewage. Water Quality Objective greatly influence their mode of operation.
- (f) EC Commission - The setting of European Quality Standards influence the day to day operation of NRA.
- (g) Regional Advisory Committees - These committees act as a sounding board for the NRA's policies with the general public, especially WQO's.
- (h) Pressure Groups - FOE, Greenpeace, Surfers Against Sewage, Tidy Britain Group, Marine Conservation Society all influence public opinion on environmental matters and help produce a favourable climate in which the NRA can operate. However, their objectives are not necessarily ours.
- (i) CBI. CLA. NFU etc. - These are articulate and influential groups. They can act as a valuable communication route to disseminate NRA policies to their members.
- (j) The Press - The Press can readily influence public opinion. Nevertheless, they can be used to ensure that the NRA's point of view and policy is placed before the general public in an acceptable manner.

5. Finance

Water quality activities in the NRA are currently financed through Grant In Aid from the Government. Income from legitimate sources will allow the NRA to be less reliant on the Government. It will be necessary to identify the costs attributable to all parts of the activities in water quality. Income from sources associated with these activities can then be set against the costs.

The NRA will operate the following strategy.

- (a) The charging for discharge scheme will be introduced in full.
- (b) A recovery system will be introduced for the transfer of monies between NRA and HMIP for work associated with IPC.
- (c) A costing scheme which will allow the identification of all separate activities associated with pollution control and water quality matters, together with their actual costs will be developed.

(d) The potential for recharging HM Government for activities associated with international obligations will be investigated.

(e) Cost recovery procedures for work undertaken to alleviate, mitigate or otherwise deal with pollutions will be maximised, to ensure that polluters bear the costs of their pollution.

(f) A policy for undertaking analytical or other appropriate advisory work on behalf of the other regulators will be developed.

6. Long Term Goals

The need to improve water quality is a continuing requirement with the NRA. Short term plans allow initial policies to be started but the attainment of Water Quality Objectives must be a clear long term goal. To maximise the potential of the waters within England and Wales the NRA must:

(a) Formulate and implement a system of catchment planning which will allow the ultimate achievement of national and international water quality standards.

(b) Formulate a system of catchment accountability whereby the effects of discharges are measured against the long term objectives in relation to all other activities in the catchment.

(c) Generate an economic basis for environmental control to enable the NRA to manage the total water environment.

(d) Ensure groundwaters are kept clean for public water supply and ensure that those responsible for pollution take all actions necessary to rehabilitate the aquifer.

(e) Maintain surface waters in a condition acceptable for their proposed uses.

(f) Eliminate all Class 4 rivers.

(g) Ensure that estuaries are fit for the increased public use. Industrial and environmental needs must be balanced.

(h) Eliminate all class D estuaries.

(i) Ensure that coastal waters meet their objectives for leisure, industrial and conservation uses.

Chapter 5

RESOURCES and PRESENT STATE OF FUNCTION

Income

A dramatic five-fold increase in income is predicted in 1991/92, a result of introducing a cost recovery charging for discharges. 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.

ACTIVITIES £Ms	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
INCOME Total	1.09	2.50	26.82	37.45	42.00	44.00

Expenditure

The Authority intends to increase expenditure by 10% in 1991/92 in order to bring all of the NRA regions up to a common operating strength. 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.

The increased expenditure 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.

It is expected that a substantial fraction of the expenditure will be offset by the introduction of the charging for discharges scheme which will recover the costs incurred from setting new consents to discharge, the annual cost of reviewing and revising existing consents, and the monitoring work required to demonstrate compliance or otherwise with the conditions applied to the discharge consents.

ACTIVITIES £Ms	ACTUAL 89/90	FORECAST 90/91	BUDGET 91/92	PLANNED 92/93	PLANNED 93/94	PLANNED 94/95
EXPENDITURE						
Incidents/emergencies	6.35	6.96	9.76	10.20	11.13	11.50
Consenting and compliance monitoring	23.16	26.17	33.27	35.31	38.01	38.90
EC Directives	6.59	7.06	9.76	10.26	11.02	11.69
Pollution prevention	4.90	5.10	7.68	7.29	7.87	5.65
Other work	7.69	7.86	9.32	9.29	10.42	12.84
Total	48.69	53.16	69.80	72.35	78.45	80.59
Revenue	44.15	43.86	61.37	64.28	70.32	72.51
Capital	4.55	9.30	8.42	8.07	8.13	8.08

Staffing

It is planned to increase staffing levels by 19% in 1991/92, therefore numbers decline slightly and stabilise. The increase is primarily accounted for by laboratory staff and pollution inspectors. Other staff increases are in connection with the implementation of statutory Water Quality Directives which are expected to be introduced from 1992 onwards.

	ACTUAL 89/90	BUDGET 91/92	PLANNED 94/95
MANPOWER (FTE)			
- Non-Manual	1017	1615	1597
- Manual	17	22	
- Total	1034	1637	1619
Laboratories	266	476	473
Pollution Control Inspectors	384	577	565

Assets

The primary assets of the Water Quality Function comprise laboratories, survey vessels and automated instrumentation networks.

Eleven major laboratories are now in operation or due to be completed in 1991. These are mainly Chemistry laboratories located in strategic sites and which carry out the bulk of the initial high-throughput chemical analyses and those analyses now required to meet EC directives, and the ever increasing complexity of chemicals existing in the environment. These large laboratories are supported by some eighteen small, and mainly biological, laboratories which process, locally, samples with limited shelf life, which tends to preclude their transportation to remote central laboratories. Computer based laboratory information and management systems are in widespread use.

There are seventy nine automatic continuous water quality monitoring stations currently in use throughout the NRA (1989/90); and evaluation is under way of newly developed hand held automatic monitors. The Severn Trent laboratory provides laboratory base facilities for this programme.

The monitoring programme will be extended to cover areas previously neglected including the large expanse of offshore waters out to three miles from the coast. For these, three new marine vessels are being commissioned to cover the eastern and north-eastern coasts augmenting the highly successful NRA vessel Vigilance now operating from the Wessex Region.

Details of the numbers of samples taken and analyses performed are given in the Appendix - 2.

Appendix (3)

1. Water Quality Objectives

92 93 94 95 96 97 98 99 00

Set water quality objectives
Develop EQSS
Formulate/implement catchment planning
Achieve WQOs
Formulate/implement catchment accountability
Review WQOs
Generate economic basis for control
Ensure groundwaters are kept clean
Maintain quality of surface waters
Eliminate Class 4 rivers
Improve estuaries
Eliminate Class D estuaries
Control water improvements

2. Pollution Control

Produce consenting manual
Review/determine consents
Implement enforcement policy
Implement IPC data exchange
Introduce Municipal Waste Water Directive
Develop links with other bodies
Introduce new regulations
Develop protection zone plan
Nitrate sensitive areas
Groundwater protection policy
Litter activities
Inputs to trade associations
Automatic detection and alarm
Improve emergency activities

3. Monitoring

Develop monitoring policy
Review monitoring programmes
Reinforce charging policy
Develop automatic monitoring
Introduce data logging systems
Investigate aerial and satellite observation
Develop marine capability
NAMAS accreditation of laboratories
Develop national laboratory network
Develop water quality archives

4. External Liaison

Develop links with other bodies

5. Finance

Introduce full charging scheme
Recovery scheme HMIP/NRA
Introduce costing system
Investigate costs of governmental work
Maximise cost recovery from polluters
Investigate work for other agencies

Chapter 6 Resources

R&D Requirements

The NRA's needs for new knowledge concerning Water Quality are primarily aimed at advising on and achieving Water Quality Objectives. These objectives, related to the uses of water, and their associated environmental quality standards require a firm scientific base. The Authority also needs knowledge on potential future sources of water pollution from agricultural, industrial or other development and on the implications of proposed new legislation. another area for R&D is to enable the Authority to do it, work with greater economy and productivity.

Knowledge is required on the courses, transport and fate of possible pollutants and on their behaviour and effects in rivers, canals, lakes, estuaries, coastal waters and underground waters, so that the most effective means of control can be adopted and where appropriate, remedial measures can be instituted to aid the recovery from pollution. The pathways of pollutants from land to water, thus, need to be understood and inter-reactions established. Where appropriate, there is a need for "catchment accountability" mathematical models relating the sources of pollution to their "sinks" via the pathways followed and the transformations which the undergo.

Specific areas for research include:

- (i) Water Quality Objectives and Standards.
 - (a) Methods of chemical and biological quality classification (well established for rivers but needs more work for other waters).
 - (b) Assessment of the ecotoxicity of substances so that appropriate standards can be set.
 - (c) Participation in epidemiological studies (particularly for bathing water standards).
 - (d) Development of methods of appraisal for the benefits arising from setting particular objectives (methods of social and economic appraisal, perception of water quality).
- (ii) Monitoring
 - (a) design of chemical microbiological and biological monitoring programmes for controlled waters and effluents.
 - (b) Methods of statistical data analysis and presentation.
 - (c) Analytical methods development and quality control procedures - chemical, biological and microbiological.

- (d) Instrumentation - field monitors including "hand held" and continuous.
- (iii) Consents
 - (a) Following up to proposals in the "Kinnersley Report", including alternatives to BoD and suspended solids.
 - (b) Toxicity criteria for consents.
 - (c) Mathematical models for aiding the setting of consents for discharges to controlled waters.
 - (d) Methods of control for intermittent discharges, particularly combined sewage overflows - involvement in the Urban Pollution Management Programme.
- (iv) Diffuse sources of Pollution and other Water Quality Phenomena.
 - (a) Impact and control of agricultural activities on water quality.
 - (b) Impact and control of forestry on water quality, including acidification of runoff.
 - (c) Impact of other land use changes.
 - (d) Control of disposal of waste to land.
 - (e) Impact of contaminated land.
 - (f) Control eutrophication including blue green algae.
- (v) Pollution Prevention
 - (a) Methods hazard assessment.
 - (b) Measures to enhance the safety of the use, storage and transport of polluting substances, including oil, industrial chemicals, pesticides and herbicides, farm slurries and silage liquors (note NRA would expect the appropriate industries to invest in research pollution prevention measures and treatment processes specific to their activities).
 - (c) Criteria for setting protection zones.
 - (d) Effectiveness of Nitrate Sensitive Areas.
- (vi) Remedial Measures
 - (a) Possible projects on the effectiveness of artificial oxygenation and on containment and clean up techniques.

(vii) Water Quality Processes

- (a) Behaviour of substances in rivers, canals, lakes, estuaries, coastal waters and underground waters.
- (b) Catchment accountability modelling.

Chapter 7 Output and Performance Measures

In order to assess the progress towards the achievement of the aims of the strategy it will be necessary to adopt measures of performance and milestones on the way. This information is essential towards justifying further funding from the Government through Grant-in-Aid and is also needed to ensure that other forms of cost recovery are adequate. The need to address the question of the provision of resources in terms of manpower and equipment requires information on the levels of service achieved and desired, and the relative efficiency in the use of these services needs to be assessed in order to justify increases (or alterations) in resources.

The following indicators are proposed.

ECONOMY

Function

Performance Indicator

a) Discharge Consents and Compliance

Total cost/planned cost

(Essentially all that is re-chargeable)

(Needs to be 'balanced', in order to satisfy S of S)

b) Pollution Control

Total cost/planned cost

(Pollution detection, prevention and alleviation)

c) Environmental Surveillance

Total cost/planned cost

(Monitoring for EC Directives, RQS work etc.)

EFFICIENCY

Efficiency is essentially a comparison of different outputs per unit cost. The information likely to be obtained, however, is the inverse of this - the average cost of producing something - as follows.

<u>Function</u>	<u>Performance Indicator</u>
a) <u>Discharge Consents and Compliance</u>	
- Consenting - simple)	Av. cost technical
- - complex)	staff/consent
- administration	Av. cost/consent
- Monitoring - effluents)	Av. cost/sample
- - environment)	
b) <u>Pollution Control</u>	
- Pollution incident response - Cat.1)	Av. cost/incident
- - other)	
- Site inspections for prevention work	Av. cost/inspection
- Prosecution	Av. cost/case (Recoverable)
c) <u>Environmental Surveillance</u>	
- EC Directives	Cost/Directive
- Other	Cost/programme
d) <u>Technical Performance</u>	
- Sample collection - effluent)	Av. cost/sample
- - environment)	
- Sample analysis - for 'suits' of determinands	Av. cost/'suite'
- sample turnaround of biological analyses	Av. time/sample

EFFECTIVENESS

<u>Function</u>	<u>Performance Indicator</u>
a)	
- Consents dealt with	% dealt with within required time period
- Consents reviewed	% reviewed of those planned to review
- Consents complied with	% observed compliance
- Sampling for compliance	% samples taken of those planned to take
- Analysis of samples	% analysed within target time
b)	
<u>Pollution Control</u>	
- Incident response time	% within targeted time
- Confirmation of source	% where source detected
- Prosecution ability	% successful prosecutions
- Effectiveness of prevention	No. of incidents/No. of inspections
- Warning dischargers	% breaches of consents
c)	
<u>Environmental Surveillance</u>	
- WQOs	% compliance
- EC Directives	% compliance

Appendix (1)

EEC DIRECTIVES

NUMBER	TITLE	
75/440	Quality of Surface Waters Intended for Abstraction for Drinking Water	16.05.75
76/160	Quality of Bathing Waters	08.12.75
76/464	Pollution Caused by Certain Dangerous Substances	04.05.76
77/795	Exchange of Information on Quality of Surface Fresh Waters	12.12.77
78/176	Waste From the Titanium Dioxide Industry	20.02.78
78/659	Quality of Fresh Waters for the Support of Fish Life	18.07.78
79/869	Sampling and Analysis of Surface Waters Intended for Abstraction for Drinking Water	09.10.79
79/923	Quality Required for Shellfish Waters	30.10.79
80/68	Protection of Groundwater from Pollution by Certain Dangerous Substances	17.12.79
80/778	Quality of Water Intended for Human Consumption	15.07.80
82/176	Mercury in Discharges from the Clawer - Alkali Industry	22.03.82
82/883	Surveillance of Environments Affected by Waste from the Titanium Dioxide Industry	03.12.82
83/513	Quality of Cadmium Discharges	26.09.83
84/156	Quality of Mercury Discharges Other than the Clawer - Alkali Industry	08.03.84
84/491	Quality of Hexachlorocyclohexane and Lindane Discharges	09.10.84
86/280	Quality of Discharges Containing Certain Dangerous Substances (DDT,PCP,CTC)	12.06.86
87/217	Prevention of Environmental Pollution by Asbestos	19.03.87
88/347	Quality of Discharges containing Certain Dangerous Substances (Drins, HCB, HCBd and Chloroform)	16.06.88
89/428	Harmonizing of Programmes for Reduction of Pollution from the Titanium Dioxide Industry	21.06.89
90/415	Quality of Discharges containing Certain Dangerous Substances (PER,TRI,EDC,TCB)	27.07.90
-	Municipal Wastewater Treatment	18.03.91

STATUTORY INSTRUMENTS AFFECTING WATER QUALITY

<u>Statutory Instrument Number</u>	<u>Description</u>	<u>Coming Into Force</u>
<u>1147</u>	The Water Supply (Water Quality) Regulations 1989	1 September, except for regulations 13,17,18,19 for which the date is 1 January 1990
<u>1148</u>	The Surface Waters (Classification) Regulations 1989	1 September 1989
<u>1149</u>	The Controlled Waters (Lakes and Ponds) Order 1989	1 September 1989
<u>1151</u>	The Control of Pollution (Consents for Discharges etc)(Secretary of State Functions) Regulations 1989	1 September 1989
<u>1156</u>	The Trade Effluents (Prescribed Processes and Substances) Regulations 1989	1 September 1989
<u>1157</u>	The Control of Pollution (Discharges by the National Rivers Authority) Regulations 1989	1 September 1989
<u>1158</u>	The Control of Pollution (Radioactive Waste) Regulations 1989	1 September 1989
<u>1160</u>	The Control of Pollution (Registers) Regulations 1989	1 September 1989
<u>1263</u>	The Sludge (Use in Agriculture) Regulations 1989	1 September 1989
<u>1378</u>	The Rivers (Prevention of Pollution) Act 1951 (Continuation of Byelaws) Order 1989	1 September 1989

<u>2286</u>	The Surface Waters (Dangerous Substances) (Classification) Regulations 1989	1 January 1990
<u>1629</u>	The Trade Effluents (Prescribed Processes and Substances)(Amendment) Regulations 1990	31 August 1990
<u>880</u>	The Sludge (Use in Agriculture) (Amendment) Regulations 1990	8 May 1990
<u>1013</u>	The Nitrate Sensitive Areas (Designation) Order 1990	1 June 1990
<u>1187</u>	The Nitrate Sensitive Areas (Designation)(Amendment) Order 1990	7 June 1990
<u>111</u>	The Litter (fixed Penalty Notices) Order 1991	13 February 1991
<u>324</u>	The Control of Pollution (Silage, Slurry and Agricultural fuel oil) Regulations 1991	1 September 1991
<u>476</u>	The Litter (Relevant land of Principal Litter Authorities and Relevant Crown Land) Order 1991	1 April 1991

Appendix (2)

General Statistics (89/90 basis)

Total Geographical area	15142064 hectares
Total Population	50.6 Million
Total length of rivers/canals	42123 Km
Total length of estuaries	2612 Km
Total length of coastline	4203 Km
Number of EC bathing waters	402
Number of canals	75
Total length of canals	2789 Km
Number of water supply reservoirs (75ha.)	207
Total area of other reservoirs	4089 ha.
Number of other inland waters	965
Total area of other inland waters	18345 ha.
Sites of special scientific interest	2400

Consents

	89/90	91/92	94/95	Long Term Target
Consents in Force				
WSPLc Sewage Works	8551	8966	74/81	
Private Sewage Works	17059	20055	24325	
Trade	10239	10149	6749	
Agricultural	7173	4868	6958	
Others	78123	75088	75973	

River Water Quality

Length of river in Class(Km)

1A good	12880.9	12872.2	12825.2	15319.4
1B good	13555.9	14533.4	14649.0	18374.2
2 fair	9862.5	10643.8	11366.9	11048.0
3 poor	3612.3	3443.6	2863.7	830.2
4 bad	617.1	526.2	366.0	0

Estuarial Quality

Length of estuary in Class(Km)

A good	1710.15	1677.05	1737.05	1693.0
B fair	655.25	638.25	639.75	736.8

C poor	167.5	161.5	138.0	14.0
D bad	83.0	79.0	41.0	0

Consents

	89/90	91/92	94/95	Long Term Target
Consents in Force				
WSPLC sewage works	8551	8966	7481	-
Private sewage works	17059	20055	24325	-
Trade	10239	10149	6749	-
Agricultural	7173	4868	6958	-
Others	78123	75088	75973	-

River Water Quality

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C poor	167.5	161.5	138.0	14.0
D bad	83.0	79.0	41.0	0

Laboratories

Sampling Points		89/90	91/92	94/95	Long Term Target
groundwater		1337	1670	3107	
rivers		13027	17755	16049	
effluents		11237	13232	13109	
enclosed waters		793	1870	1820	
estuaries		961	1993	1838	
bathing waters		597	668	637	
coastal waters		105	504	523	
others		552	1367	1094	
TOTAL		28609	41058	38177	

Samples Taken	groundwater	3797	12857	9487
	rivers	118589	173249	149276
	effluents	116318	147746	136373
	enclosed waters	4182	12363	9873
	estuaries	12383	25863	23419
	bathing waters	10761	13405	12597
	coastal waters	872	3010	2710
	others	4848	22816	23483
	TOTAL	271750	411309	367218

Analyses	Simple	2332721	2698307
	Complex	1120086	1760434
determinands		3745243	4376263

Develop water quality archives

4. External Liaison

Develop links with other bodies

5. Finance

Introduce full charging scheme

Recovery scheme HMIP/NRA

Introduce costing system

Investigate costs of governmental work

Maximise cost recovery from polluters

Investigate work for other agencies

DRAFT

NATIONAL RIVERS AUTHORITY

FLOOD DEFENCE FUNCTION STRATEGY



NRA

APRIL 1991

DRAFT

FD



HUNDREDS OF HOMES ON ALERT FOR SECOND TIME IN A YEAR

**Flood threat
for families**

Floods damage homes

*Floods hit roads
as storms rage on*

*Homes spared
as flooding
threat recedes*

Residents take
no chances as
flooding eases

*Flood alert as swollen
rivers threaten towns*

*Homes and farms
hit by Severn floods*

PRESS REPORTS
JANUARY 1991

Welcome to Worcester-On-Sea!

NATIONAL RIVERS AUTHORITY

FLOOD DEFENCE
CORPORATE STRATEGY

Final Draft
25 March 1991

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Definition

This strategy is a plan, or a set of plans, which sets out the methods by which stated objectives are to be achieved.

Further copies can be obtained from:-

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NRA, 550 Streetsbrook Road, Solihull, B91 1QT.

Telephone: 021-711-2324

FOREWORD BY CHAIRMAN AND CHIEF EXECUTIVE



Lord Crickhowell

The task confronting everyone in the National Rivers Authority during the first months of its existence has been exceptionally challenging.

In addition to having to establish appropriate management arrangements for an entirely new public body employing nearly 6,500 people created out of ten very different regional organisations, we have had to show by our actions in the face of high public expectations that we would indeed be a vigorous and independent regulator; begin the task of establishing acceptable standards; develop a considerable number of entirely fresh policies in accordance with new statutory responsibilities; provide an effective response to a variety of emergencies;

Given resources on the scale that are needed to carry out our many and varied responsibilities (which are set out in detail in our Corporate Plan) we look forward to a further exciting period of challenge and achievement.

Lord Crickhowell

Crickhowell



Dr J C Bowman CBE

The main focus for policy and operational development, before its consideration by the Board, has been the Management Committee, comprising the Authority's Regional General Managers and Head Office Directors, which has met on a monthly basis.

With the active involvement and commitment of the Board, the Management Committee and senior staff in the Regions and Head Office, we have produced our first Corporate Plan in half the time it normally takes to produce such a document. This is the first cautious step in an annual process of taking stock, strategic planning and determination of targets and resource use. We have commenced work on a longer term corporate strategy and our second Corporate Plan. It is planned to involve the Regional Committees fully in this work, and to strengthen links with local government.

Throughout these many activities the enthusiasm, competence and effort of the employees of the NRA has been impressive. I would personally like to acknowledge the support of the Board and of all the employees in our endeavours to develop the Authority as an effective national organisation.

I am confident that with continuing and adequate financial support from Government and the overwhelming backing of the general public, we will continue to develop and become even more effective in our role as 'Guardians of the Water Environment' during the 1990s.

Dr J C Bowman CBE

John Bowman

(Extract from Annual Report 1989/90)

2. EXECUTIVE SUMMARY

- 2.1 Flood Defence is a key function of the NRA. It is aimed at protecting people and property from flooding, potentially a life threatening danger. Flood defence accounts for over half of the activity of the organisation.
- 2.2 The overall objectives of flood defence are:-
- a) to provide protection to people, property and areas at risk from flooding from the sea or rivers in a cost effective manner by maintenance of existing assets, refurbishment and construction of new works.
 - b) to provide an effective flood warning service
 - c) to prevent the creation or extension of flooding risks by regulatory activities to influence and control development
- 2.3 Carrying out the activities to meet these objectives requires the NRA to monitor and maintain a wide range of assets, including:-
- 36,000 km of main river and associated embankments,
 - 800 km of sea defences,
 - tidal barriers on the Thames at London, at Hull and other sites,
 - over 60 major pumping stations for land drainage,
 - river control structures, gates, sluices and weirs,
 - river and stream outfalls,
 - rainfall, river flow, river and tide-height gauges and telemetry systems
 - weather radar (jointly with the Meteorological Office)
- 2.4 Approximately 3,600 of the NRA's 6,700 employees work in the flood defence function directly and many of the others are involved in providing essential support. The total annual costs are in the order of £200 million including capital expenditure of around £100 million per year.
- 2.5 The income for Flood Defences is mainly raised by levies on County and Metropolitan Borough Councils and Internal Drainage Boards. Grant aid from the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office (WO) assists in the financing of the majority of the capital works.
- 2.6 The legislation for the Flood Defence function is provided to a large degree in the Land Drainage Act 1976. The Water Act 1989, incorporates this previous legislation, but has also made a number of changes. This legislation is unique in the NRA because most flood defence activities are carried out through the statutory Regional and Local Flood Defence Committees. It is also important to note that for the most part flood defence work is done under permissive powers. The interrelationship with MAFF is essential to achieve the objectives for flood defence. The NRA is working with MAFF to ensure that the existing legislative arrangements are carried out to their best effect.

2.7 The general strategy will be to change the perception of overall functional objectives away from the historic "land drainage" needs to a new perspective relating to "flood defence" needs. These objectives are presented in Appendix 1. The varying grant rates from MAFF reflect these new priorities. Whilst land drainage is still important, the increase in environmental and conservation issues, and the change in food production requirements has resulted in a more critical assessment of the need for additional land drainage schemes.

2.8 This does not mean abandoning all that has been proved to be appropriate over many years, - but it does mean taking a fundamental look at:

- . what is needed
- . where it is needed and
- . how it will be provided

The Flood Defence function is regionally driven. But the NRA Board and Directors must be satisfied that overall the national resources are committed to work of urgent priority.

2.9 At the same time, the increasing awareness of potential climate change and increased risk of sea flooding due to sea level rise has helped focus attention on the need to ensure good flood defence arrangements.

2.10 The severe storms of the winter of 1989/90 and especially the sea flooding of Towyn in North Wales were reminders to all that the NRA must give a high priority to flood defences. The comprehensive survey of all sea defences in England and Wales carried out by the NRA in 1990 and 1991, is a clear demonstration of the importance that the NRA gives to this subject.

2.11 The in-house workforce coped with flood emergencies throughout the winters of 1989/90 and 1990/91 often working long hours inspecting and checking the integrity of flood defences, operating pumping stations and river control structures, repairing damaged defences, clearing fallen trees and debris to prevent flooding - particularly from culverts, and providing assistance to local authorities.

2.12 This strategy aims at identifying what the NRA needs to achieve in flood defences in the coming years. It sets out action that will be undertaken to achieve these objectives to meet the needs of people who are likely to be affected when floods come as a result of:-

- . high tides and storms from the sea
- . high tides and/or river flows in an estuary
- . high river flows due to heavy rainfall and/or snowmelt

Map 1 shows the location of major groups of properties protected by defences. Table 1A shows the numbers of houses, people, and commercial properties and the area of agricultural land protected. The income, expenditure and employees relating to Flood Defence represent a substantial proportion of the activities of the NRA. Table 1B shows area, length of main river and population, for each region. The table also contains information on expenditure, employees and number of planning applications screened.

Note the significant improvements planned by the NRA throughout England and Wales from 1989 to 1995.

	Actual 1989/90	Planned 1994/95
Number of houses protected	812,800	852,400
People protected	2,343,400	2,473,700
Commercial properties protected	92,200	100,300
Agricultural land protected (hectares)	1,163,500	1,192,400

Closely linked to this function is the drainage of excessive rainfall from low-lying but productive agricultural lands. Map 2 shows the extent of properties and land protected by land drainage works. Most flooding is localised, but many solutions have to be in a regional or catchment framework.

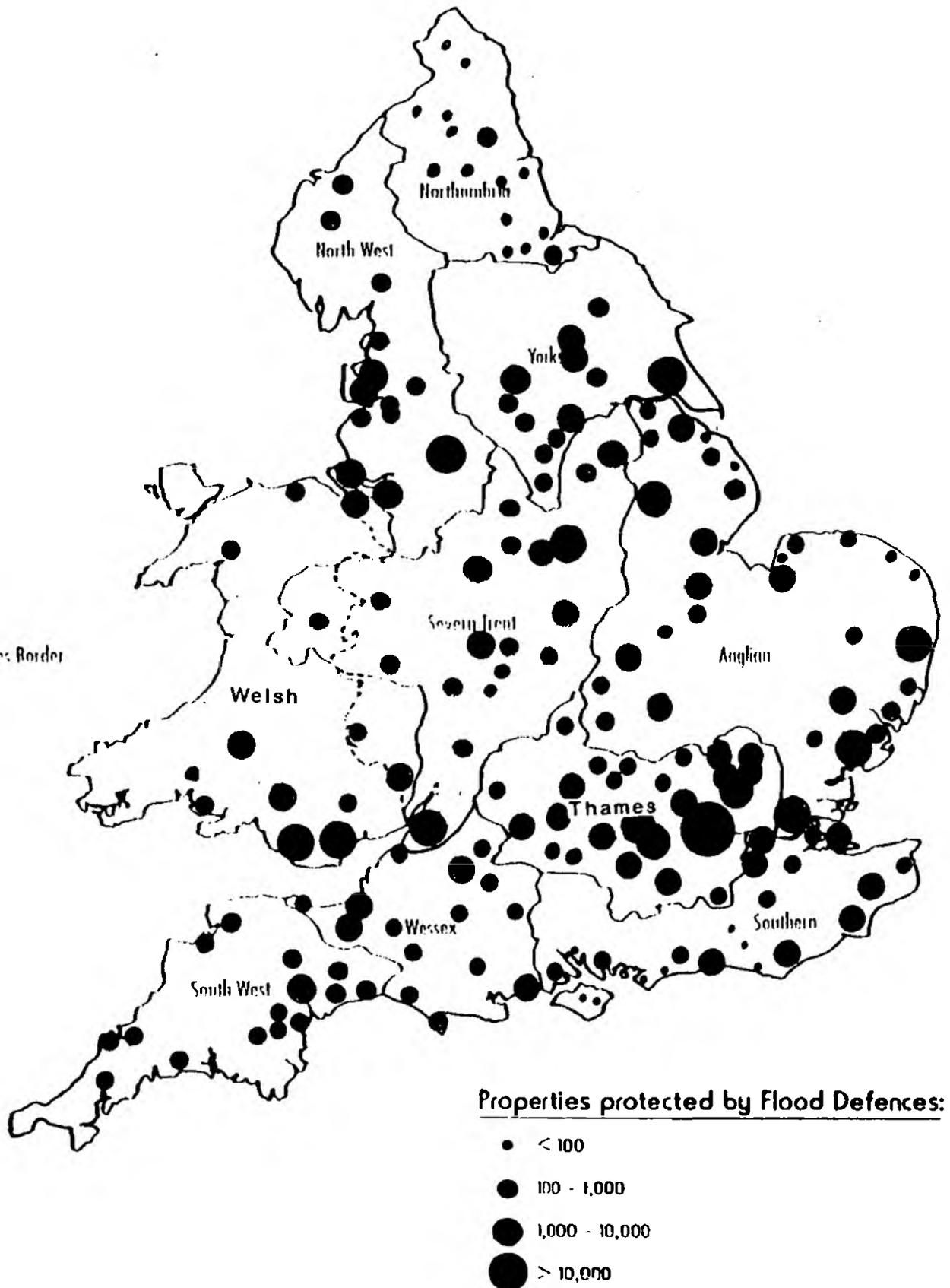
- 2.13 The responsibilities of the NRA and other authorities are set out in Section 3. Section 4 describes the methodology used to produce this document, which is part of the NRA's Corporate Planning process. A review of 1989/91 and the present status of the flood defence function is given in Section 5.
- 2.14 The NRA Mission Statement, Aims and Objectives for flood defence are given in Section 6. The objectives are summarised in Table 4 and described in more detail in Appendix 1.
- 2.15 Methods to achieve these objectives are described in Section 7. The Planning Diagram shows a summary of key topics which have a definite output to be completed by a target date. The tasks are large and the resource requirements must be recognised. This is done in Section 8. As each output is approved it will be published and adopted for use throughout the NRA. Flood Defence Managers Group will review progress as described in Section 9. But it is expected the strategy will stand unaltered for 5 years or more, subject only to a dramatic change in circumstances.
- 2.16 The strategy for flood defences, as for other functions, must be sufficiently robust and flexible to be able to react to changing circumstances, whether political, climatic or organisational. However, it is hoped that the strategy is sufficiently comprehensive and robust not to need major change for a period of 5 years. Changes on a shorter time scale than this will be provided for in the NRA's Corporate Plan which is produced annually.
- 2.17 The executive summary started by referring to the potential risk to life from flooding. This risk can never be removed totally - nature's power in the form of storms is a frequent reminder of this. However, the NRA is determined to carry out the flood defence function in an effective and caring way so that people, property and land is protected to as high a level as is practicable.

This strategy is now approved for use by:-

- (1) the Strategy Co-ordinator as a draft
- (2) the Flood Defence Managers' Group as a final draft
- (3) the Directors as a final draft
- (4) the NRA RFDC Chairmen as a final draft
- (5) the NRA Management Committee as a Draft for consultation externally
- (6) the NRA Board for publication

The level of approval today
25 March 1991 is (4)

MAP 1 PROPERTIES PROTECTED BY FLOOD DEFENCES



MAP 2 LAND DRAINAGE

KEY: Shaded area is land which is totally dependent upon complex drainage systems



TABLE 1A REGIONAL STATISTICS

REGIONS	Houses Protected		People Protected		Commercial Properties Protected		Agricultural Land Protected (ha)	
	Actual 89/90	Planned 94/95	Actual 89/90	Planned 94/95	Actual 89/90	Planned 94/95	Actual 89/90	Planned 94/95
Anglian	178,000	183,000	510,000	524,000	26,000	28,000	729,000	728,000
Northumbria	1,000	1,000	3,000	4,000	100	100	9,100	9,300
North West	78,100	81,100	438,000	449,000	16,500	17,700	56,300	60,300
Severn Trent	40,000	40,200	100,000	101,000	10,000	10,100	60,000	60,000
Southern	71,500	72,500	178,000	180,500	5,900	6,300	92,800	92,900
South West	10,000	10,800	22,000	23,700	5,400	5,700	27,200	27,300
Thames	300,000	304,000	750,000	760,000	21,000	21,600	29,600	41,700
Welsh	22,200	23,200	56,000	58,300	2,000	2,300	37,700	38,200
Wessex	21,000	22,600	30,400	54,200	2,300	2,500	80,600	81,400
Yorkshire	91,000	114,000	256,000	319,000	3,000	6,000	41,200	53,300
TOTAL	812,800	852,400	2,343,400	2,473,700	92,200	100,300	1,163,500	1,192,400

Statistics to 3 sig figs - nearest 100

TABLE 1B REGIONAL STATISTICS

REGION	Area k-km ²	Main River km	Population M	Expenditure £M			Employees			No. Planning Applns. Screened
				Plan 1991			Plan 1991			Forecast 1991
				M ¹	C ²	TOTAL	M ³	N/M ⁴	TOTAL	(5)
1 Anglian	27.0	5812	5.3	13.6	37.2	50.8	404	273	677	48,000 *
2 Northumbrian	9.3	1485	2.6	1.8	1.1	2.9	32	20	52	1,500
3 North West	14.5	5947	6.8	10.3	4.6	14.9	279	194	473	5,375
4 Severn Trent	21.6	3579	8.3	13.3	11.5	24.8	241	156	397	12,000 *
5 Southern	10.6	2784	4.5	10.8	11.4	22.2	261	89	350	3,030 **
6 South West	10.9	1370	1.5	1.8	5.6	7.4	62	56	118	3,400
7 Thames	12.9	5294	11.6	30.0	22.9	52.9	476	343	819	4,300
8 Welsh	21.3	5619	3.1	7.0	3.8	10.8	164	87	251	13,970 *
9 Wessex	9.9	2373	2.4	5.4	5.5	10.9	114	81	195	2,270
10 Yorkshire	13.5	1741	4.5	5.2	9.1	14.3	182	120	302	4,800
TOTAL	151.5	36004	50.6	99.2	112.7	211.9	2215	1419	3634	-

- 1 Maintenance of existing works (revenue)
- 2 Improvement and development of defences (capital schemes)
- 3 Manual
- 4 Non-manual
- 5 Basis of estimate is not the same for each region so total is not appropriate

* Total screened (no. exclusive F.D. figs. available).

** Total by F.D. on behalf of all functions.

3. INTRODUCTION

3.1 STATUTORY DUTIES AND POWERS

NRA responsibilities for flood and sea defence activities under the Water Act 1989 are summarised in these statutory duties and powers. The Authority, in Section 136 of the 1989 Water Act (The Act) is given duties to exercise a general supervision over all matters relating to flood defence. The Act provided for these functions to be transferred from the Water Authorities by making amendments to the 1976 Land Drainage Act.

3.2 The Act imposes on the Authority the duty to arrange for all of its functions relating to flood defence to be carried out through Regional Flood Defence Committees, except for the setting of levies and raising of funds. The Act also provides the opportunity for Regional Flood Defence Committees to submit to the Authority proposals for creating or amending an existing local land drainage scheme.

3.3 The Authority is given powers to undertake surveys of the area in relation to which it carries out flood defence functions.

3.4 In respect of income, for flood defence functions, the Act makes provision for the Authority to apportion qualifying expenses among the relevant local authorities within local land drainage districts. The Act empowers the Authority to raise general and special drainage charges. The NRA may receive contributions from, and may contribute to, internal drainage boards. The Act empowers the Ministry of Agriculture, Fisheries and Food (MAFF) and Welsh Office (WO) to make grants towards the costs of providing a flood warning system and towards the costs of improvements to existing, or the construction of new, drainage works.

3.5 Under the Act, the NRA may undertake improvement and maintenance works on, or in connection with, main river and sea defences. But the NRA may take enforcement action on non-main river. It is also a statutory duty to have regard to and enhance conservation of the water environment.

3.6 The Authority is required to issue a consent for the construction, or alteration to any mill, dam, weir or like obstruction to flow; or modification of any culvert which would affect any flow in any non-main river watercourse, except within the District of an Internal Drainage Board where the Board issues such approval. Where the works could affect "main river", the consent procedure applies to any structures in, over or under the watercourse. The Water Act provides for the Authority to make a charge for the issue of consents.

3.7 Flood defence works can be undertaken by local authorities on non-main rivers, but only if consented by the Authority. The Authority is required to consult with an Internal Drainage Board (IDB) before giving consent for works on a watercourse under the control of that Board. Local authorities have parallel powers of enforcement.

3.8 Section 34 of the Land Drainage Act 1976 enables the NRA to "make such byelaws as it considers necessary for securing the efficient working of the drainage system." In addition the NRA can make such byelaws "as the Authority considers necessary for securing the proper defences against sea or tidal water of any part of its area".

3.9 EXTERNAL LINKS

The NRA has policy links with MAFF and the Welsh Office. These bodies exercise a general supervision over all flood defence matters and provide grant aid on a proportion of the cost of some improvements to existing, or the construction of new flood defence works, and on the cost of providing flood warning systems. MAFF carries out its own Research and Development programme on River and Coastal Engineering. Close liaison is maintained between the NRA and MAFF to eliminate duplication and ensure the interests of each organisation are met in the most effective way. Table 2 and Table 3 show the functional involvement. It is extremely difficult to be comprehensive in listing further external links but major liaison with statutory bodies includes the Nature Conservancy Council.

3.10 NRA ORGANISATION

All flood defence functions, except for setting levies and raising funds, are carried out by the NRA through Regional Flood Defence Committees (RFDCs). In some regions, the RFDC is supported by local committees. The RFDCs consist of members appointed by MAFF, representatives of the County and Metropolitan District Councils who finance the flood defence levy, and two members appointed by the NRA (Chairmen of Regional Fisheries and Rivers Advisory Committees).

Income for flood defence is raised through the relevant local authorities and, where appropriate, internal drainage boards, supported by grant from MAFF.

Within the NRA executive, the ten Regional Flood Defence Managers, together with the Flood Defence Manager (Head Office) meet regularly as a Function Manager Group to formulate strategy and co-ordinate the Function's activities on a national level, and with other external bodies. The Function Manager Group meetings, taking into account views expressed by RFDCs and NRA Regional Management Teams, provide the formal framework within which Research and Development requirements can be identified in relation to business needs and corporate planning objectives.

3.11 FLOOD DEFENCE COMMITTEES

The Regional and Local Land Drainage Committees of Water Authorities have continued as the NRA's Regional and Local Flood Defence Committees (RFDCs and LFDCs). These committees have been involved in the preparation of the annual programme of capital works and maintenance, including the determination of the associated funding requirements for consideration by the Board.

The effects of climate change and the strong possibility of rising sea levels have also been considered by committees. RFDCs have expressed concern at building development in areas at risk from flooding and considered that planning authorities should try to prevent such development unless the developer is prepared to fund the necessary flood alleviation works. The raising of levies for flood defence has been considered by every committee. The committee also endorsed the need for representations to Government on the impact of the community charge on the apportionment of the flood defence levy amongst local authorities.

Table 2

FUNCTIONAL INVOLVEMENT

<u>Function</u>	<u>Primary Involvement</u>	<u>Reserve Role</u>	<u>Default Action</u>
Policy:			
. grant . research and development . direction	MAFF		
Oversight:			
. general supervision . survey . consultation . direction . default action	NRA		MAFF direction [WAS146(1)(b)]
Works:			
. Main River . Non-Main River	Landowner, NRA		MAFF direction
(a) in IDD	IDB (responsibility is drainage of land)		NRA/[LA]
(b) other -	Landowner	DC[MBC/LB]	NRA/CC
. sea defence	NRA	[DC]	MAFF direction
	MBC/LB	NRA	NRA
	DC	CC	NRA/CC
	Landowner	DC	NRA/CC
. coast protection	DC		MAFF direction [CPAS29]
	Landowner	DC	DC

Table 3

AUTHORITIES' INVOLVEMENT

<u>Authority</u>	<u>Involvement</u>	
MAFF	Policy	Grant
		National Flood Protection R & D programme
NRA	Overview	Direction (NRA and Maritime District Council)
		Duty to exercise general supervision
		Duty to survey
	Works	Consulted by DCs on work (flood and sea defence and coast protection)
		Power to direct DC or landowner or act in default
		Main river
Regulation	Sea defence	
	Consultation on planning matters	
Research and Development		
IDB		Drainage of land in Internal Drainage District and work on watercourses other than main river
District Council DC	Works	Non-main river, other than IDD - subject to NRA consent
		Sea defence - subject to NRA agreement
	Regulation	Coast protection on coastline designated by Coast Protection Act (required to consult NRA about works)
		Consultation on local plans and planning applications
MBC/LB	Works	As per DC, but default power with NRA
County Council	Works	By consent of NRA with DC or in default of DC
	Regulation	Consultation on structure plans
Landowner	Works	Unless transferred to local council or NRA

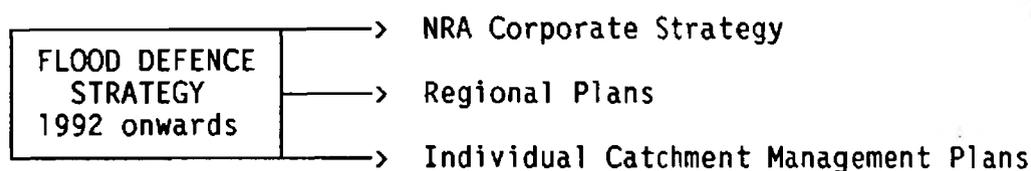
MBC - Metropolitan Borough Council, LB - London Borough

4. METHODOLOGY FOR PRODUCING THE STRATEGY

4.1 The Corporate Planning Policy Group suggested this Strategy should be produced every 5-10 years. It should:-

- look 5, 10 or 20 years ahead
- integrate regional functional variations into a national approach
- provide broad policy statements
- provide outline programme with completion dates
- contain preliminary estimates of resources needed for implementation.

4.2 This Strategy links to the following:



4.3 The strategy has been produced by a Flood Defence Manager working with the functional management group of Technical Director and Flood Defence Managers. Directors and Regional General Managers have provided advice on planning, conservation, legal, estates, finance, personnel and public relations matters. Regional employees have provided ideas and information, through their Flood Defence Manager.

4.4 Consultations have taken place with:-

- NRA Board Members - P Coverdale and J Norris
- NRA Management Committee
- NRA Regional Flood Defence Committee Chairmen
- NRA Regional Management Teams

4.5 Consultations will take place with organisations and others having an interest in flood defence and land drainage including:-

Internal:

RFDC
RMT

Other functions:

RFAC
RRAC

External:

ACC
ADA
ADC
CBI
CC
CLA
MAFF
NCC
NFU
RSPB
WO



Dec 1989

Teignmouth - South Devon

CORPORATE PLANNING AND PERFORMANCE MONITORING

CALENDAR 1989/90-1992/93

DOCUMENT	FINANCIAL YEAR									
	89/90		90/91		91/92		92/93			
	SONDJFM	AMJJASONDJFM	AMJ							
1990-91										
Regional plans	****									
RP Summaries	****									
Corporate plan	*****	**								
CP leaflet		**								
1989-90										
Regional Reviews		**								
Annual Report		****								
1991-92										
Function strategies		*****								
Corporate strategy				****						
Regional Plans		****								
RP Summaries		***								
Corporate Plan		****								
CP leaflet		***								
1990-91										
Regional Reviews				**						
Annual Report				***						
1992-93										
Regional plans					****					
RP summaries					***					
Corporate Plan					*****					
CP leaflet					***					
1991-92										
Regional reviews							**			
Annual report							****			
1993-94										
Regional plans							*****			
RP summaries							**			
Corporate plan							*****			
CP leaflet								**		
	89/90	90/91	91/92	92/93						
	SONDJFM	AMJJASONDJFM	AMJ							

Key

***** Production period

CPPA
July 1990

5. HISTORICAL REVIEW AND PRESENT STATUS

One of the major roles of the Regional and Local Flood Defence Committees is the preparation and regional approval of the capital works programme.

The Medium Term Plan (MTP) is to a great extent controlled by the availability of adequate funds from two sources: (a) Government grants and (b) council levies. Government grant is translated into a Grant Earning Ceiling (GEC) which enables a more ambitious programme of work to be undertaken for each Region. As the MTP expenditure increases, it is anticipated that the GEC will also increase. As the GEC rises, the financial demand made on the levied councils increases, and Committees may occasionally find the recommended programme too costly, even after deduction of grant. Thus reasonably high priority work may remain undone. An increase in the percentage rates of grant for sea defence works in future years will ease the financial burden.

Scientists have predicted that over the next 50 years, sea levels are set to rise at a greater rate than previously predicted. Although the quantum and exact timing has not been universally agreed, the expenditure profile of the capital plan reflects an allowance to combat the early stages of the predicted rise.

Since Vesting Day, 1 September 1989, the Function Group has reviewed the flood warning procedures in the Regions and by the end of March 1991 prepared a national scheme.

Regional flood defence capital programmes covering the five year period have been prepared and submitted to MAFF.

The Function Group, in conjunction with consultants, have now embarked upon a programme for the creation of the planning and management system and the establishment of the necessary comprehensive database of flood and sea defence assets.

The NRA is subject to European Community (EC) regulations relating to the procurement of goods and services. The Flood Defence function is a major spender and the group is working in conjunction with a Region's purchasing department and consultant to identify these constraints and ensure that all rendering and purchasing procedures comply with these requirements.

Liaison with local authority planning departments on planning applications and development proposals involves a high level of manpower resource. The need for close co-operation is of paramount importance and a draft guideline document for the function has been completed. The document is now being enlarged to include other aspects of NRA work which are relevant to planning liaison. It is anticipated that an agreed national approach will be implemented during 1991.

Liaison with statutory and voluntary conservation organisations has been a special feature. The recent emphasis in this important work has followed the requirements of Sections 8 and 9 of the Water Act 1989 and legislation on environmental impact studies.



River Avon at Warwick Castle

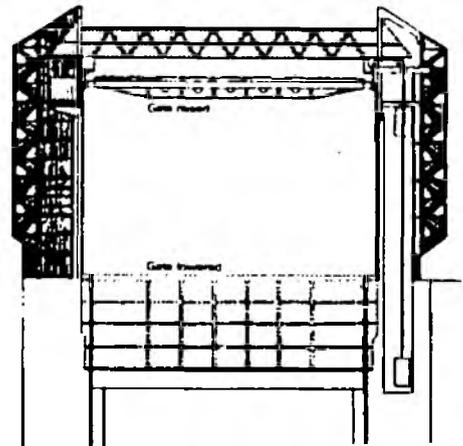
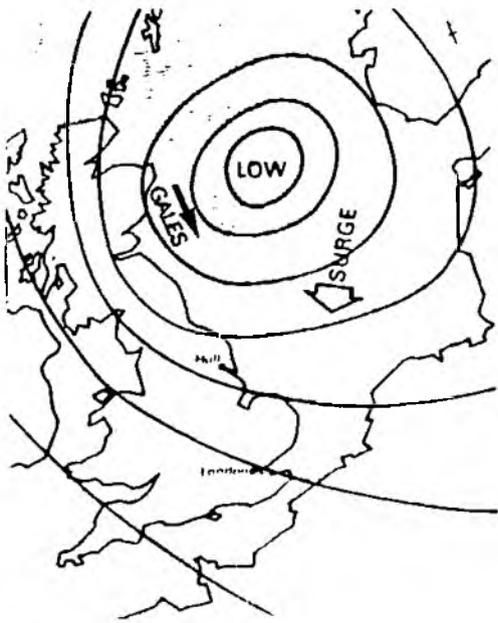
OUTPUTS

- . flood defence strategy
- . flood warnings and emergency responses
- . maintenance of existing, and construction of new fluvial (main river), estuarial, and sea defences
- . policy statements

The Flood Defence capital programme includes some 860 schemes.

Programmes for maintenance of some 35,000 km of main river water courses and some 1000 km of sea defences will be undertaken.

In order to prioritise needs, risk assessments, particularly for sea defences, have to be undertaken. A condition survey of the Authority sea wall assets has been undertaken in mid 1990.



RIVER HULL TIDAL SURGE BARRIER

6. OBJECTIVES

Objectives are derived from the Mission Statement and aims of the Authority.

6.1 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.

6.2 AIMS RELATING TO FLOOD DEFENCE

The Authority's aims are as follows:

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 prevent the creation or extension of flooding risks by regulatory activities to influence and control development.

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 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.

6.3 ISSUES AND CONSTRAINTS MITIGATING AGAINST FLOOD DEFENCE OBJECTIVES

Flood Defence is a core function of the Authority. It requires some 50% of the expenditure of the Authority - it engages the servicing of nearly 50% of the workforce.

- The Flood Defence function will seek to support all the aims of the Authority.

The NRA is responsible for nearly 1000 km of sea defences. Many have been in existence for over half a century, whilst others are newer, but whatever their age, much money is needed to maintain, improve and combat the ravages of time. Defences are being subjected to even greater loadings due to increases in wave energy from falling beaches, increases in water levels due to land sinking, and sea level rises.

- Current value of defences is £4000M. Long term plans will set out appropriate investment profiles.

The defences associated with 36000 km of main river protect over 2 million people; the drainage of over 1 million ha of agricultural land is also dependent upon these rivers. Much investment has been made to improve rivers and the present defences have to be maintained at an appropriate level. The requirements for agriculture outputs have fallen and are being controlled by new Government agricultural policies involving alternative crops needing different standards of drainage. The NRA will have to respond to these changes.

- Capital and revenue programmes will adjust to agricultural and urban needs.

The NRA is required to enhance the quality of the environment. Land drainage and flood defence works provide opportunities to pursue, actively, appropriate policies.

- Flood defence will take the opportunity to enhance the environment and safeguard amenity and recreational facilities.

The NRA is the country's foremost flood forecasting and flood warning agency; is one of the most important authorities involved in emergency planning at all levels. Developments in information technology, telemetry, data transfer systems, require significant investments to capitalise on new hardware and software.

- The NRA will encourage new initiatives in systems development, materials and practices to maintain and improve its effectiveness in responding to flood threats.

Flood defence activities provide the opportunity to improve recreational fisheries. Programmes will be developed to improve fish habitats, wherever appropriate, wherever finance is made available in excess of the flood defence resource. River flow control structures will be developed to aid and enhance leisure and amenity facilities whenever a suitable opportunity occurs.

- Recreational fishery facilities will be supported and enhanced whenever appropriate.

Many rivers are also navigation waterways. Improvements to lower water levels or to increase flood flow capacity may be compatible with navigational interests. Navigable waters provide amenity and recreational facilities and flood defence will, where appropriate, support initiatives.

- Flood Defence will support appropriate initiatives to enhance navigation, recreational and amenity facilities.

6.4 OBJECTIVES RELATING TO FLOOD DEFENCE

A) Maintenance of existing assets of Flood and Sea Defences, Provision of Land Drainage and coping with Emergencies

- * change the perception away from the historic "land drainage" needs to a new perspective relating to "flood defence" needs
- * take a fundamental look at:
 - the condition of the river, tidal and sea defence assets
 - what is needed, defining standards relating to land use
 - where it is needed
 - how it will be provided, defining standards of maintenance and programmes to meet these
- * become more pro-active when dealing with emergencies and defining role of NRA -
- * develop a strategy for the management of flood defences
- * establish annual inspection and maintenance programmes
- * retain a core of competent and trained employees to respond to emergencies with access to the necessary equipment and materials. Provide resources to be self-sufficient to deal with emergencies of floods which occur with a specified return period and prepare plans for more severe events
- * ensure the retention and continuity of expertise by the in-house workforce and demonstrate value for money in maintaining assets
- * monitor developments of new materials and systems. Incorporate new techniques in trials when improved effectiveness of economy will result
- * contract out to the private sector, or other appropriate authority (eg Internal Drainage Boards), operational works and support services when improved value for money can be achieved
- * publish an Emergency Plan, following consultation with civil and military authorities to establish an appropriate routine of emergency exercises

B) New Works and Refurbishment of Flood and Sea Defences and Land Drainage

- * establish investment programmes to meet required standards for the next 5, 10 or 20 years ahead
- * develop a strategy for investment in flood defences

- * consider funding requirements,
 - increased Government funding
 - effects on County and Metropolitan Borough Councils, and Internal Drainage Boards of increased levies
 - use of borrowing powers
 - for the medium/long term when climatic change and rising sea levels could bring about significant new investments required for works
 - maximise contributions from developers in respect of the benefit they receive
- * design and construct all works in accordance with relevant guidelines for furthering and promoting amenity conservation and recreation.
- * monitor and promote research on the effects of natural forces on NRA defences

C) Regulate activities of others in flood prone areas

- * provide greater control of development by considering the duties and powers under the old Land Drainage Act 1976, and what may be more appropriate for the 1990s
- * liaise with Planning Authorities in the production of structure and local plans which take account of the need to avoid increased flooding and development in flood risk areas
- * comment on all Town and Country planning applications which have implications for flood defence and ensure local authorities have a proper approach to flood defence
- * enforce the Land Drainage byelaws and legislation and review in national context
- * encourage a comprehensive review of IDB boundaries, activities and liaison arrangements with the object of consistency and improving efficiency

D) Assistance from Others

- * Consider ways of improving value for money in activities such as
 - use of new technology, research and development
 - consultants
 - contractors
 - in-house NRA services such as business services

E) Assistance to Others

- * define the extent of co-operation and support to other NRA functions and rechargeable activities outside the NRA.

F) Links with other strategies

- * prepare and carry out a research and development programme to support the activities of the Flood Defence function

6.5 In developing the strategy it is necessary to consider the whole function "in the round" in this way. In 1990 each region produced a plan which incorporated the

Mission statement

Aims

Objectives provided at national, regional and local level

The Flood Defence Managers Group considered the overall objectives in the 5 areas given above, and using their special expertise and experience prepared a list of key topics, given in Table 4.

6.6 Links with other strategies are particularly important. Main issues overlap with the other (regional) departments (such as Personnel) and national matters, such as Research and Development (R & D). The emphasis that these strategies (Conservation, Information Strategy) takes in the short term reflects the requirements identified by the Flood Defence strategy in the long term.

These requirements relate to knowledge of:-

- . Present capability in procedures, systems and resources to meet present demands, and any gaps identified now
- . Future long term abilities/activities to meet public demands and enable statutory duties and powers to be more fully exercised, economically, effectively and efficiently.
- . Timescales and priorities

The R & D strategy will set out long term objectives and short term targets to assist in defining the programme and resources required. It will also identify general topics which are common to all functions such as

- . economic issues
- . public perception
- . enabling technologies
- . model integration
- . national and international collaboration

The Flood Defence R & D commission consists of 8 topic areas, namely:-

- C1 Engineering hydrology and hydraulics
- C2 River flood forecasting
- C3 Catchment appraisal and control
- C4 Operational management
- C5 River structures (design and construction)
- C6 Coastal and estuarine structures (design and construction)
- C7 Effects of climate change on flood defences
- C8 Response to emergencies

TABLE 4

LIST OF OVERALL OBJECTIVES AND KEY TOPICS

A) Maintenance of Flood and Sea Defences. In-house Workforce and Coping with Emergencies. Provision of Land Drainage

- 1 Public service
- 2 Maintenance and levels of service. Asset management.
- 3 Flood emergencies

B) New Works and Refurbishment of Flood and Sea Defences. and Land Drainage

- 4 Relations with MAFF/Welsh Office
- 5 Capital programming
- 6 Sea defences

C) Regulatory Activities

- 7 Internal Drainage Boards
- 8 Legal matters
- 9 Catchment Planning and development control
- 10 Main River policy

D) General - assistance from others

- 11 Information and communications
- 12 Research and development
- 13 Performance measurement
- 14 Fisheries, Conservation and Recreation
- 15 Hydrology
- 16 Transport and Plant
- 17 Electrical, mechanical, building, instrumentation
- 18 Health and safety
- 19 Planning (development control)

There will also be a need to liaise with other Service Departments, especially:

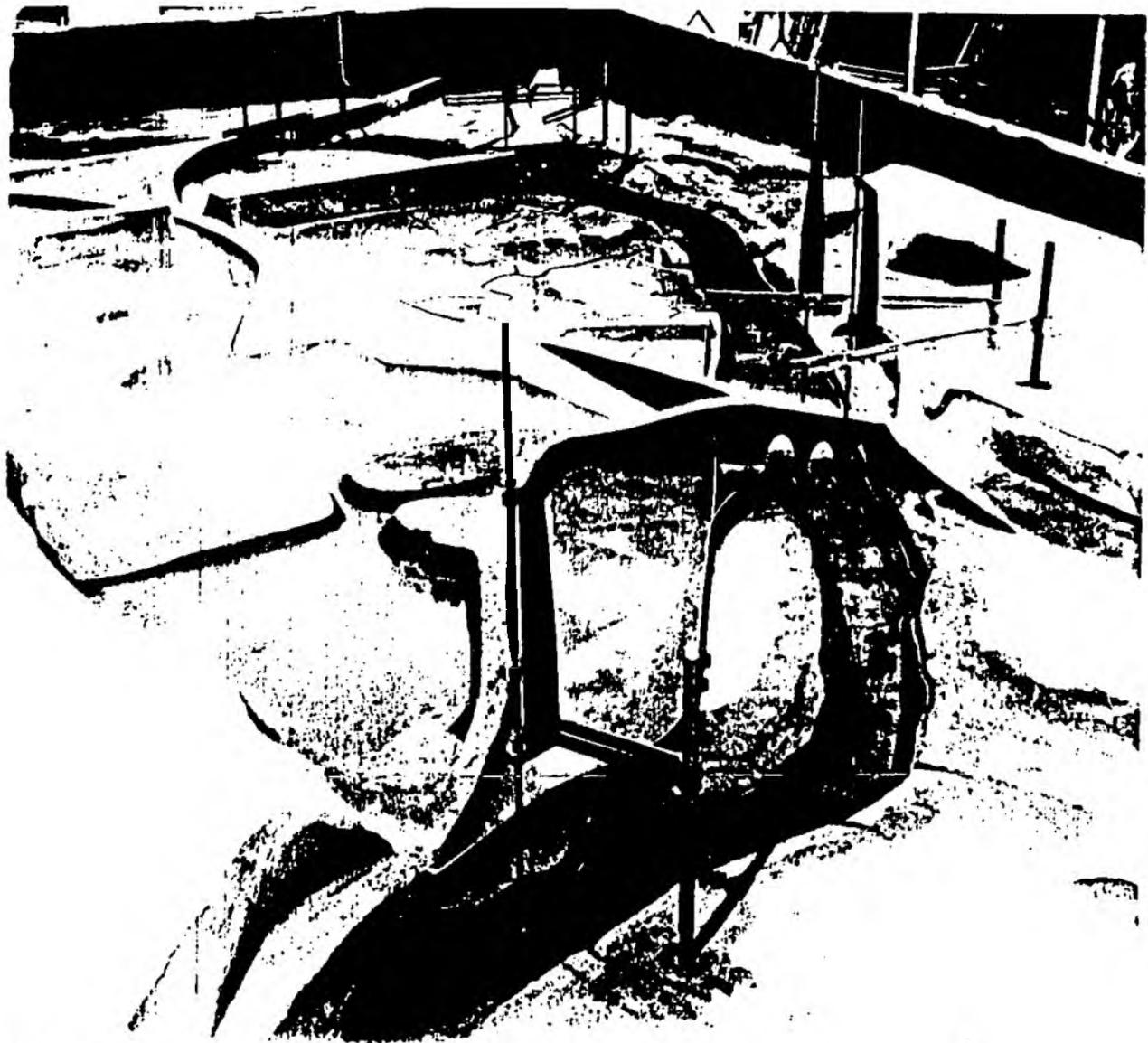
- 20 Finance
- 21 Estates
- 22 Legal
- 23 Personnel and industrial relations
- 24 Public relations

E) General - assistance to others

- 25 Water resources
- 26 Navigation
- 27 Environmental quality
- 28 Fisheries, conservation and recreation

F) Links with other strategies

- 29 All strategies



1990

Hydraulic model
Carmarthen

7. PLAN OF METHODS

- 7.1 This is the plan or set of plans setting out the methods to achieve the objectives stated in Table 1. Within the framework of this strategy the Flood Defence Departments of the NRA have to tackle these challenges over the next five years. The timetable set out is based on a reasonable and practical assessment of the workload over the whole period. There will be strong pressures to "do everything in the first year"; but these pressures must be resisted in favour of the logical achievable approach proposed here. The most pressing tasks are proposed for 1992 and those with less priority are planned for 1993 to 1997 and beyond.

Some key topics require continuous activity. Others have a definite "milestone".

7.2 PLANNING DIAGRAM AND TARGETS

The Planning Diagram shows a summary of the key topics which have a definite output to be completed by a specified target time. The finish times have been deliberately spread out over the five year period. Flood Defence Managers have conducted a ballot to place the topics in order of priority. The Start times have been estimated to give a sufficient period to develop, consult and reach a consensus on the outputs. Some regions may have to start/continue work on some topics much earlier than indicated in this strategy. The reference letter A, B, C, D or E relates to the overall objective and the reference figures relate to the topic number from Table 4.

- 7.3 Key topics which require continuous activity are not included in this planning diagram. Many regions have already started to address certain topics. This Planning Diagram is a strategic national view of priorities.

- 7.4 Further details of all key topics are given in Appendix 1.

7.5 PRODUCTION OF OUTPUTS

Outputs include long term plans, national guidelines, policy statements, registers, reports and reviews.

The outputs will be prepared by the Flood Defence Managers Group. Each topic will have a sponsor who may bring together a drafting team if this is required. The sponsor will normally be a Flood Defence Manager or Principal Engineer reporting to a Manager. A drafting team will normally not exceed five people and will consist of staff with special knowledge of the topic, including those from other functions.

The sponsor will receive terms of reference from the FDMG and report to the Group at predetermined intervals on progress and consultation.

- 7.6 Approval of the individual output will vary. Some outputs will require approval at the highest level. Others, such as a regional register, can be approved at regional level. An indication of the appropriate groups giving approval is given in Table 5.

Once approval is given the Strategy will impose a discipline on all the organisation to adhere to the timetable and priorities set out.

PLANNING DIAGRAM

TOPIC REFERENCE	OBJECTIVE	1991				1992				1993				1994				1995				1996				1997		Number
		APR	JUL	OCT		JAN	APR	JUL	OCT	JAN	APR																	
B5.1	Capital Works-Long Term Plan	[Bar]																				1						
D13	Perf Meas. - National Guide	[Bar]																				2						
D12	Res & Dev - 5 Year Plan	[Bar]																				3						
C9.2	Flood Plain - Policy Statement	[Bar]																				4						
C9.4	Dev Control - LA Contacts	[Bar]																				5						
D11	Inf & Comms - User Specs	[Bar]																				6						
D14	Fish/Con/Rec - National Guide	[Bar]																				7						
D19	Dev Control - National Guide	[Bar]																				8						
A2.6	Value for Money - Nat. Guide	[Bar]																				9						
A2.7	Scheme of Deleg - Nat. Guide	[Bar]																				10						
C18.1	Main River Policy - Nat. Guide	[Bar]																				11						
A2.1	Asset Surveys - National Guide	[Bar]																				12						
E26	Navigation - Regional Report	[Bar]																				13						
A3.4	Flood Emergencies - Nat Guide	[Bar]																				14						
C9.3	Devel Contribs - Policy States	[Bar]																				15						
D22.1	Legal Liabs - Regional/Nat Reg	[Bar]																				16						
D22.2	Legal Interpret - National Reg	[Bar]																				17						
C18.2	Main River - Regional Guide	[Bar]																				18						
B6.1	Sea Defences - Nat. Des. Crit.	[Bar]																				19						
A2.2	Asset Appraisal - Nat Guide	[Bar]																				20						
D23.2	Personnel - Terms & Conditions	[Bar]																				21						
A2.3	Asset Prog - National Guide	[Bar]																				22						
C18.3	Main River - Regional Policy	[Bar]																				23						
D17.2	Elec/Tech/Big Law - Nat Guide	[Bar]																				24						
C9.1	Flooding Probs-Report S136(1)	[Bar]																				25						
B6.2	Coast Protection-Policy States	[Bar]																				26						
D16	Transport & Plant-Nat Guide	[Bar]																				27						
C7.2	Internal Dmng Bnd - Review	[Bar]																				28						
D17.1	Elec/Tech/Big - Reg Maint Syst	[Bar]																				29						
D21.2	Estates, NRA Land - Reg Regist	[Bar]																				30						
A2.4	Ops Mgmt - Best Practice Repts	[Bar]																				31						
B5.5	Capital Wks-Review Consultants	[Bar]																				32						
C9.5	Catchment Plans - Nat Guide	[Bar]																				33						
D21.1	Estates Lnd Entry-Policy State	[Bar]																				34						
A2.5	Asset Post Proj App-Nat Guide	[Bar]																				35						
A2.8	Asset Mgmt Contracts-Nat Guide	[Bar]																				36						
C8.1	Legal LD Byelaws - Review	[Bar]																				37						
D17.3	Outstation Instrns-Regnl Guide	[Bar]																				38						
B5.3	Cap Works-Nat/Reg - Nat Guide	[Bar]																				39						
TOTAL	39 Topics																											

TABLE 5

LIST OF OUTPUTS

<u>Output</u>	<u>Approved by</u>	<u>Route of Approval</u>
National Guidelines	NRAMC	X
National Policy Statements	NRAMC	X
Regional Plans/Policy	RFDC	Y
Regional Guidelines/Register	RMT	Y
Regional Procedures	RFDM	Y
Long Term Plans of Works	RFDC and NRAB	Z
Design criteria	FDMG	X
Byelaws	* MIN	Z
New Legislation	* HMG	X
Funds	* HMG	X
Charging Scheme	NRAB	Z
Brochures	FDMG	X
User specification	FDMG	X
Regional system	RMT	Y
Full complement of staff/ in-house workforce	RGM	Z

* These outputs require a contribution from the NRA but will be prepared with others

The key is (in alphabetical order):-

Approved by:

FDMG	Flood Defence Managers Group
HMG	HM Government
MIN	Minister (MAFF) or Secretary of State (DOE)
NRAB	NRA Board
NRAMC	NRA Management Committee
RFDC	Regional (or Local) Flood Defence Committee
RFDM	Regional Flood Defence Manager
RGM	Regional General Manager
RMT	Regional Management Team

Route of Approval:

	(X)	or	(Y)	or	(Z)
Level 1	RFDM		RFDM		RFDM and RGM
Level 2	FDMG		FDMG		RFDC
Level 3	RFDC Chairman		RMT		NRAB
Level 4	NRAMC		RFDC		MIN
Level 5	NRAB				
Level 6	MIN				
Level 7	HMG				
Level 8	Parliament				

- 7.7 As each output is approved it will be published as part of a coherent series and adopted for use in the NRA.
- 7.8 The list in Table 4 contains many objectives that are needed in the next 5 years to get the function properly organised and managed. The strategy also has to draw out the longer term (5-20 years hence) issues in sufficient depth to give the longer term direction, such as
- (a) need for investment consequential to climate change
 - (b) development of policy on flood warning and emergency response to potential (or actual) flooding from impounding reservoirs
 - (c) size of investment programme needed to tackle the current shortfall (albeit still be fully quantified) in standards
 - (d) size of asset renewal/refurbishment programme and timescale
 - (e) framework over the next 5 years that will allow the longer term to be properly programmed, managed, and prioritised
 - (f) clearly identify where knowledge is deficient and Research and Development will be required over 5-10 year timescale. Most R & D is currently targeted at the tasks set for the next 5 years

8. RESOURCE REQUIREMENT

8.1 The production of this strategy has been undertaken by one Flood Defence Manager working with the FDM Group whilst still undertaking full duties of running a large department.

8.2 The production of the outputs by the FDM Group will be undertaken by topic sponsor. The production timetable set out in the Planning Diagram is based on a reasonable and practical assessment of workload over a period. This period is long enough to ensure that

- officers can continue with their normal duties
- officers do not have to be specially seconded full time away from their region
- sufficient allowance is available in the schedule for -

- * drafting
- * consultation
- * reporting
- * approval

8.3 It is envisaged that sponsors will devote about one quarter of their time to the strategy and any drafting team members might spend about one tenth of their time. In any 4 month period of (13 weeks, 55 working days) this is equivalent to about -

12/15 working days for the sponsor
5/6 working days for the team member

8.4 The resources required can be assessed on an approximate and preliminary basis from the Planning Diagram. On the assumption that each topic requires a similar drafting team (5) and uniform effort over the period the requirements are given in Table 4.

8.5 Many staff may be involved in more than one topic. This arrangement will ensure that many people in the Flood Defence Departments are aware of and contributing to the National strategy. This is a very good thing.

8.6 On this basis it is anticipated sufficient staff resources will be made available from the regions. The allocation will be based on the present capability of the Flood Defence Departments. Some regions have one Senior Manager, others have many Senior Managers. A better reference statistic will be the number of senior professional staff (including Senior Managers). The total number of sponsors required is 39. This compares with 53 topic and project leaders in the flood defence research and development programme. The relative priorities will have to be considered in managing these scarce resources to:-

- * run the core business
- * expand the capital programme
- * carry out the strategy proposed
- * undertake research and development

Sponsors may wish to have assistance from consultants to supplement their knowledge and experience and to provide sufficient resource. But it is envisaged that consultants will play a supporting role.

8.7 Financial resources will be the responsibility of the sponsor and estimated accordingly in the Head Office budget and be financed in this way.

- 8.8 The next stage will be to translate the effort required for each topic (as full-time equivalent staff) for each year. In practice this will be one of the key issues in integrating the strategies. These proposals require about 20% of the available manpower. But the use of consultants could reduce this proportion.
- 8.9 It is not possible at this stage to estimate the resourcing consequences of the topic outputs in implementing these throughout the NRA regions.

Table 6

INDICATIVE RESOURCE REQUIREMENTS

Period (Four months starting -)	Number of topics and sponsors	Number of staff for the drafting team (including sponsors)	Remarks
April 1991	3	15	Continuing present initiatives
August	6	30	
December	11	55	
April 1992	11	55	Maximum effort
August	15	75	
December	16	80	
April 1993	19	95	
August	18	90	
December	16	80	
April 1994	14	70	New topics may emerge
August	13	65	
December	11	55	
April 1995	10	50	
August	10	50	
December	9	45	
April 1996	7	35	Revise strategy
August	5	25	
December	3	15	
April 1997	0	0	

9. REVIEWING THE STRATEGY

9.1 Progress of the sponsor will be monitored by the FDM Group at 4 monthly intervals. The Planning Diagram will be used as the preliminary measure of timely performance. But it is the quality of the end product which is of crucial importance. The FDMG will want to ensure that the outputs are:-

- * meeting the terms of reference
- * robust in logic and law
- * based on facts and sufficient consultations
- * using reliable forecasting techniques
- * giving clear conclusions and recommendations
- * applicable for several years ahead

9.2 As each output is approved it will be published and adopted for use throughout the NRA in the

- NRA Corporate Strategy
- Regional Plans
- individual Catchment Plans

9.3 Links with these other important elements in the NRA Corporate Planning process will give rise to reviews of the application and appropriateness of policies, plans, guidelines. These reviews will be undertaken at the end of the annual process when the national Corporate Plan is published.

9.4 At this time the FDM Group will also consider any other internal or external pressures and issues which may require additional topics to be included in the later years of the strategy.

9.5 But the Corporate Planning Policy Group suggested this strategy should only be produced every 5-10 years. So fundamental changes are not envisaged annually.

10 APPENDIX 1

10.1 This is a detailed list of overall objectives with reference letters
A, B, C, D, E.

- A - Maintenance, Emergencies and Land Drainage
- B - New Works
- C - Regulatory activities
- D - Assistance from others
- E - Assistance to others

10.2 The reference numbers are given in sequence and relate to the topic,

eg A3 Flood Emergencies

or sub topic,

eg A3.1 Flood emergency plan

10.3 Topics or sub topics are described in the form of OBJECTIVES.

Each has an OUTPUT.

Some objectives require a continuous output of activity and the timescale reference is "Ongoing".

Some objectives have a definite OUTPUT to be completed by a specified Target time. These are illustrated in the PLANNING DIAGRAM and given in this list as approximate Months and Years.



1986

Cardiff

10 APPENDIX 1

TOPIC	OBJECTIVES	OUTPUT	TIMESCALE	
			From	To Completion
A	MAINTENANCE OF FLOOD AND SEA DEFENCES, IN-HOUSE WORKFORCE AND COPING WITH EMERGENCIES. PROVISION OF LAND DRAINAGE			
A1	<u>Public Service</u> Maintain works to defend the public from flooding from rivers, tides and the sea, and to drain the land; using the in-house workforce and contractors.	Public perception that the NRA is providing this service. (Refer also to 2.2)	Ongoing	
A2	<u>Asset Management</u>			
	2.1 Carry out survey of existing flood defence and land drainage assets.		Jun 92	Aug 93
	2.2 Develop standards of service indicators and establish gap through comparison of target and existing standards of service.	For Objectives 2.1 to 2.5:- National Guidelines for all regions to use.	Jun 92	Jul 94
	2.3 Develop asset work programmes reflecting priority, project appraisal and justification. (Refer to B5 for capital works) and establish planned maintenance systems for all flood defence assets.	Implementation of Guidelines will continue to 1997.	Jan 92	Jan 95
	2.4 Undertake best operational practice to minimise unit costs.		Mar 93	Mar 96
	2.5 Establish appropriate Post Project Appraisals to identify effectiveness of work.	(Re-examine priority)	Apr 95	Oct 96
	2.6 Develop guidelines for ensuring value for money for work done by the in-house workforce.	National Guidelines	Apr 92	Apr 93

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
2.7	Develop guidelines for competitive tendering having regard to the Financial Memorandum and Scheme of Delegation.	National Guidelines	Jan 93	Jun 93
2.8	Carry out a review of contract documents in-house within the NRA and make recommendations.	National Guidelines	Aug 95	Nov 96
2.9	Carry out review of the NWC document Civil Engineering Specification for the Water Industry and make recommendation for re-publishing.	National Guidelines	After 1997	
A3	<u>Flood Emergencies</u>			
3.1	Publish a flood emergency plan following consultation with Police, Civil, Military and Local Authorities and establish appropriate liaison arrangements and routines for emergency exercises.	National Guideline of Format for the Plan.	Done	Sep 90
		Produce plan for each region.	Done	Mar 91
3.2	Produce and implement procedures for the provision of effective 24 hour response to flood emergencies using the in-house workforce, and others.	Flood forecasting, warning and operations procedures for each region including flood data capture.	Done	Sep 90
	<p>Note:-</p> <p>A core of competent and trained employees will be retained to respond to emergencies with access to the necessary equipment and materials. Adequate resources will be provided in order to be self-sufficient to deal in house with emergencies which occur</p>			

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
	with a specified return period. Plans for more severe events will be prepared.			
3.3	Establish and consolidate the new flood warning colour system with both flood defence staff and the emergency services.	Incorporate in Procedures 3.2	Done	Apr 91
3.4	Establish the Target Level of Service to be provided by Flood Warnings relating to people, properties and the nature of each catchment.	National and Regional Guidelines.	Jun 93	Nov 93
3.5	Review flood events and exercises to identify the effectiveness of the service.	Flood report and update of procedures.	Sep	Annual
3.6	Improve the reliability of tidal forecasting.	Regional Meteorological Office/MAFF system.	Ongoing	
B	NEW WORKS AND REFURBISHMENT OF FLOOD AND SEA DEFENCES, AND LAND DRAINAGE			
B4	<u>Relations with MAFF/Welsh Office</u>			
4.1	Carry out capital works feasibility, design and construction in accordance with requirements for those schemes receiving Grant Aid.	Grant aid.	Ongoing	
4.2	Define principles and review procedures for obtaining grant aid with MAFF/Welsh Office.	New Ministry Memorandum.	Consult MAFF	
4.3	Develop and question MAFF/Treasury guidelines on benefit assessment.	New Ministry Memorandum.	Consult MAFF	

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
B5	<u>Capital Programming</u>			
5.1	Prepare a Flood Defence programme for reconstruction of assets and improvement works to meet agreed levels of service and to improve operational efficiency.	Long Term Plan of Schemes for 10 years and 20 years ahead.	1991	Apr 92
5.2	Prepare a Regional Flood Defence programme unique to each Regional and Local Flood Defence Committee recognising priorities and content.	Medium Term programme of projects for 5 years ahead.	Jul	Annual
5.3	Prepare guidelines for linking National and Regional Plans and Programmes.	National Guidelines for Capital Programming.	Dec 95	May 97
5.4	Prepare a National Promotion to generate sustained funding from National (Government) resources both directly (through MAFF) and indirectly (through DoE) by County Councils.	Increased funding.	Consult MAFF	
5.5	Review use of consultants and in-house teams for design and supervision of construction.	National Guidelines.	Sep 94	May 96
B6	<u>Sea Defences</u>			
6.1	Ensure that in all future designs allowance is made for the predicted rise in sea level. (As set out in IPCC - WGI Report, with adjustments to the figures in the light of any revision in the predictions with MAFF).	National Guidelines including design criteria.	Jun 91	Jun 94

10 APPENDIX 1

TOPIC	OBJECTIVES	OUTPUT	TIMESCALE	
			From	To Completion
	6.2 Clarify the existing role of the NRA in relation to sea defences and the interface with the maritime local authorities, and others responsible for coastal protection.	Policy Statement.	Jul 92	Jul 95
C	<u>REGULATORY ACTIVITIES</u>			
C7	<u>Internal Drainage Boards and other Drainage Authorities</u>			
	7.1 Support and advise drainage authorities.		Ongoing	
	7.2 Review the service with Internal Drainage Boards for systems to provide the most cost effective drainage.	Regional Plan	Apr 94	Oct 95
	7.3 Supervise the activities of other drainage authorities on non main watercourses.	Annual liaison	Ongoing	
C8	<u>Legal Matters</u>			
	8.1 Review Regional Land Drainage Byelaws for main river and obtain Ministerial approval.	Publication of Byelaws and appropriate brochure for all NRA regions.	Jan 95	Jan 97
	8.2 Implement a charging policy for Section 28 and 29 Land Drainage Act Consents.	Charging scheme.	Done	Jan 91
C9	<u>Catchment Planning and Development Control</u>			
	9.1 Identify flooding problems in the catchment.	Report under S 136(1) of Water Act 1989.	Aug 92	Jun 95
	9.2 Develop policy for NRA influence in the control of all development in the flood plain and elsewhere (including mineral extraction) with a view to obtaining powers and Ministerial	Policy Statement. New guidelines from DoE.	Apr 91	Aug 92

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			From	To Completion
	approval to enable this policy to be put into effect. To ensure new and existing properties are adequately protected from flooding.			
9.3	Develop a policy to obtain appropriate contributions from developers in respect of drainage works required off the site.	Policy Statement.	Dec 92	Dec 93
9.4	Pursue active steps to make known to planning officers in local and national government the special requirements of the NRA for planning consultation in relation to catchment control (including mineral extraction and afforestation) and flood plain development.	Brochure. Annual meetings (with other functions) as part of NRA corporate activities.	Apr 91	Sep 92
9.5	Prepare, in collaboration with other functions, River Catchment Management Plans to cover all significant catchments.	National Guidelines. Plans for catchments where there are major problems. All other catchments.	Jun 92	Jul 96
C10	<u>Main River Policy</u>			
10.1	Review and prepare a policy on 'Main River'.	National Guidelines.	Nov 92	Jul 93
10.2	Review implications of policy on Regional basis of implementation.	Regional Guidelines.	Apr 93	Apr 94
10.3	Publish Main River policy document following liaison with regional committee, MAFF and local authorities.	Policy Statement.	Jun 94	Feb 95

10 APPENDIX 1

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
D	GENERAL- ASSISTANCE FROM OTHERS These topics will be tackled by Flood Defence staff and those from other relevant departments.			
D11	<u>Information and Communications</u>			
	11.1 Prepare user specifications for the proposed development of relevant applications.	User specifications.	Aug 91	Nov 92
	11.2 Progress the interchange of existing micro computer software between Regions to assist in managing flood defence consistently on a national basis pending the implementation of the IS Strategy.	Register of available proven software.	Jan 91	Mar 91 Annual review
	11.3 Support the water industry regional communications groups.	Regional System.	Ongoing	
D12	<u>Research and Development</u>			
	12.1 Develop an effective programme of R & D to meet the needs of the flood defence function, particularly for sea and tidal waters.	5 year programme Annual Plan.	Mar 92	Jul 92
	12.2 Carry out a long term research programme to enhance the efficiency and effectiveness of the flood defence function and to provide intelligence on key issues.		Ongoing	
D13	<u>Performance Measurement</u>			
	13 Establish a set of meaningful performance measures for national and regional use and introduce procedures for their reporting.	National Guidelines.	May 91	May 92

TOPIC	OBJECTIVES	OUTPUT	TIMESCALE	
			From	To Completion
D14	<u>Fisheries, Conservation and Recreation</u>			
	14 Establish guidelines to ensure that flood defence activities conserve and enhance wildlife, landscapes and archaeological features including Environment Impact Assessments.	National Guidelines.	Aug 91	Jan 93
D15	<u>Hydrology</u>			
	15 Ensure all river flow data and models are maintained and refined (including weather radar), necessary for all flood defence activities.	Monitoring of service.	1990	Annual
D16	<u>Transport and Plant</u>			
	16 Establish appropriate policies for transport and plant including procurement, operation and disposal.	National Guidelines.	Aug 93	Aug 95
D17	<u>Electrical, Mechanical, Building, Instrumentation</u>			
	17.1 Establish planned maintenance systems for all buildings, mechanical and electrical plant and systems throughout the region.	Regional Systems.	Dec 94	Dec 96
	17.2 Ensure that account is taken of legislation and operational requirements for buildings, electrical and mechanical plant.	National Guidelines. Check List.	Apr 93	Mar 95
	17.3 Prepare appropriate policies for procurement, operation and maintenance of out-station instrumentation.	Regional Guidelines.	Apr 96	Feb 97

10 APPENDIX 1

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
D18	<u>Health and Safety</u>			
	18 Prepare and update regional health and safety policy statement consistent with national statement.	Regional Policy Statement.	Done	1990
D19	<u>Planning (Development Control)</u>			
	19 Ensure that flood defence needs are met by the NRA functional department responsible for liaison with local authorities and other outside planning authorities and providing administrative support within agreed timescales.	National Guidelines to ensure compatibility at regional boundaries.	Dec 91	Feb 93
D20	<u>Finance</u>			
	20.1 Develop a standard reporting system for financial and management information consistent with the needs of all flood defence activities.	Regional System.	Consult Finance	
D21	<u>Estates</u>			
	21.1 Develop an Estates procedure to ensure entry into third party land is achieved with a minimum of delay and at least cost to the NRA.	Regional Procedure.	Aug 95	Aug 96
	21.2 Identify ownership of all river, sea and tidal defences.	National Guidelines and Regional Register.	Aug 92	Feb 96
	21.3 Identify opportunities for the NRA in relation to its land holdings and land purchase policy.	National Guidelines.	After 1997	

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
D22	<u>Legal</u>			
	22.1 Establish register of NRA liability for river, sea and tidal defences and consequential obligation on behalf of beneficiaries.	Regional Register.	Dec 91	Jan 94
	22.2 Establish standard legal interpretations and opinions on flood defence matters	National Register. eg Definition of Reservoirs Act embankments.	Dec 91	Feb 94
D23	<u>Personnel and Industrial Relations</u>			
	23.1 Consolidate and improve regional and national initiatives for recruitment and training of flood defence staff and in house workforce.	Full complement.	Ongoing	
	23.2 Review and develop NRA Terms and Conditions for all employees	New Terms.	Aug 93	Nov 94
	23.3 Specify tasks appropriate to the class of operative.	National Schedule within Broadbanding Agreement.	Done	Mar 91
D24	<u>Public Relations</u>			
	24.1 Develop good liaison with the media, the public and local authorities in relation to flood defence activities.	Brochures, publications, articles, as part of National/Regional and multifunctional activities of NRA.		Ongoing
E	<u>GENERAL - ASSISTANCE TO OTHERS</u>			
E25	<u>Water Resources</u>			
	25.1 Design, construct and maintain river gauging stations to facilitate measurement of hydrometric data for all NRA activities.	New stations. Engineering and building support services.		Ongoing

10 APPENDIX 1

<u>TOPIC</u>	<u>OBJECTIVES</u>	<u>OUTPUT</u>	<u>TIMESCALE</u>	
			<u>From</u>	<u>To Completion</u>
	25.2 Instruct field staff to take note, whilst pursuing their duties, of any matters which might have "water resources" implications.	Local area report to appropriate personnel.		Ongoing
	25.3 Investigate use of flood retention reservoirs for flow regulation.	Regional Plan.	Consult WR	
E26	<u>Navigation</u>			
	26.1 Establish national criteria for levels of service and rates of return required.	Regional Report.	Oct 92	Oct 93
	26.2 Review practices, organisation and profitability of existing navigations.	Regional Report.	After	1997
	26.3 Prepare procedures for operating river structures	Regional Procedures.		Ongoing
E27	<u>Environmental Quality</u>			
	27.1 Provide engineering and building support services.	New works. Engineering and building support services.		Ongoing
	27.2 Instruct field staff to take note, whilst pursuing their duties, of any matters which might have "environmental quality" implications.	Local area report to appropriate personnel.		Ongoing
	27.3 Provide assistance and fight pollution emergencies using flood defence in house workforce and equipment.	Pollution emergency service.		Ongoing
E28	<u>Fisheries, Conservation and Recreation</u>			
	28.1 Design, construct and maintain, structures required for fisheries, conservation and recreation purposes.	Fishpasses, groynes, accesses, ponds, etc.		Ongoing

TOPIC	OBJECTIVES	OUTPUT	TIMESCALE	
			From	To Completion
	28.2 Instruct field staff to take note, whilst pursuing their duties, of any matters which might have "fisheries, conservation and recreation" implications.	Local area report to appropriate personnel.		Ongoing
F	LINKS WITH OTHER STRATEGIES			
F29	All Strategies			
	29.1 Ensure that in the development of the flood defence corporate strategy adequate consultation takes place with all other functions.			Ongoing
	29.2 Define the extent of co-operation and support on rechargeable activities outside the NRA.			Ongoing

11 REFERENCES

- 1 Annual Report 1989/90, NRA London, 1990
- 2 Corporate Plan 1990/91, NRA London, 1990
- 3 Regional Plans 1990/91, NRA London, 1990

12 ACKNOWLEDGMENT

This Strategy document has been produced by Richard Bailey, Flood Defence Manager, Severn-Trent Region, NRA, Solihull. Contributions have been made by all the Flood Defence Managers and some of their Senior Staff.

13 CONCLUSION (when appropriate)

Directors, Regional General Managers and Regional Flood Defence Committees have provided advice and have approved the Final Draft of the Strategy for use by the NRA for consultations.

R A Bailey

R A Bailey
25/3/91

DRAFT

NATIONAL RIVERS AUTHORITY

FISHERIES FUNCTION STRATEGY



NRA

APRIL 1991

DRAFT

F



THEME

Within the NRA's role as guardians of the water environment, the Fisheries Function will strive to maintain and develop conditions in which fish populations can thrive. The preservation and enhancement of this valuable resource will depend on a management strategy which achieves a balance between the sustained development of recreational and commercial fishing and the conservation of fish populations.

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1. **FOREWORD** - to be drafted
2. **EXECUTIVE SUMMARY** - to be drafted

3. **INTRODUCTION**

As guardians of the water environment, the National Rivers Authority has a responsibility to maintain, improve and develop fisheries. The Fisheries Function manages the fisheries environment and associated fish populations, recognising not only the conservation value of this resource, but also the extensive recreational and commercial fishing industry which it supports.

The maintenance, improvement and development of fisheries involves not only direct management but also their protection from the adverse impact of a wide range of activities. The Fisheries Function has a pivotal role and must be closely integrated in all aspects of water management where these affect fisheries, in order to fulfil its statutory duties.

The Function strategy describes how the fisheries resource will be managed to achieve a balance between a sustained development of recreational and commercial fishing on the one hand and conservation of fish populations on the other.

4. **METHODOLOGY FOR STRATEGY PRODUCTION** - to be drafted.
5. **BRIEF HISTORICAL REVIEWS** - to be abstracted from corporate plan text.
6. **PRESENT STATUS OF FUNCTION** - to be abstracted from corporate plan text.
7. **FUTURE STRATEGY**
 - 7.1. **Geographical area**

The strategy will address fisheries issues relating to inland, estuarine and coastal waters in England and Wales. Issues linking these fisheries and those in other parts of the U.K. and Europe will also be considered so that the role of the NRA and its relationships with other national and international bodies with interests in fisheries can be clearly identified and developed.

7.2. Fisheries resource

A comprehensive set of baseline data is essential for effective strategic planning. This database will be prepared so that efficient systems of maintenance, improvement and development of the fisheries resource can be established.

- 7.2.1. The total extent of the freshwater environment, in terms of river lengths and stillwater areas, will be quantified as will the extent of salmon, trout, freshwater, eel and coastal fisheries. The national and regional databases established will provide a detailed description of the resource to be managed, thus defining the operational limits within which strategic planning and activity will take place.
- 7.2.2. A fishery classification scheme will be developed and will permit the periodic valuation of fishery resources. This will enable an economic appreciation of the costs and benefits of maintaining and improving the fisheries resource.

7.3. Users and other beneficiaries

- 7.3.1. **Anglers.** There is a relationship between the distribution of anglers and the local availability and quality of angling opportunity. The numbers and distribution of fishermen will be assessed in the light of human population distribution and related to data on the fisheries resource. Areas of imbalance in supply and demand will thus be identified, enabling the strategic deployment of development funds and management expertise.
- 7.3.2. **Commercial fisheries.** The status of commercial freshwater and coastal (where appropriate) fisheries will be assessed in the light of exploitation to determine management policies.
- 7.3.3. **Fishery owners.** Databases will be established concerning the ownership of fisheries or fishing rights which will form the core of strategic and financial planning associated with the introduction of Section 28 Orders. Mechanisms to ensure that changes in ownership are reported to the NRA will be essential.
- 7.3.4. **General public.** There is a widespread public interest in the well-being of fisheries and concern that local rivers are clean enough to support fish populations. The development of this general interest, and the public's identity with the function strategy, will be encouraged, through appropriate educational and promotional initiatives.

It is widely recognised that the Fisheries Function provides a service to the general public through its protection of the nation's fisheries heritage. This justifies a separately identifiable financial contribution to the Function's costs should be met from government central funds.

7.4. **Resource monitoring**

The initial assessment of the total resource will establish its extent, while the comprehensive fish stock assessment will establish its current fisheries status. Regular reappraisal of the fisheries resource will be necessary in order to be able to carry out effective management. This will be achieved by both direct fish stock survey work and the collection of catch returns.

7.4.1. A consistent approach to stock assessment will be adopted throughout England & Wales. Methodologies will continue to be developed in order to improve efficiency and cost-effectiveness. New technology will be assessed and utilised as appropriate; consideration will be given to the acquisition and deployment of specialist equipment on a national basis.

7.4.2. A classification system based on the status of fish stocks will be developed for inland and estuarine waters. This will provide a basis for comparing the nature and quality of fisheries throughout England and Wales.

Information on principal fisheries will be updated by means of a rolling programme of monitoring.

7.5. **Resource management**

The resource will be managed so as to maintain its current status, as a minimum level of service. Where a need is identified, fisheries management strategies will be designed to enhance and develop the resource.

A rapid response to emergencies and a measured approach to longer term problems are equally important.

7.6. **Impacts on the resource**

7.6.1. **Internal Factors: - Water quality, water resources, fisheries habitat**

The Fisheries Function must exert a positive driving force in the management of water quality and quantity to ensure the maintenance, improvement and development of fisheries. Fisheries requirements must be fully taken into account in all aspects of the NRA's operations and strategic planning procedures. Existing liaison procedures between fisheries and other functions will be enhanced to achieve this.

Fisheries expertise and experience will play an integral part in the Authority's strategic planning of water resources utilization and water quality objectives.

Flood defence operations may have a significant impact on the fisheries habitat. The Fisheries Function will be fully consulted in the planning and implementation of major and minor schemes where appropriate, to ensure that fisheries subject to river engineering works are protected and improved.

7.6.2. **External Factors - Planning consultation, global warming, biological impacts**

Fisheries input into planning control will continue.

Conflict will be minimised by education of planning authorities and developers as to the requirements for the protection of fisheries.

The influence of Fisheries will be improved by the development of appropriate national criteria for screening, assessing, and commenting on planning proposals and the development of standard statements for county and local plans.

Works carried out by non-NRA agencies remain a significant problem particularly with respect to land drainage. Consideration will be given to achieving greater control over activities in this area by means of education of outside agencies and, if necessary, the introduction of regulatory controls.

Predicted changes in climate caused by global factors may modify the distribution of different types of fisheries with implications for economic values and future management. The NRA will strive to ensure that there is an early fisheries input to strategic decisions on this matter.

The introduction and transfer of native and non-native fish species into waters other than registered fish farms throughout the area is controlled by consent under Section 30 of the Salmon and Freshwater Fisheries Act 1975. In practice, disease control is also effected by this means. A review of consent procedures and policy on fish disease will be undertaken to ensure a consistent approach and to facilitate the exchange of information.

There is increasing concern amongst various fisheries interests over the impact of some avian and mammalian predators on fish stocks. The significance of this impact will be investigated and appropriate policies developed.

7.7. **Control of exploitation**

The uncontrolled and illegal exploitation of fish poses a significant threat to the value and extent of fish stocks and a national enforcement strategy will be designed to minimize this activity. Migratory fish stocks face different risks at each stage of the life cycle, and the varying forms of exploitation will require careful and scientifically-based control measures.

7.7.1. **Legislation**

- a) **Primary legislation.** The Fisheries Function will advise on any reviews of legislation by Government, in particular on the need for effective management of salmon in both inland and coastal waters. It is widely accepted by NRA fisheries staff that a system for controlling the sale of illegally taken salmon is needed.

Additionally, if an appropriate opportunity arises, the promotion of primary legislation enabling the introduction of fixed penalties for licence offences will be supported.

- b) **Byelaws.** Within the regions there is a diversity of fisheries byelaws which should not persist under the jurisdiction of a single national enforcement agency. A national review of byelaws should :
 - i) produce a uniform set of byelaws for those issues that are common to all regions, particularly where unjustifiable regional differences currently exist;
 - ii) recognise a need to retain regional byelaws to control *bona fide* local issues;
 - iii) promote new byelaws to prohibit those angling activities which result in negative pressures on the development of good public relations between anglers and others e.g. live-baiting, use of gaff.

7.7.2. Regulation

- a) **Licensing.** The rod licensing system will be reviewed to reduce the administrative burden of licence issue, facilitate licence purchase by anglers, and ensure equitable treatment of all customers.
- b) **Consents.** The issue of consents will be reviewed and a system of charging will be examined with the view to covering associated costs.

7.7.3. Enforcement

- a) **Enforcement methods.** Enforcement methods and results will be regularly reviewed to ensure they include the most recent equipment and intelligence. These will be regular liaison with outside enforcement agencies where appropriate.
- b) **Staff.** Enforcement staff will be trained and equipped to a high standard of professionalism. These staff will be attired in accordance with the corporate image so as to be readily recognizable as NRA enforcement officers. The flexible deployment of such officers within and between regions will be encouraged both as a solution to specific short term local enforcement problems and to broaden operational experience.
- c) **Prosecution.** Prosecution of fisheries offenders will be vigorously pursued as a means of protecting fisheries and of deterring potential offenders. The NRA will strive to raise the general public awareness of the seriousness of fisheries offences.

There is currently a great variability in the penalties imposed by different courts for similar fisheries offences. This is seen as unfair by offenders and leads to an inconsistent deterrent effect. The NRA should seek guidance from the Lord Chancellor on how this might be resolved.

With improving Water Quality and rehabilitation further enforcement problems will arise and effort will be required where previously not needed.

7.8. **Emergencies**

In recent years, there have been notable water quality improvements in our industrial rivers such that significant fisheries have developed. The presence of valuable fisheries in close proximity to areas of industrial activity increases the potential for major incidents. Similarly, in some rural areas, intensification of agricultural practice has put established fisheries at risk.

- a) The Fisheries Function will respond quickly and efficiently to emergency incidents involving real or potential risks to fish or fisheries. Such fisheries activity will form an integral part of the NRA's overall emergency response.
- b) The Fisheries Function will seek to prevent or limit fish losses by the implementation of rescue policies which combine on-site remedial action and fish removal as the situation demands.
- c) Policies will be developed for post-event restoration which will, in particular, address the financial and environmental aspects of fish stocking.

7.9. **Development**

The creation of new fisheries or the extension of existing ones may involve significant investment. The NRA will encourage development by external agencies where appropriate, but the deployment of NRA funds will depend on the detailed knowledge of expected returns based on the demand for and other potential benefits of the intended development.

- a) In order to prioritise the deployment of development funds, areas of imbalance in supply and demand will be identified. The underlying cause of or reason for any shortfall in local fisheries resources must be clearly defined. Market research into the expectations of potential users of the intended development will also be considered.
- b) Where environmental factors such as water quality and quantity are limiting, the costs of alleviating these problems must also be assessed and set against potential benefits.

- c) The programme of fisheries improvements will seek to achieve both value for money and maximum public benefit.

7.10. Fish culture

The NRA will give priority to maintaining and improving natural fish populations, and will rear fish to suit its specific need.

- a) The NRA's current fish culture capacity falls short of its fish stocking requirements. Requirements for both coarse fish and salmonids vary from the unavoidable (i.e. legal/statutory) to the desirable but discretionary. Output from the NRA's fish culture units will thus be allocated according to the following priorities:-
 - 1. Mitigation
 - 2. Restoration
 - 3. Enhancement
- b) All units will concentrate on species and strains which are in poor supply commercially and consideration may be given to species of special conservation value. Fish production units will be tailored to serve more than one region where appropriate.
- c) Research is needed to establish the effectiveness of stocking with artificially-cultured coarse fish. The cost benefit of coarse fish culture should be analysed, taking into account the ability to supply rare or scarce fish and to preserve genetic integrity.
- d) Salmonid culture units should concentrate on river specific stocks of salmon and sea trout, and on specific strains of wild brown trout suitable for effective rehabilitation of native stream or lake populations.

7.11. Conservation

- a) As well as fisheries legislation the NRA's responsibility for conservation as a function in its own right includes the protection, conservation and enhancement of fish populations which are key aspects of the Fisheries Function's activity. Special attention will be given to the need to promote the survival and reinstatement of threatened fish populations. These not only include rare species, but also specific local strains of more common native species.
- b) There is general concern about the genetic integrity of wild fish stocks; although salmon have received greatest attention, the genetic integrity of wild brown trout, and some coarse fish species requires careful consideration. The NRA will develop policies to protect pure native fish stocks from potential genetic mixing until consequent affects are more clearly understood.

- c) There will be an integrated fisheries and conservation approach to the production of policies and strategic plans for the conservation and enhancement of fish populations.
- d) The NRA will ensure that the conservation of fish populations receives due consideration by external conservation agencies.

7.12. Information transfer

The accurate and efficient transfer of information between internal and external agencies is an essential element of effective functional activities. Internal reports to RFACs will be produced which will enable members to give proper consideration to fisheries issues.

- a) **Annual reports.** Annual fisheries reports providing details of the Function's activity will be produced by regions to an agreed standard, with simultaneous publication of a national summary.
- b) **Training and education.** Education of NRA staff by both formal training and information exchange will be encouraged. Maximum use will be made of existing training expertise to facilitate the formulation of a national training programme of high standard. Appropriate staff will attend workshops designed to improve awareness of current issues and modern technologies. Job rotation and secondment within and between regions will be encouraged where relevant.
- c) **Research and development.** Progress and results of relevant research and development projects carried out for NRA nationally will be summarised and reported annually in an illustrated and easily readable format. These reports will be distributed widely to enable staff at all functional levels to be aware of current research. Feedback from this process will assist in the formulation of future requirements.
- d) **Advisory services.** The NRA is the principal agency governing inland, estuarine and coastal fisheries and as such has within its staff a wealth of technical expertise and fisheries management experience. Advice on fisheries-related matters will be given at three main levels to those who request it:-
 - i) Initial response and issue of advisory booklets
 - ii) First phase site specific advice.
 - iii) Second phase site specific advice, provided on a consultancy basis.

Whilst providing advice staff will ensure that proposals likely to affect the existing resource are treated in a standard manner.

A charging policy will be developed for fisheries advisory and management services.

- e) **Public relations.** It is essential that liaison with fishermen, fishery owners and the general public is improved so that they can more closely identify with the aims and achievements of the Fisheries Function. These groups will be kept informed of fisheries activity both directly and via the media. Consideration will be given to the establishment of interpretation centres to enhance public understanding.
- f) **Promotion of angling.** Angling will be promoted by the production of angling guides and video based material. Efforts will be made to promote good angling practice.

7.13 **Liaison with outside bodies.** The NRA must ensure that it becomes recognised as the definitive authority for all inland, estuarine and coastal fisheries for England and Wales.

Liaison with external agencies, both national and international will be developed concerning common fisheries issues. Dialogue on such topics as the management of eel, salmon and sea trout stocks will therefore be established to achieve common objectives. The organisations with which the NRA should maintain or develop liaison are listed in Appendix 1.

7.14 **Research and Development**

Fisheries Function Research and Development will be driven by policy objectives and technical or operational needs. Annual reviews of the programme will be carried out and new R&D projects developed which relate to identified Function needs. These will take account of relevant R&D carried out by other organisations and will be managed to achieve maximum cost-effectiveness by seeking collaborative funding where appropriate and optimum utilisation of research resources. On-going R&D projects will be subject to regular critical re-appraisal. The results of R&D will be disseminated by annual summary reports and implemented effectively.

8. **PERFORMANCE MONITORING**

Function outputs and performance measures are detailed in Table 8.1.

9. **RESOURCE REQUIREMENTS FOR STRATEGY IMPLEMENTATION**

9.1. **Finance**

9.1.1. The NRA will develop a robust and equitable financial policy to support a progressive fisheries service. The service will ultimately be funded through 5 primary sources:

- allocation of costs to internal and external beneficiaries

- fishing licence income
- income from Section 28 Orders
- income from sales and services
- Grant-in-Aid from Central Government.

9.1.2. Implementation of the strategy will increase expenditure on resource monitoring, enforcement and the rehabilitation or development of fisheries. The primary sources of income will require examination and development, in particular a review of the fishing licensing system and the preparation of a procedure for implementing Section 28 Orders. Potential beneficiaries of fisheries activities will need to be identified to aid the allocation of costs. Costs of mitigating damage to fisheries will be recovered whenever practicable from those who cause damage.

Costs. The need to protect fisheries resources through enforcement of legislation, particularly with respect to migratory salmonids in both inland and coastal waters, represents a significant expenditure burden. Much of this work is of direct benefit to the nation as a whole through protection of the national fisheries heritage, and due regard will need to be paid in the apportionment of costs to the fisheries budget.

Table 8.1

SUMMARY OF PLANNED OUTPUTS, PERFORMANCE MEASURES AND TARGETS

OUTPUTS	PERFORMANCE MEASURES	TARGETS
<u>Licence</u>		
No. licences issued - rod		
No. other instruments		
<u>Section 28 Orders</u>		
Km river for which owners identified	(Km assessed) ÷ (Target length)	100%
No. of river owners identified	(No owners identified) ÷ (Target no.)	100%
No. of stillwater owners identified		
<u>Byelaws</u>		
No. of new byelaws introduced		
<u>Enforcement</u>		
Field Time (man years) spent on enforcement		
- inland waters	(Response time for	
- estuaries/coastal	poaching incidents) ÷ (Target response time)	80%
No. poaching incidents reported	(Success of response	
contemporaneously to NRA by general public	to poaching incidents) ÷ (Potential Success)	50%

OUTPUTS	PERFORMANCE MEASURES		TARGETS
<u>Licence checking</u>			
No. fishermen challenged - rod - other instruments			
% without licence - rod - other instruments	(Level of licence compliance)	+ (Target licence compliance (95%))	100%
No. of offenders taken to court - rod - other instruments			
No. of successful prosecutions - rod - other instruments	(Number of successful prosecutions)	+ (Number of prosecutions taken)	100%
<u>Byelaw/Act Offences</u>			
No. of offenders - rod - other instruments			
No. of offenders taken to court - rod - other instruments			
No. successful prosecutions - rod - other instruments	(Number of successful prosecutions)	+ (Number of prosecutions taken)	100%

OUTPUTS	PERFORMANCE MEASURES	TARGETS
<u>Survey Work</u>		
No. of sites surveyed - river/canal - stillwater	(No. river/canal sites surveyed) ÷ (Target No. of sites)	100%
	(No. stillwater sites surveyed) ÷ (Target No. of sites)	100%
Field Survey Time (man years) - river/canal - stillwater		
Length of river/canal represented by sample sites (Km)		
Area of stillwater represented by sample sites (Ha)		
<u>Fish Kills</u>		
No. fish kill incidents	(No. fish kill incidents attended) ÷ (No. fish kill incidents)	100%
No. fish kill incidents attended		100%
No. fish killed		
No. fish saved by relocation		

OUTPUTS	PERFORMANCE MEASURES	TARGETS
Improvement		
No. of fish passes built	(No. of fish passes built) ÷ (No. of fish passes planned)	100%
Length of river made accessible to target species		
No. habitat improvement structures Length of river improved by habitat structures	(No. of habitat improvement structures built) ÷ (No structures planned)	100%
<u>Fish Culture</u>		
No. of fish reared:-		
- migratory salmonid - fry - parr/smolt	(No. migratory salmonid reared) ÷ (Target No.)	100%
- non-migratory salmonid - fry - parr - adult	(No. non-migratory salmonids reared) ÷ (Target No.)	100%
- coarse fish - fry - juvenile - adult	(No. coarse fish reared) ÷ (Target No.)	100%

OUTPUT	PERFORMANCE MEASURES	TARGETS
<u>Fish Stocking</u>		
No. fish stocked by the Authority		
- migratory salmonid - eggs/fry - parr/smolt	(No. migratory salmonids stocked) ÷ (Target No.)	100%
- non-migratory salmonid - eggs/fry - parr - adult	(No. non-migratory salmonids stocked) ÷ (Target No.)	100%
- coarse fish - eggs - juvenile - adult	(No. coarse fish stocked) ÷ (Target No.)	100%
<u>Advice</u>		
No site visits undertaken	(No. site visits) ÷ (No. formal requests) (via questionnaire)	100%

9.2. **Manpower**

Adequate manpower resources are an essential feature of cost-effective operation. To fully implement the tasks identified in the strategy, the NRA will need to assess additional staff requirements. Some reorganisation of staff structure may be necessary to achieve greater operational efficiency.

Centres of specialist expertise will be identified and developed for the benefit of all regions.

9.3. **Materials, equipment and facilities**

9.3.1. The most urgent need is the provision of computing facilities for databases relating to the classification and management of the fisheries resource.

9.3.2. In the interests of operational efficiency the NRA will continually monitor improvements in equipment and techniques and adopt them where appropriate.

9.3.3. The enhancement of public relations and liaison with user groups will require the provision of facilities ranging from portable display material to permanent interpretation centres.

10. **IMPLEMENTATION AND REVIEW OF STRATEGY**

10.1. Future management of the Fisheries Function depends on the efficient implementation of the Strategy. Targets and timescales for each aspect of the strategy have been drawn up (Table 10.1).

10.2. National implementation of the strategy will require regular liaison between Head Office and regional staff. A procedure for this will be progressively developed from existing arrangements.

Task groups set up to oversee various aspects of the strategy will regularly assess progress on implementation. These groups will report on changes which are required to achieve an efficient, nationally-unified approach to the Function's responsibilities.

10.3. A Strategy Review Group will be established to consider the development and implementation of the strategy and in the light of operational experience to consider longer term modifications which are required to ensure that the strategy retains its forward looking approach.

This group will be made up of appropriate Head Office and regional staff who will liaise at all operational levels before submitting Function strategy reviews. In this way, improvements to management and operational activities proposed by national task groups will be fully integrated into strategic plans.

Table 10.1.

FISHERIES STRATEGY IMPLEMENTATION

SUMMARY OF TASKS AND TIMESCALES

Task	Timescale (Yrs)
1. Collect information and establish databases on the resource	
a) Extent of rivers and still waters	2
b) Extent of salmon, trout, freshwater fish & eel fisheries	2
c) Resource value	2
d) Numbers and distribution of fishermen	2
e) Relate d) to human population densities	2
f) Compare d) with availability of fisheries	2
g) Ownership of fisheries and fishing rights	1
h) Incorporate information into G15	5
2. Develop and implement fisheries classification system	2
3. Survey principal fish populations	Ongoing
4. Assess impact of water quality, water quantity, physical works and biological factors on fisheries	Ongoing
5. Enhance liaison with water quality function	1
6. Formulate policies in relation to water quality problems e.g. acidification	1
7. Promote "minimum environmental flows"	2
8. Control abstraction (via water resources function)	3
9. Increase influence in respect of changes in land use	5
10. Educate outside agencies with regard to fisheries and river works	1
11. Develop standard responses to planning applications	1
12. Review Section 30 Consent and Disease control procedures	1

13.	Review legislation with respect to salmon poaching	1
14.	Review byelaws and promote regional consistency	3
15.	Review and introduce changes to licensing system	1
16.	Review consent procedures and introduce changes	1
17.	Promote introduction of fixed penalties for licence offences	2
18.	Introduce nationally integrated enforcement procedures	1
19.	Ensure robust prosecution policy and commence dialogue with Judiciary	1
20.	Formulate and implement improved emergency procedures	1
21.	Design and implement rehabilitation and development programme for substandard fisheries	3 + ongoing
22.	Identify areas for new fisheries and encourage their development	3 + ongoing
23.	Develop fish culture policy	1
24.	Establish national fish rearing programmes for different species	2
25.	Investigate the importance of genetic integrity of fish stocks	3
26.	Develop conservation policies for threatened fish species and stocks	3
27.	Promote the incorporation of fish into the policies of external conservation bodies	3
28.	Produce high quality annual reports from regions plus summary national report	Annually
29.	Improve liaison with user groups	5
30.	Establish in-house training, seminars and job-rotation for staff	3
31.	Produce technical advisory booklets	2
32.	Publish regional angling guides	Annually
33.	Establish interpretation centres	10
34.	Improve liaison with MAFF	2
35.	Develop liaison with European agencies	5
36.	Carry out operationally relevant R&D and develop reporting and implementation procedures	On-going
37.	Formulate charging policies for Section 28 Orders, advisory work and other services	1
38.	Collect income from licences, Section 28 Orders, services and sales of fish	On-going

APPENDIX 1

Organisations with which the NRA Fisheries Function should maintain or develop appropriate channels of communication.

Ministry of Agriculture, Fisheries and Food

Sea Fisheries Committees

European Inland Fisheries Advisory Commission

Department of the Environment

Salmon Advisory Committee

North Atlantic Salmon Conservation Organisation

International Council for the Exploration of the Sea.

English Nature

Countryside Council for Wales

Sports Council

Sports Council for Wales

Royal Society for the Protection of Birds

Country Landowners Association

National Farmers Union

NFFO

National Federation of Anglers

Salmon & Trout Association

National Federation of Sea Anglers

Atlantic Salmon Trust

British Field Sports Society

European Community

Welsh Office

Institute of Fisheries Management

Institute of Freshwater Ecology

British Waterways Board



DRAFT

NATIONAL RIVERS AUTHORITY

RECREATION FUNCTION STRATEGY



NRA

APRIL 1991

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1. Forward by Chairman and Chief Executive

(to be added)

2. Executive summary of the Strategy

The National Rivers Authority has wide-ranging and open-ended duties in respect of water-based and waterside recreation. The recreation function is, to a considerable extent, independent of other N.R.A. activities. It is statutorily an operational activity in its own right and not strictly a regulatory function.

The N.R.A. has inherited a variety of landholdings from the former Regional Water Authorities which are used for recreation or have potential for such use. It has also inherited a variety of policies and practices in respect of the more open-ended recreation duties. There are only a small number of staff in the N.R.A with expertise in recreation and very few Regions currently allocate financial resources specifically for the recreation function.

This strategy sets out how the N.R.A. will interpret its duties where they are not precisely defined; what policies it will adopt when taking action to meet these duties; the priorities and programme for future action and the resources that would be required to implement the various stages of this programme. The strategy will therefore ensure greater consistency between the Regions and overcome the anomalies that exist as a result of the N.R.A.'s inheritance.

In determining how the duties will be interpreted and what policies should be adopted a total of ten key issues were identified and considered. These, together with the conclusions reached are as follows:-

1. N.R.A. duties and their interpretation

The N.R.A. will interpret these so as to be active in promoting and providing for water and water-side recreation. It will work to ensure that its own sites, and others, are used to meet genuine demand but in a way that takes account of all other N.R.A. interests.

2. Code of Practice on Conservation, Access and Recreation

The N.R.A. will follow the recommendations set out in the Code of Practice subject to a realistic interpretation of those which allow for some discretion in how they are implemented. In particular the N.R.A. will work in partnership with other organisations in the planning and provision for recreation and in the resolution of conflicts. The N.R.A. will seek to meet its recreation duties (in common with those relating to other functions) in a way that furthers conservation.

3. Relationships with other bodies

The N.R.A. will maintain close links with all bodies that have relevant responsibilities and/or interests. It will look to other bodies for information, particularly in respect of demand and opportunities for meeting demand, and will offer support where it has particular expertise. It will assist the Regional Councils for Sport and Recreation in the preparation of regional water recreation strategies and will take these into account whenever appropriate. The N.R.A. will maintain a dialogue with other providers e.g. water companies, gravel companies etc.

4. Management of N.R.A. sites

The N.R.A. will manage the recreational use of its sites to ensure greatest efficiency without a drop in standards. Particular consideration will be given to public benefit and the use of voluntary groups and contractors to manage sites where there is public access. Where appropriate recreational uses will be leased or licensed with provision for controlled public use.

5. The potential of un-used N.R.A. sites

The N.R.A. will identify sites with recreation potential and will develop plans for realising such potential, taking into account all constraints that exist as well as strength of demand. It will allocate funds for implementing such plans but will look to other bodies etc., for support.

6. Other operational activities

The N.R.A. will safeguard existing recreational uses and, where practicable, incorporate recreational facilities into schemes being designed and implemented for other reasons e.g. flood defence, coastal protection, water resources etc.

7. Input on local authority planning matters

The N.R.A. will urge local authorities to safeguard recreational uses of water and water-side land and to ensure the recreational potential of river corridors is fully realised when development takes place or land use changes. It will respond along these lines when consulted on planning applications or given the chance to make an input to local plans etc. The N.R.A. will promote model policies in local plans to achieve these objectives.

8. Financing the recreation function

The N.R.A. will consider the recreation function as an operational activity in its own right for financing purposes. It will look to the recreation budget to meet all expenditure which benefits recreation except that which is incurred primarily to meet the objectives of some other function. The N.R.A. will secure funds for the recreation function from the income from the recreational use of its own sites, from private/public sector support and from grant-in-aid.

9. Recreation and water quality/quantity

The N.R.A. will take account of recreational use when setting river quality objectives, minimum acceptable flows and when determining applications for effluent discharge or abstraction. Equally it will take water quality and depth/flow into account when deciding to what extent recreational use should be promoted.

10. Promoting recreational use of all water and associated land

The N.R.A. will promote the use of water and associated land generally by implementing the policies set out in respect of items 1 to 9 above. In addition the N.R.A. will a) take the lead in producing recreation plans for particular rivers; b) produce information on the availability of facilities; c) provide practical, advisory and/or financial assistance as appropriate; d) encourage safe recreational use; e) support aesthetic improvements to riverside areas and f) assist in maximising harmony between users.

The policy decisions that are recorded above led to the following statement and principal aims for the recreation function:-

"The N.R.A. fully recognises the social value of leisure and recreation. Its long-term aim will be to meet its duties in an active manner and make resources available to enable each Region to respond positively to the demands and opportunities presented. The N.R.A. wishes to see the optimum use of its own sites and to play a significant role in promoting recreational use of water and associated land elsewhere."

The strategy sets down five areas of activity for the N.R.A. to pursue in order to put the policies into practice. These are, in order of priority, as follows:-

1. Management of existing N.R.A. recreation sites.
2. Protecting and providing for recreational use in the course of other N.R.A. activities, particularly flood defence and water resources.
3. Realising the potential of N.R.A. sites not currently used for recreation.
4. Promoting the use of non-N.R.A. sites for recreation through advice, assistance etc., where this is not being achieved through 2. above.
5. Contributing to local and other plans.

The N.R.A. intends to achieve certain objectives in all five areas. The strategy defines these and sets down targets. The targets either give a deadline by which certain tasks should be achieved or a time when ongoing work, related to the objectives, should begin. These targets span a 5-year period, by the end of which all Regions should be meeting the recreation duties in a manner consistent with the principal aims and consistent with each other.

As these targets are met it will be possible for the N.R.A. to set longer-term targets, related more to practical achievements and standards of service. These in turn will enable Regions to set Regional targets and build these into the Regional planning process. The strategy gives examples of what form both the National and Regional targets might take.

A number of unresolved issues may require Research and Development effort in order to find the right answers. The strategy lists a number of these but it is envisaged that more will materialise as the N.R.A.'s activity in meeting its recreation duties increases. The strategy puts forward measures of performance or activity level which the N.R.A. will use to assess its output and achievements but again it is likely that these will be refined as more experience of the recreation function is gained.

To implement the strategy will require very modest resources when compared with other N.R.A. functions. The strategy broadly assesses the resource requirements of a "typical" Region to meet the objectives and exercise the function to an acceptable minimum level. Each Region will require, on average, eight full-time equivalents (preferably exclusive) working for the recreation function plus dedicated financial resources of approximately £0.35 million per annum. This will probably mean an increase in resources for most Regions compared with the inherited position but the strategy allows for this to be phased in over a 5-year period.

In cost:benefit terms the resources are easy to justify. The benefits to the public and to the image of the N.R.A. are considerable if this function is carried out well. A great deal can be achieved with comparatively little in terms of resources as compared with other functions. On this basis the N.R.A. could reasonably allocate more resources to the recreation function than shown in this report. However, the N.R.A. accepts that other core functions such as pollution control, water resources and flood defence/land drainage are generally regarded as its primary areas of responsibility. Consequently the Authority has restricted its aims to those which can be met with a comparatively small resource input.

3. Introduction

i) Statutory background

The National Rivers Authority, established by the Water Act 1989, has a wide range of duties in respect of inland and coastal waters. Included among these are a number which relate to the recreational use of such waters and associated land. These are set out in Section 8 of the Act and can be summarised as follows:-

- a) To have regard to the desirability of maintaining public access to areas of land, sites and buildings when planning or carrying out its functions.
- b) To secure the best practicable recreational use of water and associated land over which it has rights, subject to the interests of navigation and its other functions.
- c) To promote the recreational use of inland and coastal waters and of land associated with such waters, to whatever extent it considers desirable.
- d) To take account of the needs of people who are chronically sick or disabled.

Section 10 of the Act provided for Ministerial approval to be given to a code of practice giving guidance to, inter alia, the N.R.A. and promoting desirable practices in respect of the above powers and duties. Such a code was issued in July 1989 by the D.o.E., M.A.F.F. and the Welsh Office entitled "The Water Act 1989 Code of Practice on Conservation, Access and Recreation." The Code places particular emphasis on the following:-

- 1) Sites owned by the N.R.A.;
- 2) Catchment and management plans for such sites;
- 3) Consultation and liaison with other bodies;
- 4) Preservation of public access;
- 5) Provision for the general public;
- 6) Safeguarding interests of existing users;
- 7) Incorporating recreation facilities in the course of carrying out other functions.

The purpose of this Recreation Function Strategy is:-

- a) to state how the N.R.A. will interpret the statutory duties where they are not precisely defined;
- b) to state how the N.R.A. will respond to the Code of Practice on Conservation, Access and Recreation;
- c) to state what action the N.R.A. will take to meet its statutory duties as defined or interpreted;

- d) to state what policies the N.R.A. will follow when taking this action;
- e) to state what order of priority the N.R.A. will give to the various tasks involved;
- f) to identify the resources required to carry out these tasks;
- g) to state the programme which the N.R.A. plans to follow in order to fully meet its duties and comply with the Code of Practice;
- h) to establish indicators by which the N.R.A. can measure its activity level in respect of this function and set targets for the future.

ii) Method for strategy production

The strategy was produced by N.R.A. staff with no outside assistance. However the task was by no means easy since there is very little expertise within the N.R.A. in the subject of recreation. The majority of former water authority staff with such expertise remained with the now privatised water companies. A small task group was formed of five N.R.A. staff who dealt with recreation matters as part of their work. In some cases it formed the major portion of their workload, in others as little as 5%. The staff were drawn from a range of Regions including some that were relatively active in meeting the recreation responsibilities and others that were able to do little. The composition of the task group was as follows:-

Brian Hughes	-	Thames Region (Chairman)
Douglas Dent	-	Anglian Region
Cameron Durie	-	North West Region
Roy Johnson	-	Yorkshire Region
John Morgan	-	Southern Region

Data was collected for the historical review and section on present status of the function by contacting all Regions of the N.R.A. The deadline for producing the strategy did not allow detailed data to be collected in respect of assets and facilities. For the same reason it was not possible to consult with other organisations that have relevant interests to establish their views on the N.R.A.'s role and priorities. Consequently the bulk of the document is based on the views, knowledge and experience of the task group members. Consultation on the document has taken place within the N.R.A., drawing upon the views of appropriate managers of all Regions, the Corporate Planning Policy Group and John Wheatley (N.R.A. Board member with particular interests in recreation and navigation).

iii) Brief historical review

1974 - 1989

The Regional Water Authorities (R.W.A.'s) had control over substantial assets. The principal areas in which recreation played a part were reservoirs, associated land and watercourses.

Different regions found themselves in control of vastly differing resources. At one end of the scale Wessex and Southern each had five reservoirs which were used for recreation and, at the other end, North West and Wales had 103 and 100 respectively.

Relevant land ownership also ranged widely from 15 - 75,000 hectares. In respect of watercourses, the norm in each region was less than 100km. As a result of these differences, each region had to devise its own mechanisms for dealing with recreation.

Few comments would be generally applicable throughout, although the main exceptions seem to be:-

- 1) Recreation on most major landholdings was generally informal with walking and 'enjoying the countryside' being the main activities.
- 2) Most organised recreation tended to be water-based (fishing mainly) and controlled by lease/licence arrangements.
- 3) Few sites were directly managed, although where this did apply it tended to be on the larger sites.

Few authorities had staff dedicated exclusively to recreation, with most having additional duties in fisheries, estates or conservation. In considering the multi-purpose role of the staff involved, it must be noted that overall manpower resources were small. As a norm, only around 10 staff in each region had an involvement.

Policies varied but were aimed at recovering costs where possible and appropriate. Fishing was usually operated on a permit or lease system and lent itself to market value or cost recovery systems. On-water activity, such as still water boating, could also be run in a formal way and reasonable income generated.

Most R.W.A.'s operated reduced charges for charities, old and young people and for educational purposes. Many facilities revolving round parking and walking were offered free of charge.

iv) Present status of function

September 1989 to date

The National Rivers Authority inherited its recreational assets from the Regional Water Authorities. In general, these assets are land and water holdings which are not directly concerned with water supply. The noticeable difference in comparison with the pre-1989 position is, therefore, the loss of the reservoirs and their gathering grounds.

The N.R.A. owns or leases only two reservoirs, 15 lakes and little land; its principal assets being an average of approximately 30km. of watercourses per region currently used for fishing, boating, birdwatching and general amenity purposes. Anglian region is noticeably different with approximately 450km. of owned river banks and watercourses.

Resources are highly variable between regions, as are the assets to be managed.

The deployment of staff in recreation is similar in many respects to that under the R.W.A.'s. With the exception of Thames region, staff in all other areas find themselves generally with fisheries, conservation or other responsibilities also.

The number of staff concerned in each region is small, varying from 1 to 15 full-time equivalents. However, it must be realised that, where larger numbers exist, other duties are their mainstay and only a relatively minor amount of time is dedicated to recreation.

Again, mainly as a carry over from the R.W.A. arrangements, most regions attempt to recover what costs they can from the provision of recreational opportunities. The activities which proved easier to operate on an economic footing prior to September 1989 remain the same. More informal recreation still tends to be treated as less appropriate for cost recovery

Clear guidance on the N.R.A.'s role, in relation to recreation on its own land and within its sphere of influence, is needed before each region can assess its resource requirements and is the main reason for the production of this strategy report.

4. Key issues and policies

A total of ten key issues were identified and considered in some detail. This led to a number of policy decisions which, in turn, determined the areas of activity on which the N.R.A. should concentrate.

1. N.R.A. duties and their interpretation

Specific words and phrases of Section 8 are open to interpretation. It is essential that Regions of the N.R.A. work to the same interpretation, even though the extent to which they are 'active' may vary according to opportunities and demands.

- i) "to ensure that water or land is made available for recreational purposes in the best manner."

The N.R.A. will interpret this to mean firstly that the recreational use of a site is developed and managed taking full account of its individual characteristics. Decisions will not be based entirely on financial considerations but will take account of other factors as well. These will include water quality, operational use of the site, access, safety, conservation value, existing recreational uses, and local need for other recreational uses.

Secondly, N.R.A. sites which are used for recreation should be maintained to an appropriate standard and should be a credit to the N.R.A., especially those for which there is general public access. Such sites will present good opportunities for the N.R.A. to project its name and image. In formulating details for site development and management the N.R.A. will take this into account and ensure that the "best" for the particular site and uses in question is achieved.

- ii) "the use of water or land associated with water for recreational purposes."

The N.R.A. will interpret this in respect of land it does not own to mean any land adjacent to water where the proposed recreational use is in some way connected with the presence of the water. For example it would be appropriate for the N.R.A. to be involved with riverside walks, picnic areas, camping sites, and supporting facilities for water-based recreation e.g. fishing platforms, clubhouses, car parks etc. The N.R.A. will not interpret this to imply it has a role in making use of land adjacent to water for activities such as tennis, squash and other sports where the proximity of the water is irrelevant.

- iii) "it shall be the duty of the Authority to such extent as it considers desirable to promote the use of such waters and lands for recreational purposes."

The N.R.A. will interpret this to mean that it will play an active role in encouraging recreational use of water and associated land over which it does not have any rights. This may take the form of publicising the availability of such sites, providing assistance with schemes to develop or improve their recreational use or exerting pressure on those that do have rights to the use of the site to allow recreational use.

In determining the extent to which it should promote the recreational use of a given site the N.R.A. will take account of other factors such as water quality, the conservation value of the site etc. The N.R.A. will also promote and actively support recreation events on or beside rivers etc.

A positive response by the N.R.A. to meeting this duty will present good opportunities for the Authority to project its name and image and foster good relationships with the public and other bodies.

2. Code of Practice on Conservation, Access and Recreation

The Code of Practice addresses a number of issues of relevance to the N.R.A.'s recreation duties the bulk of the Code being more concerned with the way the recreation and conservation responsibilities of the now privatised water companies are carried out.

The same task group that prepared this strategy was requested to submit a separate report on the Code of Practice and this was done in June 1990. N.R.A. will respond to the Code of Practice as follows:-

- a) The N.R.A. will fulfil its role, as set out in the Code, for developing a general framework of policies and procedures for the recreational aspects of river basin management through the production of Catchment Management Plans, through input to local plans, Sports Council Regional Recreation Strategies and its own recreation plans for particular rivers.
- b) The N.R.A. will not dictate policies in respect of the recreational development and management of sites outside of its ownership. It will provide guidance, for example to water and sewerage undertakers as to the type of development and management most appropriate to the catchment.
- c) The N.R.A. will ensure that undertakers are prevented from abstracting water or discharging effluent to the extent that recreational use of water within a river basin is adversely affected.
- d) The N.R.A. will consult and maintain regular liaison with all appropriate organisations.
- e) The N.R.A. will prepare management plans (or take other steps where appropriate) to ensure that the potential for conflicts between recreational and other uses or values of its sites is minimised.
- f) The N.R.A. will deal with all cases of conflict between recreation and conservation on an individual basis. Neither of these two interests will automatically take priority.
- g) The N.R.A. will publish annual reports of its activities in, and proposals for, meeting its recreational responsibilities as integral parts of its Annual Report and Corporate Plan.

- h) The N.R.A. will respond positively to demands for increased access across land over which it has rights, having due regard to other relevant factors.
- i) The N.R.A. will determine the "best" use for a given site taking full account of all relevant factors, including those given in the Code. It will not be unduly influenced by financial considerations.
- j) The N.R.A. will incorporate provision for recreational use, where practicable, in schemes carried out for some other purpose e.g. flood defence. Internal and external liaison arrangements will be set up to ensure such opportunities are not missed.

3. Relationships with other bodies

There are a number of organisations with responsibilities and/or aims which are relevant to the recreation duties of the N.R.A. They include the Sports Council, Countryside Commission, National Parks Authorities, governing bodies for sport, leisure and recreation and local authorities. Relationships with these organisations are particularly important if the N.R.A. is to base its decisions on a sound assessment of trends and need. The N.R.A. will not be in a position itself to make such assessments but will need to have access to them in order to make the most cost-effective use of resources allocated to meeting its recreation duties.

The Regional Councils for Sport and Recreation bring many of these organisations together and will be looked to by the N.R.A. to take the lead in developing regional strategies for water recreation. The N.R.A. will seek to be represented on such Councils, will assist in the production of such strategies and will use the strategies, together with development plans produced by governing bodies, as a guide to demand and how this might best be satisfied.

The N.R.A. will actively support local recreation panels, user groups etc., which are established to consider matters relating to the detailed recreational use of particular rivers, water areas etc. The N.R.A. will look to these as a means of resolving problems, minimising conflict between users and for information dissemination and general exchange of views.

The N.R.A. will maintain a dialogue with other providers for water and waterside recreation e.g., water companies, gravel companies, navigation authorities and the commercial sector.

4. Management of N.R.A. sites.

The N.R.A. will have 2 basic options for managing the recreational use of water and associated land in its ownership. These are:

- a) Leasing and/or licencing facilities to clubs, local authorities, commercial operators etc.
- b) Direct management by N.R.A. staff, with or without assistance from volunteers, contractors etc.

The use of bye-laws can assist in the general management of water recreation. These have been made in the past for particular sites and areas of water now in the ownership of the N.R.A. However, the use of bye-laws can also be a valuable aid to management in respect of waters and associated land not owned by the N.R.A. but where the N.R.A. has other relevant responsibilities e.g. those of a navigation authority.

The option chosen will depend on the circumstances of the particular site, its location and its use. The option of leasing and/or licensing will be seriously considered where the activity is best managed by a single organisation e.g. canoe club, fishing club etc., where the site adjoins one in local authority ownership which is managed for public leisure/recreation or where there is a commercial aspect e.g. camping. The option of direct management is most likely to be pursued in the case of sites open to the public for informal recreation e.g. walking, picnics etc., or where it is more appropriate for the N.R.A. to retain direct control and ensure appropriate standards are maintained. The N.R.A. will allocate funds for the direct management of such sites. Involvement of voluntary groups and contractors in managing the site to N.R.A. specifications will be pursued in order to encourage community interest and keep costs to a minimum. In some cases it will be most effective for Joint Management Committees to be established allowing users of the site to have an input to the way in which the site is managed and providing a forum for consultation.

In considering options for management the N.R.A. will take into account more than just the financial aspects. Where appropriate the terms and conditions of leases and/or licences will insist on provision for public use of club facilities e.g. fishing rights, if necessary at the expense of reduced income to the N.R.A. Such occasions could arise in urban areas where demand from casual users exceeds available resources and where, in keeping with the Code of Practice, the N.R.A. should take steps to maximise public benefit.

Where rights of recreational use e.g. fishing are to be subject of a lease or licence the N.R.A. will invite competitive tenders or will negotiate with interested parties on terms similar to those applying elsewhere.

As a general policy the N.R.A. will seek to recover costs from users where they are clearly identifiable and where it is practicable to do so. The inability to recover costs will not prevent the N.R.A. from providing facilities and allowing sites to be used, provided the costs can be justified in terms of the benefit to be derived.

5. The potential of un-used N.R.A. sites

The N.R.A. will identify all sites in its ownership which have potential for some recreational use. These may be sites which are required for other operational activities or surplus sites which are un-used for other operational activities but have little or no development value and no outstanding conservation value.

Before taking steps to realise the potential of any such sites the N.R.A. will consider both the demand and the constraints. Demand will be known through the strategies and plans referred to earlier along with views expressed direct to the N.R.A. by local users, potential users and advisory committees (e.g. Regional Rivers Advisory Committees). The constraints will be those listed under 1. i) above. These will be considered in terms of their effect both on initial development and future management.

The N.R.A. will allocate funds for developing the recreation potential of sites in its ownership but will look to other organisations for support where appropriate. The N.R.A. will welcome collaborative exercises with both the public and private sector in order to achieve the "best" recreational use of a particular site. This may necessitate the negotiation of sponsorship-type arrangements whereby the N.R.A. is providing a platform from which a private sector organisation can gain publicity.

6. Other operational activities

Other operational duties and activities of the N.R.A. will both impinge on recreational uses of water and associated land and create opportunities for incorporating facilities for new or improved recreational use.

In the case of the former the N.R.A. will take full account of existing recreational uses in the planning and design of non-recreation schemes and do its best to safeguard such uses. These schemes will include flood defence works, quality and flow-monitoring stations and schemes undertaken for fisheries, conservation or navigation reasons. The way in which the N.R.A. meets its responsibilities on a day-to-day basis in respect of other functions also impinges on the recreational uses and value of the country's rivers. The N.R.A. will take full account of these inter-relationships when determining priorities for meeting these responsibilities and the way in which they are met.

In the case of the latter the N.R.A. will take opportunities to incorporate recreational facilities e.g. in flood defence projects after consultation with landowners, appropriate organisations, local authorities etc. to establish need and desirability. For example opportunities may arise for creating canoe slalom facilities when constructing by-pass channels or weirs; for creating facilities for anglers and walkers when constructing new channels or works alongside existing channels; for providing mooring facilities for boats and for providing small open spaces in urban areas which can be landscaped and used by the public for informal play and recreation.

The N.R.A. will maximise the use of flood embankments in its ownership for public access, for walking and horse-riding subject to appropriate consultation and consideration of constraints. The N.R.A. will make particular efforts to incorporate recreational facilities such as footpaths, bridleways and cycle paths when modifying or constructing embankments alongside rivers and coastlines. The need for adequate access points on to such embankments will also be taken into account.

7. Input on local authority planning matters

The N.R.A. is consulted by local authorities i) in respect of individual planning applications and ii) when they are preparing local plans, structure plans, unitary development plans etc. In both cases the N.R.A. will encourage local authorities to ensure that existing recreational uses are safeguarded and that opportunities to meet known local and regional needs are realised wherever possible. In particular:

- i) The N.R.A. will support the strategies of the Regional Councils for Sport and Recreation, Sports Council, Countryside Commission and National Parks Authorities when responding to planning applications.
It will also refer to those plans for particular rivers or catchments produced by the N.R.A. itself taking the lead.
- ii) The N.R.A. will pay due regard to the implications for recreation (as well as for flood defence, water resources, environmental quality etc.) of planning applications. Particular attention will be paid to those which may also require consent from the N.R.A. (e.g. under the Land Drainage Act 1976).
- iii) The N.R.A. will recommend to local authorities that they promote river corridors as important areas of open land by including sections in their local plans that a) encourage public access where appropriate, b) identify appropriate locations for water-related recreation within their areas, c) demonstrate to developers a genuine commitment to visual enhancement of river corridors and d) show a clear presumption against any development which will have an impact on the river corridor such that its recreational use or potential is adversely affected. Model policies will be prepared and promoted by the N.R.A. to achieve these aims.
- iv) The N.R.A. will cooperate and assist in the preparation and implementation of recreation plans of local authorities. In so doing the N.R.A. will pay particular attention to ensuring harmony between recreational use and other N.R.A. functions, to land that is in its ownership and to opportunities to improve access to rivers and estuaries.
- v) The N.R.A. will work together with developers and local authorities to realise opportunities for recreational facilities to be included when developments or land use changes are taking place. This will be done with regard to other N.R.A. functions and the extent to which such facilities are needed.

8. Financing the recreation function

The recreation function is an operational activity in its own right and will be identified as such for financing purposes. It will be funded partly by income from recreational use of N.R.A. sites, partly by other functions and partly by grant-in-aid.

Income from N.R.A. sites will be derived from all permits, licences, leases etc., which are issued or granted in order to allow recreational use. The N.R.A. may incur costs in setting-up and maintaining such recreation sites. Such costs will be borne by the recreation function where they are additional to what might be carried out for the benefit of some other function with an interest in the site. The N.R.A. will seek to recover these costs from the users where they are clearly identifiable and where it is practicable to do so. Where applicable market rates will be charged and in such cases a profit may be generated. The inability to recover all costs will not prevent the N.R.A. from providing facilities and allowing sites to be used provided there is sufficient benefit. Support from the private and public sector will be sought where appropriate.

Funding by other functions will only apply where action taken for the benefit of recreation is necessary to achieve the objectives of the other function. One example may be the provision of a footpath as part of a flood defence scheme in order to obtain planning permission. A second example could be any additional costs of routine river maintenance brought about by the need to safeguard existing recreational use. Where opportunities arise to include facilities for recreation which are not necessary to achieve other objectives then the costs will be borne by the recreation function. Sometimes a recreation facility will be created without any additional cost e.g., walkways and viewing-points along sea defences. In such cases the N.R.A will not look to the recreation function to meet any of the initial costs.

The N.R.A. will aim to maximise the income derived from use of its own sites and from financial assistance offered by other private and public sector bodies. However, this income is unlikely to be sufficient to enable the N.R.A. to meet its recreation duties to a reasonable level and the need for some grant-in-aid from the Treasury is anticipated.

9. Recreation and water quality/quantity

Although the recreation function is not strictly a regulatory activity itself it is affected by other functions which are regulatory, notably those concerned with water quality and river flow.

In setting river quality objectives account will be taken of the amenity/recreational uses of the stretch of river in question. For some uses (e.g., angling) this will involve parameters related to the chemical quality of the water whilst for others (e.g., riverside walking) it will be factors such as the presence/absence of litter and more physical forms of pollution that are most important. The quality objective set for a river will also have a bearing on the extent to which the N.R.A. will be able to "promote" recreational use and assist others in developing/establishing additional uses of particular stretches of river. Where the demand for some new amenity or recreational use is particularly high the river quality objective may have to be revised.

Applications for consent to discharge effluent into rivers will be considered, not only in terms of the overall river quality objective for the receiving watercourse but also in terms of the impact on any amenity/recreational uses in the immediate vicinity of the point of discharge.

The N.R.A. will also take amenity/recreational uses of water and adjoining land into account when determining minimum acceptable flows for watercourses and when considering applications to abstract groundwater or river water. For some activities (e.g., canoeing, rowing, sailing and to a lesser extent riverside walking, picnics etc.) the depth and velocity of the water are more crucial to participating and enjoyment than is its chemical quality.

The N.R.A. will take full account of known changes in depth and velocity e.g., from summer to winter in deciding to what extent it should "promote" recreational use and assist or encourage others to make use of particular stretches of river. Where demand is high minimum acceptable flows may have to be revised.

10. Promoting recreational use of all water and associated land

The N.R.A. will play an active role in meeting this responsibility, concentrating on seven particular aspects:

- a) Taking the lead, where appropriate, to prepare plans and strategies for riverside and river-based recreation (e.g., on intensively used rivers such as the River Thames bordered by many local authorities). This will be done by agreement and where the N.R.A. is best placed to take such action.
- b) Producing and disseminating information to the public on the availability of water and water-side recreation facilities.
- c) Providing assistance to individuals, organisations, local authorities etc., who are wanting to instigate schemes to develop or improve the recreational use of such sites. This may take the form of advice, practical assistance e.g., design work, loan of equipment etc., or a financial contribution. In the case of the last of these careful consideration will be given to the merits of individual schemes, in particular the numbers who will benefit from the scheme, the impact on other uses/values of the site, the income generating potential of the scheme, the value to the local community and economy and the consequences of the scheme not proceeding. Close liaison will be maintained with other organisations e.g. the Sports Council, Countryside Commission etc., to ensure a measure of consistency is followed and duplication/omission of input is minimised.
- d) Encouraging the safe recreational use of water and associated land through leaflets and other forms of education e.g. talks, displays etc.
- e) Playing an active part in encouraging aesthetic improvements to riverside areas which will lead to improved recreational use and/or greater enjoyment of these areas by the public. This may include support for landscape improvements, litter and refuse clearance etc.

- f) Offering what assistance it can to help resolve conflicts and improve understanding e.g. through setting up and/or contributing to user groups.
- g) Maintaining a dialogue with other providers e.g. water companies, gravel companies etc.

5. Areas of activity and action programme

Neither Section 8 of the Water Act 1989 nor the Code of Practice clarify in what order of priority the N.R.A. should tackle the various tasks identified as being necessary for it to meet its recreation duties. The N.R.A. has therefore decided that the five most important areas of activity, in order of priority, are as follows:-

- 1) Management of existing N.R.A. recreation sites.
- 2) Protecting and providing for recreational use in the course of other N.R.A. activities, particularly flood defence and water resources.
- 3) Realising the potential of N.R.A. sites not currently used for recreation.
- 4) Promoting the use of non-N.R.A. sites for recreation through advice, assistance etc., where this is not being achieved through 2) above.
- 5) Contributing to local and other plans.

Thus the most time and money would normally be devoted to No.1 and the least to No.5. However, this order of priorities may be inappropriate for some Regions e.g. where the use and potential of N.R.A. sites is low. In such cases more time and money will be allocated to priority 3, 4 and 5 tasks than would otherwise be the case.

The primary objectives and targets in respect of these tasks are as follows. The target years are those by when all Regions should have achieved the target. Because of the inherited situation some Regions will achieve the target before this year and some may have already achieved it.

1. Management of existing N.R.A. recreation sites

Objectives

To compile a full inventory of all such sites and ensure that they are managed/maintained to a standard appropriate to the use. To produce and implement a rolling programme of improvements/repairs where necessary. To regularly assess the use and in particular to consider additional/ alternative uses (in the light of changing demands) and alternative management options (in the interests of efficiency and standard of service).

Targets

By 1992: Compilation of inventory and details of management/ maintenance of sites. Will need continuous updating.

By 1993: Production of 5 year rolling programme of improvements etc. To be rolled forward annually.

1991 - ongoing: Implementation of programme of improvements etc.

1991 - ongoing: Regular assessment of use. Each site to be assessed at least once every 5 years.

2. Protecting and providing for recreational use in the course of other N.R.A. activities

Objectives

To ensure that all relevant operational activities are screened to avoid adverse impacts on recreational use and for opportunities to provide for recreational use. To ensure that where such opportunities exist they are included.

Targets

By 1993: Set up internal and external liaison arrangements to ensure screening occurs.

1991 - ongoing: Maintain regular contact with other functional departments to make detailed input to designs, future management arrangements etc., and ensure opportunities are included when the work is implemented.

3. Realising potential of N.R.A. sites not currently used for recreation

Objectives

To compile an inventory of all such sites which on the basis of size and/ or location would appear to have some potential for recreational use. To rank these sites in order of priority and produce a concept report for each one setting out its potential and the options by which this might be realised. To produce and implement a rolling programme of works or action to bring these sites into use.

Targets

By 1994: Compilation of inventory and commence production of concept reports. Update as sites are acquired or disposed of.

By 1994: Production of 5 year rolling programme of works. To be rolled forward annually.

1991 - ongoing: Implementation of programme of works/action.

4. Promoting the use of non-N.R.A. sites

Objectives

To clarify understanding of the N.R.A.'s role vis-a-vis that of other bodies. To produce and implement programmes of work in respect of the production of river recreation plans, public information, guidelines for bodies seeking assistance and the setting-up and servicing of user groups.

Targets

- By 1992: Produce guidelines for bodies seeking assistance.
- By 1993: Rivers to be identified where the N.R.A. is best placed to produce recreation plans.
- 1991 - ongoing: clarify understanding of N.R.A. role through publications and regular liaison.
- 1991 - ongoing: establish and contribute to user groups as appropriate.
- 1991 - ongoing: update and expand published information on availability of facilities, water safety and resolution of conflicts.

5. Contributing to local and other plans

Objectives

To ensure that local plans etc., take full account of the conclusions and recommendations (in so far as they concern recreation) of the catchment management plans and of any other relevant plans of the N.R.A. re: specific sites or projects. To ensure that individual planning applications, if approved, will not negate N.R.A. aims and plans in respect of recreation.

Targets

- By 1994: Establish arrangements with all relevant authorities to allow input into local plans etc.
- By 1994: Establish which type of developments/locations are of interest and merit particular attention at the planning application stage.
- 1991 - ongoing: Input into local plans and comment on planning applications as appropriate.

For the longer term the N.R.A. will work to a limited number of general National targets in respect of the 5 activity areas identified above. It will not work to targets which are simply increases in numbers of people using sites. Not only will this be impracticable to measure in many cases but at some sites it may be undesirable. The overall aim will be to optimise the use of N.R.A. sites and sites owned by others, having regard to environmental constraints etc. Efforts will be made to achieve this in response to demand and to plans of local authorities, governing bodies of sport, Countryside Commission, Sports Council, Tourist Boards and our own Catchment Management Plans.

The details of the national targets cannot be specified until the initial objectives (above) have been largely fulfilled. They are likely, however, to be on the following lines:

- a) Achieve real growth in income from recreational use of N.R.A. sites of x% per year.
- b) Bring into use x new N.R.A. sites/year.
- c) Improve x N.R.A. sites/year.
- d) Assist x schemes per year on non-N.R.A. sites.
- e) Include provision for recreational use in conjunction with other operational activities in x% of cases where opportunities are identified.

These will need to be reviewed annually. Some (e.g. a.) are dependent on market forces and opportunities being available. Others (e.g. b.) relate to a finite resource and therefore cannot continue indefinitely.

Regional targets will then be developed in response to these national targets. These will be more numerous and localised and, because of this, will probably be of more interest to the public and other relevant organisations. They will inevitably be different from Region to Region according to demands and opportunities. They will be more project related and will be reviewed annually.

Examples may be as follows:-

1. Implement marketing plan for sites A, B and C to generate x% increase in annual user numbers and y% increase in income.
2. Conduct customer survey at sites D and E to establish level of satisfaction and demand for improvements.
3. Construct new information centre at site F and monitor use.
4. Reduce fishing area at site G and grant licence for canoe club to meet growing demand.
5. Ensure that x% of budget allocated for projects on non-N.R.A. sites is spent on schemes of benefit to young people (Sports Council target group for Region).
6. Complete recreation plan for River x identifying opportunities and deficiencies and recommending action for all relevant bodies.
7. Collaborate with other bodies and riparian owners to restore at least x kms. of eroded riverside footpaths.
8. Ensure that facilities for angling and horse-riding are included as part of flood defence schemes at sites x and y.

Thus there are three levels at which targets will exist:

- a) Those related to the strategy objectives.
- b) The longer term National targets.
- c) Regional targets, which are set in response to national targets.

iii) Research and Development needs

There are a number of issues which might best be dealt with through Research and Development projects. These include the following:-

1. A study of national, regional and sub-regional trends in participation and demand. Implications for the N.R.A.
2. Evaluation of techniques for bank protection with aim of making good damage caused by recreational use in a way that safeguards recreational/aesthetic value.
3. An assessment of how the recreational/amenity use/value of a river can be taken into account when setting River Quality Objectives.
4. An assessment of how and to what extent recreational activities impact on wildlife with particular emphasis on informal recreation and canoeing. Recommendations as to how these impacts can be minimised.
5. A study of the roles played and expected to be played by the N.R.A., Sports Council, Countryside Commission etc. in "promoting" recreation. Recommendations as to how the N.R.A. can work most effectively with these other bodies.
6. An evaluation of the techniques which might be used to quantify the benefits of recreation. Recommendations as to how the N.R.A. might justify expenditure on recreation in quantitative cost:benefit terms.
7. A customer survey to establish the public's expectations of the N.R.A. in so far as water-based and waterside recreation are concerned.

It is anticipated that some of these R. and D. needs would be best accommodated by external research contracts whilst others could be met in-house.

6. Performance measures and activity level indicators

There are a number of indicators that the N.R.A. will use to measure outputs, how well it is meeting its recreation responsibilities and to make comparisons between years and Regions. These will include the following:-

1. N.R.A. sites

- a) Number of sites in use i) Public, ii) Leased/licensed.
- b) Number of users (where measured).
- c) Income received and expenditure incurred.
- d) New schemes implemented
 - i) Sites not previously used.
 - ii) Improvements to sites already in use.

2. Other sites

- a) Number of schemes assisted
 - i) financially
 - ii) advisory
 - iii) practically

3. Other operational activities

- a) Number of other operational activities where provision made for recreational use.
 - i) Flood defence activities
 - ii) Other

4. General

- a) Number of occasions where significant N.R.A. input is made e.g. liaison meetings; input to Sports Council plans; complaints/conflict with river users etc.
- b) Publicity material issued e.g. new leaflets on sites, policies, safety etc.
 - i) Range of recreational leaflets available.
 - ii) Numbers distributed.
 - iii) Additions to the range.

Monitoring of cost effectiveness, efficiency and economy will be much easier in some situations than others. Where the recreational use of an N.R.A. site e.g., for angling, is leased/licensed then a market rent/licence fee will be charged. Similarly where day tickets are issued the N.R.A. will charge a realistic price and aim to recover any costs directly attributed to providing for the use.

For sites which are open to the general public it may well prove to be uneconomic to monitor use, calculate costs incurred per user and attempt to recover these costs. However, as set out earlier in this report the benefits gained by the users will be assessed in general terms. Costs will be kept to a level consistent with the judged benefits and the policy of providing a standard of service which reflects well on the N.R.A. Income-generating activities will be introduced where appropriate to offset such costs (e.g. sale of postcards and refreshments, charges for car parks etc.).

A similar philosophy will be adopted in respect of assistance given to recreational projects which are not on N.R.A. sites and where provision is made for recreational use in conjunction with some other operational activity.

7. Resource implications

Regions will need dedicated resources to put into practice the policies advocated and carry out all the tasks identified. The following table summarises the purposes for which staffing and/or financial resources will be required.

- | | |
|--|--|
| 1) Management of existing N.R.A. recreation sites. | Staff needed to determine the most appropriate management, assess its effectiveness and organise maintenance etc. of directly managed sites. Some requirement for financial resources for the latter, partly offset by income from rents, permit fees etc. |
| 2) Protecting and providing for recreational use in the course of other N.R.A. activities. | Staff needed to advise on how adverse impacts can be minimised and which opportunities for recreation provision should be pursued. Financial resources needed only when budget for "other operational activity" is unable to cover costs. |
| 3) Realising the potential of N.R.A. sites not currently used for recreation. | Staff needed to make initial assessment, appraise options for development and organise implementation. Some requirement for financial resources. Where opportunities exist for partnership with other public and private sector bodies this requirement will be minimised. |
| 4) Promoting use of non-N.R.A. sites. | Staff needed to i) collate information for publication, ii) assess applications for assistance, iii) offer advice etc., iv) organise schemes leading to improvements, v) produce river recreation plans vi) liaise with other bodies. Some financial resources for publications, assistance to projects and improvement schemes. |
| 5) Contributing to local and other plans. | Staff needed to draft and promote appropriate sections for local and structure plans and to comment on individual planning applications. Negligible requirement for financial resources. |

In addition to the staff and finance dedicated specifically to carrying out the above there will be a need for support from other departments e.g. finance, estate, legal etc. There will also be a need for use of Information Technology to store and analyse relevant data.

The extent to which resources will be required will vary from one Region to another according to:-

- i) activity levels of other organisations and general public interest in water and waterside recreation;
- ii) demand for recreational facilities and access;
- iii) extent of N.R.A. land ownership and current recreational uses;
- iv) potential of N.R.A. land-holdings for recreational use;
- v) potential of non-N.R.A. waterside sites and willingness/ability of landowners etc., for this potential to be developed;
- vi) extent to which other operational activities (e.g. flood defence) are carried out and the degree of support operations staff are able to give.

The numbers of dedicated recreation staff and financial resources (other than staff costs) needed by an "average" Region to provide a basic level of response to the statutory duties are as set out below. This resourcing level would enable i) objectives and targets set out in section 8. above to be met ii) research and development projects to be managed and iii) output and performance to be properly monitored. Staff numbers and financial resource requirements are given for each of the six activity areas both individually and on a cumulative basis.

Resources needed for basic level response

<u>Activity Area</u>	<u>Staff (No.'s)</u>	<u>£K (Costs other than staff costs)</u>
1	2	150
2	1	50
3	2	100
4	2	50
5	1	Zero

It should be emphasised that these figures should only be taken as a guide to the resource requirements per Region for strategy implementation. There is likely to be considerable variation for the reasons given above but it is felt to represent a reasonable average. When multiplied by ten and set in context with the N.R.A. resource requirements as a whole it can be shown to represent a very small proportion. The benefits to the public and to the image of the N.R.A. from carrying out this function well are disproportionately very great.

8. Reviewing the strategy

There are certain elements of this strategy that will need to be reviewed annually and these have been referred to at the appropriate places in the text. However the underlying approach and policies will need to be periodically reviewed and it is intended that this will be done quinquennially.



DRAFT

NATIONAL RIVERS AUTHORITY

CONSERVATION FUNCTION STRATEGY



NRA

APRIL 1991

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NATIONAL RIVERS AUTHORITY

CONSERVATION STRATEGY

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The Water Act (1989) gave the National Rivers Authority a range of general duties relating to the conservation of natural beauty, flora and fauna, geological or physiographical features of special interest and items of historical or archaeological interest. As general duties, they apply to all operations of the NRA including the consideration of proposals from third parties.

This document sets out how the NRA will interpret its conservation duties as a set of policies covering three main areas:

*How the NRA will further conservation through its own operations.

*How the NRA will use its permissive powers to encourage third parties to further conservation.

*How, and to what extent, the NRA will promote conservation.

The NRA conservation policy will not only fulfill our statutory duties but will take a positive approach to fulfill the public expectations of our role as "guardians of the water environment".

The strategy describes the tasks that need to be carried out based on legal requirements and the mission and aims of the NRA. It defines the key issues and opportunities and prepares a detailed methodology to achieve desired targets and report on their attainment. Finally, it addresses the problem of financing the conservation function and the resource requirements that will be needed to achieve the aims of the strategy.

The strategy considers six key issues;

1) Fulfilment of statutory duties

The NRA must develop and implement a set of clear and detailed policies. It is of paramount importance that these policies are communicated effectively to all functions of the NRA and to all interested parties outside the Authority. The conservation function must however be independent of other functions to enable it to fulfil its 'audit' role.

The NRA must develop an efficient infrastructure which can assess and interpret the value of the conservation resource and integrate conservation into all operations of the NRA. The NRA must develop the knowledge needed by supporting a comprehensive programme of research and by consulting experts.

2) Finance

The way in which the NRA funds conservation needs to be decided urgently. As the duty to "further" conservation applies to all of the NRA functions it is clear that the cost should be shared by all functions. However, it is inappropriate to draw financial support from other functions for the duty to "promote" conservation. This duty should be financed by grant-in-aid.

3) Assessment and monitoring of the conservation resource

To manage conservation resources objectively it is essential that they are adequately described and quantified. The habitat-based river corridor survey technique is well developed and will be used to gather base-line information. The NRA must, however, develop complementary methods of assessment for other features of rivers (eg wildlife, landscape, geomorphology, archaeological remains, etc) and develop methods for application to other inland waters, estuaries and coastal areas.

4) External liaison

The NRA must work well with other statutory and voluntary bodies with environmental and archaeological responsibilities. An effective input into the planning system is essential and the NRA will try to have suitable policies adopted in local and county plans and in conservation strategies. The NRA will also work directly with planners and developers to ensure that conservation is fully taken into account.

5) Protection and restoration of aquatic habitats

In the past, the conservation value of rivers and estuaries was generally overlooked and consequently it received little protection. The NRA will undertake the first systematic survey and assessment of the conservation value and potential of aquatic, inland and coastal ecosystems. The NRA will identify sites of high conservation value for consideration by planning authorities and English Nature and the Countryside Council for Wales for designation as sites of conservation interest.

The NRA will attempt gradually to restore aquatic and waterside environments degraded by factors including river engineering, eutrophication and over-abstraction. More attention will be given to rehabilitation of urban watercourses and coastal and estuarine conservation.

6) Management of rare species and habitats

The NRA will assess what actions it can take to help to ensure the survival of rare species and habitats. Research into the status and management of rare species will be undertaken in collaboration with other environmental organisations to produce strategies for their conservation. For instance, the NRA is currently supporting research into the management of coregonids (whitefish) in the English Lake District and has initiated work in 1991 on crayfish. It will also co-operate with other statutory conservation bodies in initiating recovery programmes for legally protected species, controlling introductions of alien species and protecting sites containing rare species.

The strategy defines policies, objectives and associated targets related to these six key issues. These span a five year period by which time all NRA regions will be fulfilling their responsibilities towards conservation.

The strategy will require relatively modest resources for its implementation. Estimates are given in the strategy of the resource requirement to meet the objectives of the function to an acceptable minimum standard. The NRA will require 102 full-time equivalents, financial resources of £1.5 M pa for promotion of conservation and funds allocated by operating functions in relation to their annual work programmes.

While the cost of fulfilling the NRA's conservation duties is small, the benefits are enormous. The conservation of landscape, wildlife and cultural heritage associated with water, will bring great pleasure to the general public and thus confirming the role of the NRA as "Guardians of the water environment".

3 INTRODUCTION

- 3.1 The National Rivers Authority (NRA) is a public body whose task is to protect and improve the water environment in England and Wales. Furthering the conservation of the water environment and its amenities is one of the main functions.

Conservation can be defined as the protection and management of natural and man-made resources. The aim of conservation is to ensure that the resources will be made available for the benefit of future as well as present generations. The NRA is charged with conservation responsibilities in respect of wildlife, landscape and natural beauty, geological and physiographical features, buildings and other objects of archaeological, architectural or historic interest. These responsibilities relate to all inland and coastal waters, and to land associated with such waters.

Although the NRA has inherited some of the duties regarding conservation from the water authorities, the Water Act (1989) and the accompanying Code of Practice on Conservation, Access and Recreation have now strengthened our role in this important area. Section 8(4) in particular gives the NRA new, wider powers to promote conservation.

3.2 THE CONSERVATION FUNCTION IN RELATION TO STATUTORY DUTIES AND POWERS

3.2.1 The Water Act (1989)

The primary legislation relating to the conservation duties of the NRA is contained in the Water Act (1989).

Section 8: requires the NRA to carry out its operations in an environmentally sensitive manner and where it can control the actions of others (eg through consents and licences) to require it to act in a similar manner. It also enables the NRA to promote independently of other functions, the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and associated land and the conservation of wildlife dependent on the aquatic environment.

Section 9: describes compulsory consultation procedures in respect of Sites of Special Scientific Interest and National Parks.

Section 10: provides for the production of a Code of Practice.

Further details are given in Appendix 1.

Other sections of the 1989 Act are also relevant to the conservation duties of the NRA, in particular Part III, Chapter 1, which deals in part with nature conservation and statutory water quality objectives and Part III Chapter 2 which deals with setting minimum acceptable flows in relation to our environmental duties.

3.2.2 Statutory Instrument No. 1217 Land Drainage Improvements Works (Assessment Of Environmental Effects) Regulations 1988

This is the other main statute of direct relevance to the conservation duties of the NRA. It sets out procedures by which the NRA must assess the environmental impact of river improvement schemes. A similar procedure is laid down under Statutory Instrument 1199 for other works covered by planning procedures.

3.2.3 Other Relevant Legislation

In addition to the above there is a wide range of EC Directives, Acts, Statutory Instruments, Byelaws, Codes and DOE Circulars which have relevance to the NRA's conservation duties. These include local byelaws (eg anglers' lead weights, otter guards on eel fyke nets) as well as major legislation. A summary is given in Appendix 1.

3.2.4 Codes of Practice

The Code of Practice on Conservation, Access and Recreation, produced under Section 10 of the Water Act indicates how the NRA is expected to carry out its conservation duties and provides guidance on establishing a framework for planning and managing the use of water and associated land, on conservation and enhancement of the environment, and on its application in special areas. It also defines sites of importance for conservation in respect of which the NRA should consult relevant bodies and take into account in the undertaking of its duties. The code does not cover all of the NRA's areas of responsibility but is the subject of an ongoing review by the Department of the Environment.

In carrying out its flood defence and land drainage functions the NRA is also expected to follow the Conservation Guidelines for Drainage Authorities (1988) produced by MAFF, DoE and the Welsh Office. This provides advice on conservation considerations that must be taken into account when carrying out such works.

BRIEF HISTORICAL REVIEW

The NRA was established as an environmental and regulatory body not only to separate those functions from the newly created water utility companies, but to take steps to vest the protection, control and improvement of the aquatic environment in one organisation.

Unlike English Nature and the Countryside Council for Wales, the National Rivers Authority has specific responsibilities for conservation of the aquatic environment which it is able to achieve through its special powers and specialist knowledge relating to these environments.

During 1987/88, water authorities prepared plans for the Department of the Environment on the separation of their environmental and regulatory functions, staff and assets, guided by subsequent revisions of the Water Bill. Plans varied widely between authorities and despite DoE requests for consistency, the initial staff structure and financial provision for each NRA region still reflected the differing perceptions of the requirements of the Water Act, the variable attitudes of water authority senior management towards their future regulators and the existing provision for conservation in each authority.

The problems of insufficient staff to fulfil statutory conservation duties were compounded by differing regional structures. Some water authorities located conservation with recreation and fisheries under a single manager; in others it was an adjunct to the biological component of environmental quality or completely isolated in flood defence or customer relations. In some, existing fisheries staff were expected to "take on" the additional conservation and recreation duties.

The varied provision of resources and experience thus resulted in considerably different levels of service, policies and methodologies between the regions. The conservation strategy addresses these issues.

5 PRESENT STATUS

5.1 Conservation assets and facilities

The land and water to which the NRA's conservation duties apply can be relevantly categorized in two ways: .

That owned by the NRA and that owned by third parties

That with a statutory conservation designation and that without.

Of these only NRA landholdings can be considered as true assets. However, to give an indication of the resources to which the NRA's conservation duties apply, Table 1 has been compiled.

Table 1 Conservation Resources of NRA Regions

Region	Total Area (ha)	Length Main River (Km)	Length Coast-line (Km)	SSSI Number	AONBs area (Km ²)	Nat. Parks area (Km ²)	Heritage Coasts Length (Km)	ESA area (Km ²)
Anglian	26795	5812	401	650	1473	Broads? (289)	119	1664
Northumbria	9274	1485	140	206	129	825	92	53
North West	14445	5947	150	?	985	3891	0	304
Severn-Trent	21666	3578	0	722	1449	843	0	465
Southern	10552	2748	898	1005	4383	0	73	157
South West	10884	1370	700	255	1594	1288	257	72
Thames	13100	5294	0	440	1271	0	0	0
Welsh	21262	5679	1300	701	1040	4098	495	1450
Wessex	9918	2312	254	387	4750	343	91	270
Yorkshire	13503	1741	158	349	3 (area not known)	- 3 (area not known)	74	53

5.2. Staff

The number of staff involved in conservation in each region varies considerably from one to ten. (Table 2 and Fig 1). This variation stems from four main sources:

- a) The inherited position from the regional water authorities
- b) The numbers of staff recruited to conservation since September 1989
- c) The degree of sharing of staff duties with other functions such as fisheries, recreation and biology
- d) Whether river corridor survey work is carried out by employees or contracted out.

Clearly, if the NRA is to be evenhanded in the extent to which it fulfills its conservation duties, this situation cannot continue. Variation in staff numbers between regions should relate only to the amount of conservation work required in each region.

Table 2 - Numbers and grades of conservation staff in the NRA as at 1/9/90

Region	Grade										Total FTE
	1	2	3	4	5	6	7	8	9	10	
Anglian									1+2** ***		1.5
Northumbrian					1				1*		1.5
North West			3			3		1		0.2	7.2
Severn Trent			1*/**			4* 2+	1		1*		6
Southern					2***	1*		1*			3
South West			1*				1*				1.5
Thames						1	3		2		6
Welsh			3* **			3* **	6* **	1*	3* **		4
Wessex					1			1*			1.5
Yorkshire								1			1
TOTALS											33.2

- * shared with recreation responsibilities
- ** shared with fisheries responsibilities
- *** shared with invertebrate biology responsibilities
- + landscape architects

The current expertise in conservation staff in the regions is drawn from a variety of backgrounds, to include general freshwater biology, fisheries science, invertebrate biology, planning, geomorphology, landscape architecture, and general conservation management. There are a number of secondary areas of expertise such as the design of computer databases.

Whilst expertise can be bought in for some tasks, the use of in-house staff to carry out survey work and landscape appraisal has three major advantages:

- a) The person who carries out a survey or appraisal can interpret the survey and follow through its implementation (in, say, flood defence works) more efficiently and cost-effectively than one who receives a survey or appraisal carried out by a third party.
- b) Employees will have a higher awareness of the work of the NRA and therefore should be more objective in collecting and interpreting conservation information.
- c) Quality control can be assured.

5.3 Finance

The present funding arrangements for conservation reflect to a significant degree, the previous system in the predecessor water authorities. In consequence considerable variation occurs between regions, with some not possessing a separate conservation account. At national level, there are heads for expenditure for fisheries and recreation, but not conservation although the separate existence of the function is recognised.

Conservation is currently financed in three ways:

i) directly by budgets within other functions

In recognition of the large element of conservation work necessitated by flood defence operations, large budgets have been established in some regions within the FD department for enhancement (mitigation) work or river corridor surveys.

Control of these budgets is not always by the conservation department, which can result in difficulties in implementing an effective "poacher/gamekeeper" situation.

ii) recharges to other functions

Flood defence is not the only function for which conservation work needs to be undertaken. Recharges should also be made to water quality and water resources. A continuous element which should be recharged to these other functions for example, is the conservation input to evaluation of discharge consents and abstraction licences. Recharging by conservation is not however commonly employed within the NRA as yet, despite the obvious advantages in relation to reduction of grant-in-aid.

External bodies and developers may also not be recharged appropriately in all regions.

iii) Treasury grant-in-aid

Although the NRA's conservation duties apply to all of its functions, not all conservation expenditure is rechargeable as the duty of the NRA to promote conservation independently of another function (Water Act S 8 (4) should be financed from the public purse.

Table 3 Conservation expenditure 1990/91 Forecast

	Expenditure by Conservation functions (Expenditure in 89/90 given in brackets)		Support service costs included (% of conservation expenditure given in brackets)		Income (recharges to other depts)	Expenditure by other departments on conservation relating to operations
Anglian	0	(0)	0		0	All expenditure on conservation but is not quantified
Northumbrian	?		?		?	?
North West	206	(51)	35	(17%)	102	?
Severn Trent	510	(491)	105	(21%)	160	200K (FD)
Southern	46	(52)	10	(22%)	0	?
South West	202	(121)	80	(40%)	0	?
Thames	664	(641)	134	(20%)	0	5% of other operating depts (approx £1M) mostly FD
Welsh	258	(225)	12	(5%)	100	Recharges are presently only for FD
Wessex	120	(90)	10	(8%)	30	?
Yorkshire	25	(21)	0	0	0	Not identified separately

6 KEY ISSUES, CHALLENGES AND OPPORTUNITIES

6.1 FULFILMENT OF STATUTORY DUTIES

The Water Act (1989) and other recent legislation (See Section 3) requires the NRA to act as a strong conservation body with specific responsibility for aquatic and associated environments. Due to inter-regional differences outlined in section 5, standards of service in conservation are highly variable. The opportunity exists therefore, to set a consistently high standard on a national basis. The NRA conservation policy will not only fulfill our statutory duties but will take a positive approach to fulfill the public expectations of our role as "guardians of the water environment".

The numbers of regional and Head Office staff involved in conservation work needs to be reviewed as does their range of expertise (see 5.2). Experience in the regions makes it clear that there are insufficient staff to fulfil the statutory duties towards all areas of conservation.

Many internal issues need to be addressed if the requirements of the Act and implementation of the Code are to be achieved. Central to these is the acceptance by all functions of their conservation responsibilities. Conservation is not the duty of the conservation department alone. Overall performance could be improved by heightening the awareness of staff in other functions by seminars, training and co-operative projects.

The establishment of a separate conservation department is however vital to fulfilment of our statutory duties. The statutory duties regarding conservation are clearly distinct from those of any other function. Therefore in order to ensure that the NRA both promotes conservation and regulates the activities of other functions it is essential that these are carried out by a clearly defined conservation function rather than being lost in the duties of another function. It is suggested that Conservation should be a physically distinct function within the Fisheries, Conservation & Recreation grouping in all regions.

The NRA's duty to further conservation cannot be adequately fulfilled in some instances due to a lack of knowledge or methodology. The NRA will carry out a comprehensive research programme to meet these needs. There is a particularly urgent need for example to develop objective and scientifically valid methods to take account of conservation in the management of abstractions and water quality. Work will also be required to produce strategies for conservation in coastal areas.

6.2 FINANCE

The dependence of the conservation function on Treasury grant-in-aid could make fulfilment of statutory duties vulnerable to changes in the economic climate. This factor will, however be influenced by changes in legislation, public opinion and by internal factors.

There is currently a wide inter-regional variation in the arrangements adopted to pay for conservation work. Evaluation of the benefits and beneficiaries of conservation is needed to form a sound funding basis, reducing if possible the vulnerability of this function to changes in economic climate.

Present financing arrangements for the conservation function are unsatisfactory from the fundamental philosophy to practical control and implementation. Conservation is a statutory duty of the NRA and one which has a particularly high public profile. The public is moreover the major beneficiary of conservation work carried out by the NRA. It is highly appropriate therefore that part of the function is financed from grant in aid.

Conservation expenditure should be identified clearly in all regions, irrespective of the funding department. If the beneficiaries of conservation work, internal and external can be identified, monies can be set aside by operating departments or a system of recharges implemented on a regional basis, which will finance the majority of expenditure. Work carried out under S8(4) on promotion can be separately identified for funding from grant-in-aid.

A separate expenditure head should be created for conservation in recognition of work carried out under S8(4).

Control of all expenditure on the conservation function should be by the conservation staff.

A more minor issue that requires a uniform approach is the extent to which the NRA co-operates with other organisations in the funding and implementation of conservation projects. Some regions currently provide grants for other parties to undertake conservation work, whilst many co-operate in joint ventures where both parties provide funding and expertise.

6.3 ASSESSMENT AND MONITORING OF THE CONSERVATION RESOURCE

No systematic survey of the flora, fauna, habitat, landscape (visual) and archaeological aspects of aquatic ecosystems has ever been undertaken, yet this is what the NRA needs to be able to fulfil its regulatory and operational conservation responsibilities. The methodology and survey programmes for habitat-based river corridor surveys are now developed but these require extension to the other conservation aspects mentioned above. Methods for assessment of other inland waters, estuaries and coastal areas need researching. Predictive capabilities are required for conservation "value", especially in relation to Environmental Quality Objectives. Policies for assessment, monitoring integration of data into practical use and audit must be developed.

In most regions there is no general inventory of the conservation resources for which they are responsible. Hard copy information on SSSIs exists in most regions but data on other sites, especially archaeological sites is absent. Most regions have records which indicate where sites of conservation importance are located but there is little strategic information on the general conservation status of river corridors, wetlands, estuaries and coastlines.

There is a wide variety of conservation database in use across the regions. Five regions now have key conservation data (eg SSSI sites) on computer databases which vary from stand alone dbase IV to integrated databases on Spans and WIS. Four of these have reported major limitations. Anglian region have their river corridor data on a separate database.

The protection and management of the conservation value of inland waters requires access to a comprehensive and responsive data storage system for records such as SSSIs and other conservation sites, river corridor survey data, archaeological and historic features etc. Furthermore the significance of data held on invertebrates, fish, macrophytes and habitat is not always appreciated or used to best advantage.

Such information is essential if the NRA is to carry out its conservation work objectively. It is recommended that the NRA undertake such strategic surveys, gather data from other sources and set up and maintain databases of conservations sites. Progress on this issue will be influenced by progress on the Water Archive and IS Strategy in general.

6.4 EXTERNAL LIAISON

In order to facilitate effective conservation in the widest sense it is necessary to integrate as far as possible conservation, access, recreation and land and water management. To produce a workable system all controlling bodies must be involved (ie NRA, MAFF, planning authorities, statutory conservation bodies, etc) and, particularly in urban areas, it is essential that the local community is involved.

There are five main areas of external liaison which the NRA should address.

6.4.1 Planning Authorities

Consultations on submissions for planning permission, unitary development plans, county plans and local plans should comprise a significant part of the work load of the conservation function. Proposed developments adjacent to rivers often have far greater impacts on conservation than the general activities of the NRA.

Effective conservation input by the NRA into planning control is a major challenge for four main reasons:

- The large number of consultations arriving
- The need to complete internal assessment and where required, consultation with the proposer, third parties and the planning authority over a limited time period.
- The need to educate developers and planning authorities of the expectations of the NRA towards conservation.
- The need for the NRA to ensure national evenhandedness towards the treatment of planning proposals.

6.4.2 Ministry of Agriculture Fisheries and Food

There has been a major change in national agricultural policy in recent years, towards extensification and the promotion of agricultural practices that encourage environmental responsibility and the conservation of wildlife and landscape. To some extent this has been matched by a change in MAFF policy in relation to flood defence activities of the NRA including a reduction in grant aid available for further agricultural land drainage works. However, there remain policies which could be modified to assist NRA conservation activities:

- MAFF currently require the NRA to maintain grant-aided water authority land drainage schemes to previously agreed standards. These standards may be inappropriate because the benefit they provide has not been taken up by individual farmers or because current MAFF policies eg on Environmentally Sensitive Areas, preclude take-up by the farmer.
- The NRA may wish to rehabilitate certain "over-engineered" rivers and should be able to request a relaxation in the maintenance of the watercourse without the penalty of the repayment of the MAFF grant.
- The natural environment is a long term capital asset and should be valued as a diminishing finite resource. Under existing MAFF guidelines, conservation and other intangibles are not included in cost/benefit analyses for justifying new works. New MAFF guidelines are required that reflect the current emphasis on extensification and environmental care shown in other MAFF policies.

6.4.3 Forestry Commission

Acidification of surface waters, caused by atmospheric deposition is exacerbated by coniferous afforestation. Such pollution has conservation implications because it can lead to destruction of fish populations and cause major changes in invertebrate communities which consequently lead to a decline in dependant animals such as otters and dippers.

The NRA has no statutory input into the process for the approval of grant aid for coniferous afforestation although local consultation arrangements have been agreed with the Forestry Commission in Welsh and Severn-Trent regions. Such agreements are voluntary and, therefore, vulnerable. The NRA should obtain strong agreements on a national basis, preferably backed by legislation.

6.4.4 Major developers

The environmental impact of major engineering schemes such as roads, barrages and coastal land reclamation is a continual concern to the conservation and other functions of the NRA. The NRA is required to assess the impacts of such developments generally by scrutinizing environmental impact assessments of varying quality put forward by the promoters. The assessment of and comment on major schemes is extremely time consuming, particularly if it results in the need to give evidence at a public enquiry or to a Parliamentary Committee. The NRA needs to develop policy and practice on appraisal of the environmental assessments of other bodies, particularly where monitoring by the NRA may be required.

6.4.5 Public

With the creation of the NRA as the principal statutory body responsible for river management, there are growing expectations from certain organisations and from the public at large that the NRA will deal with all water related conservation issues. Examples include the NRA's attitude to fish predators such as mink and goosander, and to diseases such as crayfish plague. The NRA increasingly is looked to for controls over developments that damage the aquatic environment, even when these are controlled through the planning process. There are also great expectations of our role in solving conflicts between conservation and water based recreation, even though there may be few statutory controls available. Policies need to be developed that set out the NRA's position on such matters, without leading to false hopes that it will be able to exercise the degree of control that may be desired.

6.5 PROTECTION AND RESTORATION OF AQUATIC HABITATS

6.5.1 Protection of aquatic habitats

Many aquatic habitats throughout England and Wales are of high conservation value. Rivers in particular are not well protected as there has been no systematic and objective appraisal of their conservation value. Although the Nature Conservancy Council (now English Nature and the Countryside Council for Wales) had undertaken extensive river macrophyte surveys, it neither assessed the overall conservation value of most rivers nor notified as SSSI's all rivers which are of suitably high conservation value. Many planning authorities in their structure plans assess only terrestrial habitats and frequently overlook rivers.

SSSI designation in reality offers relatively little protection from many of the threats that face rivers, particularly diffuse pollution. The NRA, however, has powers that equal or exceed those available to the statutory conservation bodies to protect rivers of high conservation value. As it will facilitate the NRA's conservation duties to have all suitable rivers designated appropriately, the NRA should assist by identifying sites for consideration by the appropriate bodies. The strategic surveys to be undertaken by the NRA will be the first systematic assessment of the conservation value and potential of many English and Welsh rivers.

6.5.2 Restoration of aquatic habitats

The value of aquatic habitats as a wildlife resource and as landscape features has been greatly reduced by a combination of engineering works, pollution, over-abstraction and unsympathetic management. The challenges for the NRA include:

Eutrophication: The enrichment of waters with plant nutrients is often a cumulative result of small discharges and diffuse sources from agricultural use of fertilisers and is exacerbated when abstraction or drought results in less water being available for dilution.

Over-abstracted rivers and wetlands: The over abstraction of water has resulted in the drying up of some chalk streams, limestone rivers and wetlands sites with serious environmental impacts. This has led to public complaint about the deterioration

of amenity value and landscape. Many wetland sites, including some SSSIs's, are being lost. Recent dry summers have added to, and highlighted, this problem.

The re-creation of more natural forms of river corridor: significant improvements in water quality should be accompanied by complementary programmes of physical rehabilitation if the full environmental benefits are to be realised. Successful methods of recreating more natural forms of river channel and corridor have been developed on mainland Europe and have been practised on a small scale in Britain. As well as realising the wildlife, fisheries and landscape potential of rivers there are potential benefits to flood defence and water quality. Rehabilitation of urban watercourses will achieve greater priority than in the past.

Surface water acidification: The only serious long-term solution for such acidification is a reduction in the anthropogenic sources of acid deposition. The application of lime has been shown, in certain circumstances, however, to reduce surface water acidity. The results of current research indicate that instream liming or liming of the hydrological source are cost-effective interim measures. However, such areas often harbour lime-sensitive communities of high conservation interest and therefore, assessment of the potential losses should be undertaken and approval from the statutory conservation bodies should be sought. The NRA needs to formulate policies relating to liming and catchment management that fully take into account its water quality, fisheries and conservation responsibilities.

Specific policies and funding are required to enable the NRA to both undertake this work directly and where possible, act as a catalyst to such works. With a relatively modest input in terms of advice and finance, the NRA can promote major improvements as part of larger works in the private or public sector. Rehabilitation resulting from previous flood defence or water resources activities may be rechargeable to those functions.

The Countryside Commissions's "Countryside Stewardship" initiative, which includes waterside landscapes and coastal land, may result in collaborative projects to enhance and restore certain landscapes.

6.6 MANAGEMENT OF RARE SPECIES AND HABITATS

In addition to broad-based issues of habitat protection and restoration, species conservation is an important responsibility of all statutory conservation bodies. Data collection on vulnerable species and research to formulate strategies for their conservation is likely to proceed in conjunction with other statutory conservation bodies.

The 'Recovery' report produced in 1990 by the Nature Conservancy Council lists and describes rare species and the management strategies required for their conservation. The NCC asked other organisations to co-operate or to take the lead in initiating recovery programmes for legally protected species. The NRA should consider the species (over 40) relating to inland and coastal waters and develop management strategies in collaboration with the NCC. Input could be as simple as ensuring that existing sites are well protected or as active as re-introduction of species eg the burbot. NRA must assist, however, in the control of illegal introductions (eg crayfish, manila clams and other farmed shell fish).

7 FUTURE STRATEGY

7.1 Mission

"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 defences 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."

7.2 Aim

The NRA will conserve and enhance the wildlife, landscape and archaeological features associated with all inland and coastal waters.

7.3 Main Objectives

Eight objectives and fifty-seven targets have been derived from the six issues presented in Section 6.

1 In the planning and implementation of its operational and regulatory functions the NRA will sustain and further conservation.

Conservation requirements are incorporated in all NRA operational activities and are taken into consideration when issuing any consents or licences associated with the Authority's regulatory functions.

2 Conservation input to all operational and regulatory functions will be achieved through internal and external liaison

NRA employees in all functions will be made aware of their conservation responsibilities and trained as necessary. Contact will be maintained with statutory and voluntary conservation bodies via formal liaison meetings and on-site discussions.

3 The NRA will develop and implement consistent conservation policies assisted by the findings of a comprehensive research and development programme.

An ongoing research and development programme will be carried out to address appropriate conservation issues highlighted in the functional strategy and Corporate Plan

4 The NRA will resource the conservation function such that it may cost effectively fulfil its statutory duties and its self-imposed role as "guardian of the water environment"

A stable system of financing conservation will be established which relates sources of income to the beneficiaries of work carried out.

- 5 The NRA will survey, monitor and store information on the conservation status of inland and coastal waters and associated land, including the effects of its own operational and regulatory activities.

A survey strategy and methodology for environments where the NRA require information on conservation issues will be established. These surveys will incorporate both strategic and reactive components to meet the short and long term planning requirements of the Authority. The NRA will monitor conservation status and the influence of its own operations and regulatory functions, to ensure compliance with legislation.

- 6 Through its role as consultee on planning applications and in general liaison the NRA will seek to influence other parties to further conservation and support those which provide such opportunities.

During consultation by or with other authorities, the NRA will endeavour to ensure standards of development are sympathetic with its own conservation aims and where possible, will take steps to deter those which fail to comply with these requirements.

- 7 The NRA will promote conservation independently of other NRA functions to enhance the quality of the aquatic and related environment for the benefit of both people and wildlife.

Programmes will be drawn up of projects designed to rehabilitate degraded aquatic environments, aid the recovery of rare species and habitats and enhance urban and rural waterside areas.

- 8 The NRA will develop national standards for the protection of habitats, features and species associated with natural waters

Classification systems will be developed to assess current conservation value and predict the effects of man-induced changes.

7.4 The strategy

- 1 In the planning and implementation of its operational and regulatory functions the NRA will sustain and further conservation.

Targets

Carry out an environmental appraisal on all capital works and undertake any detailed assessment which is required under S1 1217 or other relevant legislation. (Ongoing)

Review in 1991/92 the results of NRA research into EA methodology produced policy to ensure a consistently high standard of assessment and procedures.

Ensure that the design of and use of materials in any works is sympathetic to the environmental requirements of the site (Ongoing).

Ensure that the execution of the work is planned to take into account the value of the site and seeks to minimise any disturbance (Ongoing).

Develop in 1993 a programme for production of best practice guidelines for all functions.

To recognise areas for enhancement of the wetland environment and to promote these where possible.

To screen all operational/maintenance activities to ensure conservation implications are considered and environmental enhancement opportunities identified and undertaken.

To screen all abstraction and impoundment licences, discharge consents, land drainage consents, fisheries consents for adverse effects on conservation (100% by 1993).

Refuse or apply conditions on the issuing of such consents or licences suitable to maintain, or enhance where possible, the conservation value of the affected site. (Ongoing 100% by 1993)

2 Conservation input to all operational and regulatory functions will be achieved through internal and external liaison

Targets

All relevant staff shall be made aware of the Conservation Strategy and appropriate training and information leaflets shall be provided to ensure that environmentally sensitive techniques are implemented in all NRA functions and regulatory activities. (1992)

Appropriate Conservation staff will be consulted by other functions to assess the possible impact of all operations and regulatory activities, and to seek recommendations for minimising such impacts and implementing enhancement measures. (Ongoing, but 100% by 1993)

Formal liaison meetings will be held by all regions with relevant conservation bodies at least once each year. (Ongoing)

Advice and expertise on conservation techniques and issues will be made available to Internal Drainage Boards. (1992)

Conservation staff will co-ordinate liaison with conservation bodies on a day to day basis to ensure a free flow of information and opinion. (Ongoing)

Conservation staff will provide information to the general public and schools etc on conservation matters relating to the water environment and associated lands. (Ongoing)

The role of conservation in catchment planning will be developed and established, in 1992.

The role of the conservation function within the NRA will be reviewed by 1995.

- 3 The NRA will develop and implement consistent conservation policies assisted by the findings of a comprehensive research and development programme.

Targets

Conservation methods and standards will be developed which are consistent and effective, compatible with other NRA duties and justifiable in terms of costs and statutory responsibilities.

The NRA will develop survey and appraisal methodologies to include:

- standard methods for river corridor (1992), estuary, coastal and inland waters surveys (1994)
- standard methods for environmental assessments (1991 and 1992)
- standard methods for landscape appraisal (1991)
- assessment of benefits of conservation (1995)
- methods for audit monitoring of significant capital works schemes (1993)
- investigation of the rate of redundancy of survey data (1995)
- standard criteria for screening assessing and commenting on planning proposals and preparing statements for county and local plans (1993)

The NRA will undertake impact assessments to include:

- the effects of groundwater abstractions on conservation sites (1993 - 96)
- the effects of water quality changes on aquatic ecosystems (1993 - 96)
- the environmental effects of construction of sea defences and methods for reducing adverse effects. (1992 - 93)
- possible effects of sea level rise on wildlife and coastal/estuarine habitats. (1994)
- consideration of the results of ongoing research into ecologically acceptable flows with a view to further research on particular aspects. (1993 - 94)

The NRA will develop environmental management techniques to include:

- definition of "enhancement" work and scientific evaluation of the benefits to flora and fauna by 1992
- identification of gaps in range of techniques to stabilise, rehabilitate and enhance aquatic ecosystems
- existing and new techniques will be subjected to rigorous post project appraisal regarding their cost-effectiveness and contribution to landscape and nature conservation. (1994)
- management of coastal and estuarine habitats will be addressed in 1992, to enable strategy formulation by 1994

- evaluate management techniques for rehabilitation of urban watercourses to produce guidelines and strategy by 1994
- need to develop scientifically valid approach to appraisal of application abstraction licences, land drainage and discharge consents

The NRA will undertake ecological studies to include:

- conservation strategy for native crayfish will be developed between 1992 and 1994
 - work leading towards a conservation strategy for otters, possibly involving techniques for tracing individual animals
 - consideration of the need to study other rare or vulnerable species and the relationship between certain riparian species and their habitats will be explored (1992 - 1994)
 - ascertain the value of small watercourses, ditch and pond habitats in relation to other aquatic ecosystems and produce a strategy for their protection or enhancement
- 4 The NRA will resource the conservation function such that it may cost effectively fulfil its statutory duties and its self-imposed role as "guardian of the water environment"

Targets

The basis for funding the conservation function will be reviewed in 1992 to ensure that

- i) the NRA is able to fulfil its statutory duties on conservation
- ii) the beneficiaries of conservation work, internal and external are identified and a system of recharges or block allocation of funds implemented on a regional basis
- iii) control of expenditure on conservation is by conservation staff
- iv) work on promotion of conservation as required by S8(4) of the Water Act is separately identified and is funded by grant-in-aid
- v) a review of any other sources of income to the function is undertaken
- vi) consideration of costs of funding of pre-application studies made by conservation staff and whether the promoter/developer should bear these costs

Criteria for assessing work load will be further developed and levels of staffing and expertise will be reviewed in 1992 together with the cost-effectiveness of using contracted out services.

- 5 The NRA will survey, monitor and store information on the conservation status of inland and coastal waters and associated land, including the effects of its own operational and regulatory functions.

Targets

A programme of environmental monitoring will be initiated to provide current information on natural and induced change to the aquatic environment. (1992 - 1995)

Establish national methodologies and programmes for surveys on:

Inland Waters)
Estuaries)
Coastal Waters)by April 1995
Wetlands)

Establish a National Rivers Corridor Survey methodology and implement a strategic base line survey of all rivers with RQOs, to be completed by 1996.

Develop a system of priorities and a programme for strategic river corridor surveys paying attention to areas of high development pressure, sensitivity etc.

Establish through the Research and Development programme, the rate of redundancy of survey information and subsequently introduce a resurvey programme in 1996.

Obtain access to all significant information on those sites of importance for conservation identified in the Code of Practice by 1992.

Establish a national and regionally compatible data base system suitable for the storage, analysis and retrieval of conservation data for internal and external use.

Ensure that the information held on the database is reviewed and updated on a regular basis.

Establish a policy for the release of data to external bodies by March 1993 which complies with the EC Directive on the freedom of access to information on the environment.

A methodology for audit monitoring of all significant capital work schemes will be devised by April 1993. Monitoring programmes will be set up on regional timescales starting in 1993.

Selected regulatory consents and conditions will be monitored and enforced where necessary.

- 6 Through its role as consultee on planning applications and in general liaison the NRA will seek to influence other parties to further conservation and support those which provide such opportunities.

The NRA shall comment on the conservation significance of all plans (structure, District and Local) as they relate to the water environment (100% of those received by 1993).

All development proposals subject to Local Authority planning permission or licence should be screened for their influence on the water environment. Recommendations will be made to refuse, approve or condition in accordance with NRA policy. (Ongoing)

The NRA will minimise conflict by educating planning authorities and developers of the general requirements of the NRA for conservation through local seminars and guidance publications beginning in 1992.

Formal statutory consultation with English Nature, the Countryside Council for Wales and National Parks Authorities will take place when any action, operational or regulatory, is intended within a SSSI or National Park as required by Section 9 of the Water Act 1989. (Ongoing)

All actions or proposals to consent activities occurring within or affecting sites listed in Annex B of the Code of Practice will require written consultation where the NRA considers the environmental effects to be significant. (Ongoing)

The NRA will open a dialogue in 1992 with the Forestry Commission at national level to secure consultation arrangements and agreed policies to protect watercourses from acidification.

The NRA will begin internal discussions on levels of service and cost benefits on grant-aided Flood Defence schemes in 1993 prior to approaching MAFF on policy changes.

Interfunctional discussions will take place in 1992 on the NRA approach to major development schemes and to environmental assessments produced by external agencies.

- 7 The NRA will promote conservation independently of other NRA functions to enhance the quality of the aquatic and related environment for the benefit of both people and wildlife.

Targets

A list of projects designed to further the conservation value of the water environment will be prepared each year. (1992)

Conservation issues will be promoted, reported and published in internal documents and externally. (Ongoing)

A register of aquatic sites requiring and capable of rehabilitation will be prepared in each region by 1993 and a programme of works drawn up in 1994.

Recovery programmes for rare aquatic species or habitats will be drawn up by regions in 1994 in liaison with the statutory conservation bodies.

The NRA will review the present and future conservation value of all NRA land holdings by 1993 and devise management plans to sustain and further that value at all significant sites by 1996.

- 8 The NRA will develop national standards for the protection of habitats, features and species associated with natural waters

Targets

A classification system for conservation value of rivers for use in the water quality objectives system will be developed by 1992. Assessment of rivers and monitoring of standards thereafter will be undertaken from 1992 onwards.

Undertake research to produce a broader based conservation classification for all inland and coastal waters and associated lands by 1995.

The NRA will develop standard national criteria for screening, assessing and commenting on planning proposals and develop standard statements for county and local plans by 1992.

Produce a strategy for rehabilitation of urban watercourse by 1994.

Produce a strategy for conservation in coastal areas by 1994.

Produce a strategy for the conservation of geological and geomorphological features by 1996.

8 Performance Monitoring

8.1 Outputs

1) Environmental appraisal of NRA operational activities

The principal area of work involved here is environmental appraisal of Water Resources, Flood Defence and other activities, covering both capital and revenue programmes. All capital works should be assessed, and this may require river corridor or related surveys and the production of Environmental Statements under SI 1217 Or 1199. For revenue works, all schemes should be screened for conservation implications, though some activities such as culvert clearance, regular mowing of flood banks etc may not require any follow up. Impact assessment will generally not be as exhaustive as for capital works, and will rarely require an Environmental Statement.

Outputs: No of completed project appraisal reports for capital schemes, including impact assessments and formal Statements under SI 1217 or 1199.

No of completed project appraisal reports for revenue schemes. These are likely to be less detailed than for capital schemes.

2) Environmental appraisal of NRA regulatory functions

Different systems exist in all regions for the provision of conservation input into the NRA's regulatory functions, and these may not even be standard within a region. There are two levels of conservation input to the regulatory functions:

i) Screening for impact on SSSIs or National Parks, where the NRA is obliged to consult external bodies

ii) Screening for impact on other sites of conservation importance.

If the NRA's statutory obligations are to be met, all applications must be screened under i) and ii) above.

Outputs will be similar to the number of licences and consents issued by the NRA.

Outputs:

Referral of authorisations to the English Nature, Countryside Council for Wales or the National Parks Authority when they have implications for special sites notified by those bodies.

Inclusion of conditions to safeguard conservation features and sites when the consent/licence is issued.

Other regulatory activities

Outputs are less readily defined for these areas of work, and are initially proposed for two areas of work (Waste tipping licences and planning applications) where the NRA comments on authorisations given by others.

Output : Comments on applications that have conservation implications within the NRA's sphere of responsibility.

3) Survey work

The principal area of survey work at present, other than reactive surveys for environmental appraisal purposes, is strategic river corridor surveys. Some regions have rolling programmes intended to cover all main rivers and certain other categories within a set timescale. Other surveys are according to set programmes. Survey work will be extended to other inland, estuarine and coastal habitats. There will also be a conservation element to the use-related water quality objectives required by 1992, which will require monitoring.

Output : Completed reports relating to river corridor, coastal, estuarine and similar surveys.

4) Promotion of conservation

Conservation works carried out under S 8(4) of the Water Act may be achieved in conjunction with other operating functions, in collaboration with other agencies, such as conservation bodies or local authorities, or as works to address particular problems within a catchment.

Output : No of completed projects, projects to be defined in advance.

5) Management of NRA land

Management of NRA owned land for conservation purposes can make an effective contribution towards meeting the Authority's statutory conservation duties. Performance measures relate to the execution of a programme to prepare conservation management prescriptions for NRA land, and their implementation. Some land, such as offices, depots etc, may not be suitable for conservation management.

Outputs: Completed site management plans
Implemented site management plans.

Emphasis should be placed on the implementation of plans as they are produced, rather than the production of plans that are not implemented.

8.2 Performance Measures

Summary of planned outputs performance measures and targets

Outputs	Performance measures	Target
1 <u>Environmental appraisal</u>		
a) <u>Capital Schemes</u>		
Effectiveness -	<u>No capital schemes appraised</u> No capital schemes promoted	100%
Efficiency -	<u>No of mandays per appraisal</u> Planned number of mandays per appraisal	100% or less
Economy -	<u>Annual cost of appraisal</u> Planned annual cost	100% or less
Quality 1	Assessed by audit report	10% pa
Quality 2	No of Environmental Statements receiving substantial public <u>objections</u> No of Environmental Statements produced	0%
b) <u>Revenue Schemes</u>		
Effectiveness 1 -	<u>No of schemes screened</u> No of schemes promoted	100%
Effectiveness 2 -	No of schemes with conservation <u>implications assessed</u> No of schemes with conservation implications promoted	100%
Efficiency -	Man hours of work involved per <u>screening</u> Planned no man hours	100% or less
Economy -	<u>Annual cost per screening</u> Planned annual cost per screening	100% or less
Quality -	Assessed by audit report	10%

Outputs	Performance measures	Target
2 <u>Conservation Input into Regulatory Functions</u>		
For each of Abstraction licences Discharge consents Land drainage consents Fisheries consents Waste tipping licences Planning applications		
Effectiveness -	<u>No applications screened</u> No applications received by region	100% or less
Efficiency -	<u>Manhours per screening</u> Planned manhours per screening	100% or less
Economy -	<u>Cost per screening</u> Planned cost per screening	100% or less
Quality -	measures yet to be derived for any categories of authorisation	
3 <u>Survey work</u>		
Effectiveness 1 -	% of defined river network surveyed	20% pa
Effectiveness 2 -	<u>No of surveys completed</u> No of surveys planned	100% or more
Efficiency -	<u>Manhours per survey</u> Planned manhours per survey	100% or less
Economy -	<u>Cost per survey</u> Planned cost per survey	100% or less
Quality -	Surveys to be carried out to national specifications as set by FCRN managers group	100% to comply
4 <u>Promotion of Conservation</u>		
Effectiveness -	No of projects completed	5 per region per year
Efficiency -	<u>Mandays per project</u> Planned mandays per project	100% or less
Economy -	<u>Cost per project</u> Planned cost per project	100% or less
Quality -	measures yet to be derived	

Outputs	Performance measures	Target
5 <u>Management of NRA Land</u>		
a) <u>Preparation of Management Plans</u>		
Effectiveness -	No of sites subject to <u>conservation management plans</u> No of sites suitable for conservation management	100% pa
Efficiency -	<u>Manhours per plan prepared</u> Planned manhours per plan	100% or less
Economy -	<u>Cost per plan produced</u> Planned cost per plan	100% or less
Quality -	measures yet to be derived	
b) <u>Implementation of Management Plans</u>		
Effectiveness -	<u>Management plans implemented</u> Management plans produced	100%
Efficiency	<u>Manhours required for plan implementation</u> Manhours planned for implementation	100% or less
Economy -	<u>Cost per plan implemented</u> Planned costs per plan implemented sources	100% or less

9 RESOURCES REQUIREMENT FOR STRATEGY IMPLEMENTATION

9.1 Assumptions

The requirements for resources are based on the following assumptions:

- i) that the strategy, if agreed by the Board, will be implemented nationally
- ii) that the NRA will do no more than comply with its statutory duties towards conservation
- iii) that as the duty to further and enhance conservation applies to all NRA operations and regulatory activities, the resource cost of those elements should be borne (recharged to) by the relevant function
- iv) that the resources indicated are for an average region defined by the criteria given in Table 4 and which provide preliminary indicators of workload. Regions with more or less workload than the average will need to adjust resources accordingly.

Table 4 Suggested criteria for conservation workload

Statistics taken from "NRA Facts 1990". National ranking given in brackets.

	Main river (km)	Watercourse monitored (EQ) (km)	Area of region (Mha)	Regional Population (M)
Anglian	5812 (2)	4453 (5)	2.70 (1)	5.3 (4)
Northumbria	1485 (9)	2785 (8)	0.93 (10)	2.6 (8)
North West	5947 (1)	5900 (3)	1.44 (4)	6.8 (3)
Severn-Trent	3573 (5)	7055 (1)	2.16 (2)	8.3 (2)
Southern	2748 (6)	2010 (10)	1.05 (8)	4.5 (5)
South West	1370 (10)	2788 (7)	1.08 (7)	1.5 (10)
Thames	5294 (4)	3748 (6)	1.3 (6)	11.6 (1)
Welsh	5679 (3)	4802 (4)	2.13 (3)	3.1 (7)
Wessex	2312 (7)	2548 (9)	0.99 (9)	2.4 (9)
Yorkshire	1741 (8)	6034 (2)	1.35 (5)	4.5 (5)
Average	3596 km	4212 km	1.5 M	5.0 M

9.2 Resources required

Major tasks have been identified from the objectives set in Section 7 and resources required for their completion estimated in Table 5 below.

Table 5

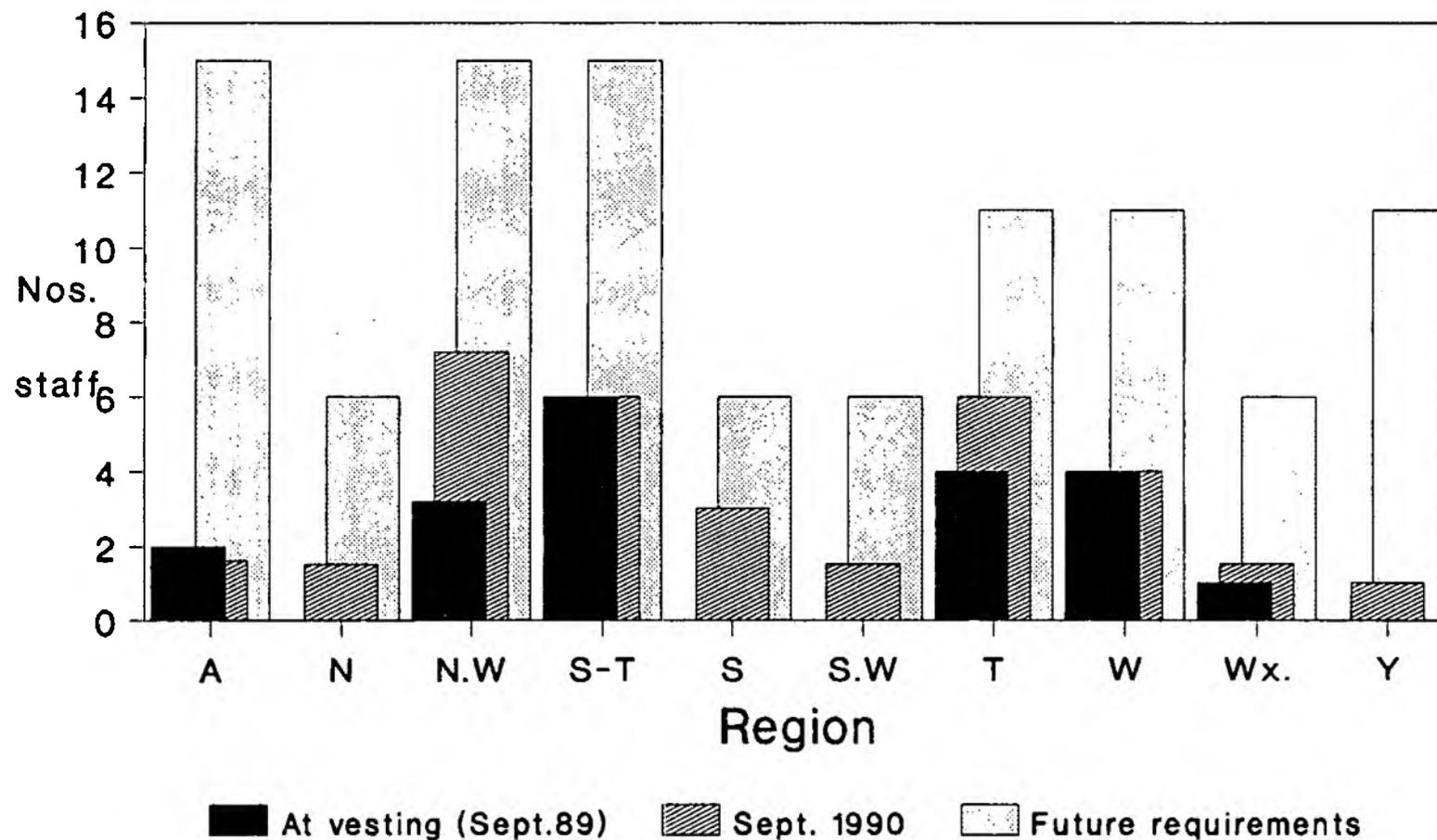
<u>Major tasks</u>	<u>FTE*</u>	<u>Non-mandpower budget £K</u>	<u>How funded</u>	<u>Comments</u>
(Strategy objective(s) in brackets)				
Environmental assessments and appraisal of capital schemes (7.4.1)	1.5	Related to schemes **	Recharge	Mainly FD and WR,
Appraisal and mitigation of, revenue schemes (7.4.1, 7.4.2)	3.0	Related to schemes **	Recharge	Mainly FD
Regulatory activities including planning liaison (7.4.2, 7.4.6)	2.0	-	Recharge	Most planning objectives relate to NRA consents or licences
Liaison with conservation bodies etc (not already included above (7.4.1, 7.4.2)	0.1	-	Recharge	Liaison usually related to operating functions
Research and development (7.4.3)	0.05	35	Recharge /GIA	Via national R + D funding
Promotion (7.4.7)	2.0	150	GIA	Mostly GIA but some rehabilitation rechargeable to operative function
Assessment and monitoring of conservation resource (7.4.5, 7.4.8)	2.0	-	Recharge	Information needed for carrying out first three tasks above
Internal training/promotion of conservation (7.4.2)	0.1	-	Recharge	
Total per average region	10.75	185+ block allocations **		

* includes salaries, salary related costs, transport, subsistence, departmental overheads etc.

** It is recommended that a block allocation, based on the operating departments programmes for the year and agreed at RMT level, is made to the conservation department for work to be carried out under statutory duties for the forthcoming year.

A quick appraisal of the data presented in Table 4, indicates that Welsh, Thames and Yorkshire might fall within the "average" band relating to conservation workload. These regions are then likely to need around 11 FTE (9 of which are rechargeable), up to £185K pa grant-in-aid plus block allocations from operating functions related to their capital and revenue programmes. Severn-Trent, North-West and Anglia will need 15 FTE; Northumbria, Southern, South West and Wessex 6 - 7 FTE. Further work is required to refine the criteria for assessment of workload.

Fig1.Numbers of conservation staff (FTE)*
in each region.



*Full time equivalents (see also Table 2).

10 REVIEWING THE STRATEGY

Reviews will be carried out on two broad aspects:

10.1 Monitoring of NRA performance against strategy targets

A review, or audit, of the extent, efficiency and effectiveness of the NRA's conservation activities will be achieved by:

- i) regional conservation staff against annual corporate plan targets (derived from strategy)
- ii) regional and national staff against remaining function strategies or stated intentions
- iii) regional and national staff against performance targets such as river corridor survey audits and post project appraisals
- iv) by the FCRN committee as an annual review of progress on the strategy targets
- v) by the FCRN committee to ensure identification of research and development necessary to increase the objectivity, effectiveness and efficiency of the NRA's conservation effort

10.2 Periodic (5 yearly) review of the strategy context

As the requirements for good conservation practices will alter or grow with changes, both internal and external to the NRA, any review procedure will need to involve a number of differing aspects. Some of these will be legislative and therefore represent statutory duties, while others may derive from performance monitoring against specific targets or as the result of external influences and pressures.

External influences affecting the strategy include:

a) Changes in UK, EC and international legislation

Changes in government policy favouring the environment are likely to give rise to further legislation affecting the NRA. Issues for consideration include

- future Government policy on land use and the environment
 - White Paper on the environment
 - new EC Legislation (eg forthcoming directives on protection of natural and semi natural habitats and of wild flora and fauna) and on ecological quality of surface waters)
 - Land drainage consolidation act,
 - the need for new legislation relating to the NRA
 - "Environmental Protection Agency" and similar proposals in political party manifestos
- b) the policy and strategies of the new organisations, English Nature and the Countryside Council for Wales
- c) global warming and the potential loss/creation of habitat and landscape, changes in weather patterns

Appendix 1

RELEVANT CONSERVATION LEGISLATION

1) The Water Act 1989

The primary legislation relating to the conservation duties of the NRA is contained in the Water Act (1989), Section 8, 9 and 10 of which detail the main responsibilities and how they should be carried out. The relevant sections are:-

Section 8(i): require the NRA to carry out all its functions which will include consenting the activities of others, so as to:

further the conservation and enhancement of natural beauty and the conservation of flora and fauna and geological or physiographical features of special interest".

"have regard to the desirability of protecting and conserving buildings, sites and objects of archaeological, architectural or historic interest".

"take into account any effect which the proposals would have on the beauty, or amenity of any rural or urban area or on any such flora, fauna, features, buildings, sites or objects".

Section 8(4): makes it a "duty of the Authority to such extent as it considers desirable, generally to promote:

i) the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and of land associated with such waters.

ii) the conservation of flora and fauna which are dependent on an aquatic environment".

Section 9 requires the Nature Conservancy Council to notify the NRA of any area it considers to be of special conservation interest. The National Parks Authorities and Broads Authority are also required to notify the NRA of any areas within their boundaries that they consider to be of special interest. Before carrying out or authorising any activity that it believes may be deleterious to the interest of such notified areas, the NRA is required to consult the NCC, Park or Broads Authority as appropriate.

Section 10 provides for a Code of Practice, giving practical guidance on the implementation of sections 8 & 9, to be issued. The Code of Practice on Conservation, Access and Recreation was issued by DOE, MAFF and Welsh Office under this section in July 1989.

2) Water Resources Act

Section 127 of the Water Act (1989) amends Section 19 of the Water Resources Act (1963) with respect to minimum acceptable flows (see above). In particular Section 19(5) provides that in setting any minimum acceptable flow for a river, the NRA shall have regard to (a) "the flow of water in the inland water from time to time (b) in the light of the duties of the NRA under Sections 8 and 9 of the Water Act 1989 (general environmental duties) to the character of the inland

water and its surroundings, and (c) to any water quality objectives established under Chapter I of part II of that Act". Most other changes in the Water Resources Act (1963) relate more specifically to licensing, or minor alterations, so that in other ways it still remains largely as it was.

3) Other acts and statutes of relevance

- | | | |
|---|---|---|
| National Parks and Access to the Countryside Act (1949) |) | - these include the setting up |
| Countryside Act (1968) |) | responsibilities and functions |
| (Wildlife and Countryside Act (1981) and Amendment Act (1985) |) | of the Countryside Commission, Nature Conservancy Council, Countryside Council for Wales |
| Norfolk and Suffolk Broads Authority Act (1988) |) | National Parks and Broads Authority; the |
| Environmental Protection Act 1990 |) | responsibilities of |
| |) | landowners, statutory |
| |) | conservation bodies in |
| |) | relation to SSSIs |
| | | |
| Town and Country Planning Act (1971) | - | listed buildings, tree preservation orders, etc. |
| | | |
| DOE Circular 27/87 on Nature Conservation | - | advice to planning authorities. |
| Statutory Instrument 1199 (1988) | - | Town and County Planning (Assessment of Environmental Effects) Regulations. |
| | | |
| Ancient Monuments and Archaeological Areas Act (1979) | - | details procedures to be followed. |
| National Heritage Act (1983) | - | amends parts of above and redefines duties of English Heritage. |
| | | |
| DOE Circular 8/87 on Archaeology. | | |
| | | |
| Salmon and Freshwater Fisheries Act (1975) | - | details duties to maintain, improve and develop fisheries, responsibility of which was taken on by the NRA under Section 141 of Water Act 1989. |
| | | |
| Control of Pollution Act (1974) Part 1 | - | refers inter alia to control of waste disposal, litter and landfill sites. |
| | | |
| Food and Environment Protection Act (1985) | - | along with COPA Part 1 and others, |
| Pesticide Regulations (1986) | - | legislation to protect the aquatic environment from the use and storage of pesticides. |
| | | |
| Badgers Act (1973) as amended | - | provides protection for badgers from killing or ill treatment |

Land Drainage Act (1976)

- Details powers and duties under which the NRA undertakes Flood Defence and Land Drainage operations. There is nothing specific on nature conservation in this act itself but Section 111 refers to the duty to protect Ancient Monuments and section 113 to Salmon and Freshwater Fisheries

Agricultural Act 1986

- Section 17 details general conservation duties of the Agriculture minister.
- Section 18 provides legislation to set up Environmentally Sensitive Areas.

Seals Act (1970)

- Gives protection to grey and common seals during close seasons

EC Directives

76/464 Discharge of Dangerous Substances

- controls discharge of dangerous substances into the aquatic environment

979/85 Regulation of Farm Structures

- establishment of Environmentally Sensitive Areas

79/409 Conservation of Wild Birds

- establishment of Special Protection areas to conserve habitat of rare or vulnerable species. (Article 4.1) and regularly occurring migratory species (4.2)

85/337 Environmental Assessment

- establishes methodology scope and application of EIA procedures

EC Directive on Freedom of Access to Environmental Information (1990)

- UK legislation due by December 1992

In addition there are other EC Directives for which the NRA are responsible for reporting relevant data, of relevance to conservation. Those include directives on Titanium Dioxide, Asbestos, Sewage Sludge, Shellfish, Bathing Waters, Freshwater Fisheries, Drinking Water, Waste Water, Abstraction of Surface Water and Groundwaters.

Appendix 2

Glossary

Aquatic environment (or "water environment")

The inter-related community of animals and plants, together with the physical and chemical factors acting upon them, which is dependent upon the continuing pressure of water.

Conservation

Although generally defined as the sustainable use of natural resources, NRA conservation duties span wildlife, landscape and natural beauty, geological and physiographical features, buildings and other objects of archaeological, architectural or historic interest. These responsibilities relate to all inland and coastal waters and to land associated with such waters.

Ecology

The study of the relationship between animals and plants and their environment.

Enhancement

Improvement of the visual and ecological aspects of an environment

Environment

The physical, chemical and biotic factors acting upon any animal or plant

Landscape

The physical surroundings of human beings. Dictionary - "that portion of land that the eye can comprehend in a single view"

Mitigation

Compensatory works undertaken to balance environmental benefits and environmental disbenefits, when all possible has been achieved to remove detrimental aspects concomitant with operational requirements.

Physiographical

Concerning the physical processes which act upon the earth's surface

Promotion

Furthering conservation for its own sake

River Corridor Survey

An ecological survey of a river which identifies habitats of physical features in the channel, on the banks and to a defined distance either side of the river.

Reactive Survey - Survey undertaken, to provide information required to conserve and enhance proposed works.

Strategic Survey - Undertaken to provide information that can be used for strategic conservation planning. Not associated with any particular works.

Wildlife

All wild animals and plants

12 REFERENCES

Recovery: A proposed programme for Britain's protected species.
Nature Conservancy Council (1990)

NRA Facts 1990 Internal NRA document (1991)



DRAFT

NATIONAL RIVERS AUTHORITY

NAVIGATION FUNCTION STRATEGY



NRA

APRIL 1991

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NRA NAVIGATION FUNCTION STRATEGY.

2. Executive Summary

The Navigation Function of the NRA exists to facilitate and regulate the use of those inland navigations for which the NRA is navigation authority or has powers. It is closely related to the Recreation Function, and has operational links with most core functions.

The principal waterways for which the NRA is navigation authority are the non-tidal Thames, the non-tidal Medway, the East Anglian rivers and Rye Harbour.

Statutory navigation duties and powers devolve from numerous general, special and local legislation.

The Navigation Function Strategy will define the Navigation Function Aims, and set out the functional objectives, targets and research needs; it will define the outputs required and performance measures and assess resource requirements.

Inland navigation in England and Wales has a long history characterised by a mix of public and private enterprise and fragmented ownership which continue into the present. The NRA is now one of the "Big Three" navigation authorities with British Waterways and the Broads; there are probably about 40 others. The NRA's inheritance is in quite good shape, but within itself contains a great range of standards and practices. There are substantial numbers of engineering and amenity installations, many of them multi-functional, and some 129 fte staff. Operating costs are about £4850k, capital expenditure £2300k; but income from direct charges on users is only about £2370k.

Key Issues for the function will be:-

The high public and parliamentary profile achieved by inland navigation nationally, and the pressure to simplify its administration to achieve a real national network. The NRA will need to decide its position in this debate.

The need for the NRA to achieve consistency in its own navigation management and operations, particularly in respect of Construction and Use Standards for Boats, Charging Structures, and Byelaws.

The need to make it easier for users to travel between NRA waterways and those of neighbouring authorities.

The use to be made of the NRA's unique power under the 1989 Water Act to make byelaws for public navigations which have no effective navigation authority.

The Navigation Function Aim is to maintain improve, and regulate waterways and their facilities for which the NRA is the navigation authority for the benefit of the public, those using boats and others, and to ensure that the NRA plays an appropriate part in the national waterways network.

The Strategies to realise this Aim are (in summary):-

1. The NRA will improve its effectiveness by playing a leading part in national navigation matters. It will seek to influence navigation legislation, and to use its position as a national body to benefit users of the national network.
2. The NRA will seek to achieve consistency by the adoption of nationally agreed standards for the construction and use of boats on inland waterways, by consistently based charges on all NRA waterways, and by moving towards common byelaws.
3. The NRA will seek to improve interchange between navigations through changes in licensing and administration.
4. The NRA recognises its powers in respect of navigations without effective authorities, will assess their extent and the need for action.
5. On rivers over which the NRA cannot exercise navigation powers at all it will use its good offices to ensure a good balance of uses including navigation if appropriate.
6. The interaction of Navigation with other NRA functions will be taken into account at all levels of NRA planning.

Targets have been set for the implementation of the strategies, incorporating in each case significant achievement milestones within the first two years.

Navigation R & D Needs relate mainly to operations and marketing, and are adequately provided for in the current R & D Programme.

Navigation outputs are tabulated in the NRA Corporate Plan, and three series of Performance Indicators are planned - all at both national and local levels of detail. They are:-

1. Key Indicators of Efficiency, Effectiveness, and Economy to enable inter-navigation and year-on-year comparisons.
2. Performance against Plan to be a planning tool and a further indicator of effectiveness.
3. Performance against Levels -of-Service targets, the principle measure of success in delivering services to users.

Resource requirements for navigation have been assessed in outline. Current activities are likely to continue with similar resourcing needs. Strategy implementation will need some relatively modest "up front" resources but should lead to some economies as well as service and efficiency improvements. Only if the NRA's navigation jurisdiction were extended significantly would a long-term increase in resources become necessary; this is unquantifiable at present.

Inland navigation in the country is entering a period of change, and it will be imperative to review the Function Strategy regularly. A Review at 24-month intervals is intended.

NRA NAVIGATION FUNCTION STRATEGY

1. Foreword

By Chairman & Chief Executive

2. Executive Summary

To follow

3. Introduction

3.1 The National Rivers Authority

Standard HO Paragraph.

3.2 The Navigation Function

The purpose of the navigation function of the NRA is to facilitate and regulate the use of those inland navigations for which the NRA is navigation authority or has powers, and to manage the inter-relationship of navigation with the other core functions of the NRA. The function is intimately associated with the Recreation Function (since most boating is for pleasure), but has important operational links with most NRA core functions, in particular Water Resources and Flood Defence.

The principle waterways for which the NRA is currently navigation authority (and in some cases harbour authority) are the non-tidal Thames, the non-tidal Medway, the East Anglian rivers (Great Ouse and Nene systems, Ancholme, Glen, Welland and Stour) and Rye Harbour. Some navigational regulation is also carried out on other waters using land drainage and other miscellaneous powers.

Statutory duties and powers governing the navigation function are numerous and diverse. General legislation applying includes The Water Act 1989, The Land Drainage Act 1976, The Sea Fish Industry Act 1951, The Pilotage Act 1987, The Harbours Docks and Piers Clauses Act, 1847, and numerous regulations made under shipping and waterways legislation. Day to day operation and management where the NRA is the navigation authority is governed to a large extent by local and special Acts and Orders, including:-

The Anglian Water Act, 1977

The Upper Medway Navigation and Conservancy Acts 1911 & 1914

The Southern Water Authority (Transfer of Lower Medway Navigation Function Order) 1979

The Southern Water Authority Act, 1982

The Harbour of Rye Revision Order, 1976

The Thames Conservancy Acts 1932, 1950, 1959, 1966, 1972

3.3 Purpose of this Strategy

The Navigation Function Strategy will define the Navigation Function Aims and set out the functional objectives, targets and research needs.

The strategy will also define the outputs required from the function and functional performance measures. Resource requirements to implement the strategy will be assessed.

4. Methodology for Strategy Production

4.1 General

The draft strategy has been produced by an NRA task group with membership as follows:-

A. Birtles (Chairman)
D. Dent
J. Simmons
R. Cresswell
J.M. Redmond

Other NRA staff have taken part from time to time as necessary.

4.2 Data Sources

Data has been gathered mainly from NRA Regional sources. Compiling all the available data into a useful format will need to be undertaken as a separate exercise in order to make it more readily available for reference and use.

4.3 Consultation

In preparing the draft, Task Group members have consulted colleagues and informally consulted some extra-NRA persons and bodies. There have been formal consultations internally via the FRCN Function Committee, the Corporate Planning Policy Group and the Board member with particular responsibility for the Navigation Function.

When the draft has been agreed and amended as necessary by the Board and Management Committee there will be formal consultation with the advisory committees of the NRA and widespread circulation for comment to appropriate external bodies.

5. Historical Review

The history of organised and engineered inland navigation in England and Wales dates back at least as far as the roman occupation and that of regulation by the state at least to the middle-ages. Since those times ownership and operation of inland navigations have continued as a mix of public and private enterprise and pleasure navigation has had an important role from surprisingly early dates. One constant feature has been the fragmentation of the ownership and organisation of inland navigation.

The 17th and 18th centuries were periods of great expansion of inland waterways and it is from those periods that much of the current inheritance has come, although the history of many river navigations is many centuries older. The 19th and 20th centuries have been periods of relative decline in the face of railway and road competition for freight and ordinary passenger traffic, but the 20th century has also seen a partially compensating and explosive growth in pleasure traffic.

As well as the abandonment of some navigations in the face of overwhelming competition there has been a steady trend of amalgamation since the mid-19th century, partly as commercial deals but largely under legislative provision (19th century railways legislation, 1947 Transport Act, 1973 and 1989 Water Acts). As a result there are now three large units (NRA, BWB and Broads Authority) but still numerous small ones.

With the exception of some navigations based upon coastal harbours and of a minority of the BWB navigations the main user is now pleasure traffic. In many cases this is almost all private and hire cruising and day boats, but on some waterways there is still an important traffic in passenger steamers.

In spite of the amalgamations which have taken place navigation users are still faced with a daunting array of separate navigation organisations, each with its own rules and charging schemes. Although the physical network is a national one, there is no organisation of it on a national basis. The NRA has been unfortunate in the 1989 Water Act which did not attempt to rationalise or supersede the many local and special Acts which govern the navigations inherited by the Authority and which will limit the degree of unification of practice which it will be possible to bring about without the promotion of new special legislation.

6. Present Status

6.1 Overview

The navigation inheritance of the NRA is in the main a series of well-run operations of high profile in their own regions. Physically, the user public seems reasonably satisfied with service provision except for strong demands for infrastructure improvements; internally there is considerable concern at the back log of heavy structural maintenance which has been inherited which is seen in some cases to be a threat to continued viability. Managerially there is little commonality from region to region. Charges are seen to differ from region to region illogically as a result of separate historical development; in no case are operating and capital costs covered by charge income. The indivisibility of many aspects of navigation from other river operational and management functions makes the drawing of logical boundaries around the "Navigation Function" difficult.

6.2 The Navigation Resources

The resources of the NRA Navigation Function are comprised of four main components.

(1) Navigable Waterways

These are in the main navigable rivers and in the main the NRA is not the owner of the Waterways concerned although there are minor exceptions to the latter point. The Function is discharged by the NRA exercising its position as Navigation Authority and/or Harbour Authority or using its other various powers for the regulation of navigation traffic.

A preliminary version of a listing and map of NRA navigations is included (this will be revised for inclusion in the final strategy).

Appendix

National Rivers Authority

River Navigations

The National River Authority have direct navigation responsibilities for the rivers listed below. In addition where rights of navigation are claimed and exercised and no navigation authority exists the NRA undertakes some limited control usually under bye-law regulation. As far as possible these navigations are included in figure 1.

The NRA currently maintain 743 km of the 1019 km listed below. The current Corporate Plan allows for the maintained length to be increased to 760 km by 1994.

Anglian Region

River Ancholme	30.6
River Cam - Bottisham Lock to River Ouse	17.7
River Glen	19.3
River Great Ouse	120.7
Kyme Eau	20.9
River Lark	20.9
River Little Ouse	20.9
River Nene	156.1
River Stour	38.6
River Welland	40.2
River Wissey	16.1
Total	502.0 km

Southern Region

River Adur	38.6
River Arun	40.2
River Rother	29.0
River Medway	43.5
Royal Military Canal	25.7
River Ouse	25.7
Wey and Arran Canal - Maidstone to Tonbridge	37.0
Total	239.7 km

Thames Region

River Thames - Upstream of Teddington Lock	199.6
Total	199.6 km

Welsh Region

River Dee - Fardon to Ironbridge 45.1
- Ironbridge to Point of Air

Total 45.1

Wessex Region

River Frome 12.9

River Parrett - Bridgwater to Oath Suite 16.1

West Port Canal 3.2

Total 32.3 km

WATERWAYS



WATER SPACE
AMENITY
COMMISSION

Key:

open to pleasure craft ———
no through navigation ———

CANALS

RIVERS

URBAN AREAS

LAND HIGHER THAN
600 feet above sea level

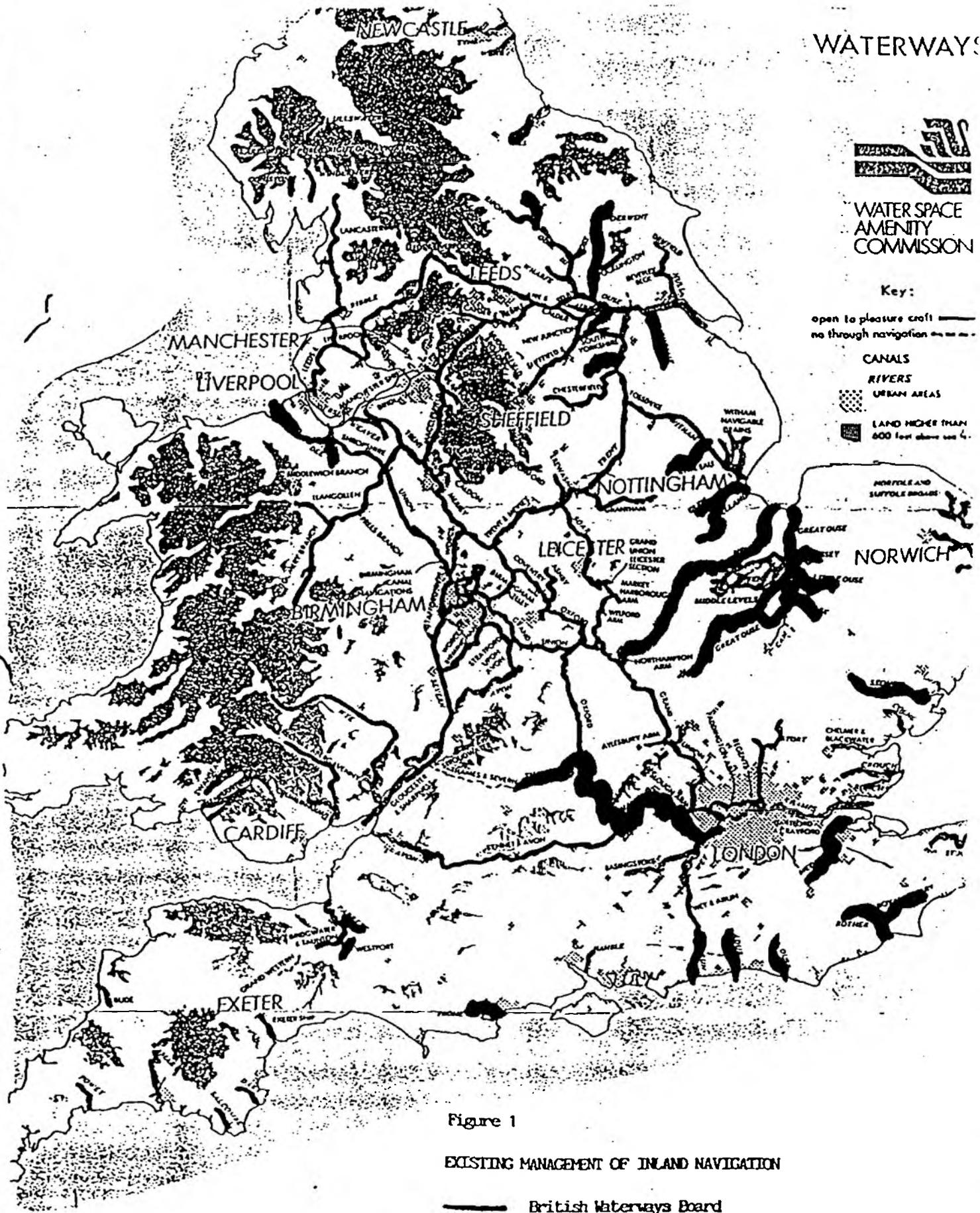


Figure 1

EXISTING MANAGEMENT OF INLAND NAVIGATION

-  British Waterways Board
-  National Rivers Authority
-  Independent Navigations

(ii) Real Property and Installations

Generally the NRA owns the navigation locks and many of the river control structures where these are provided for navigation purposes on NRA navigations. Many of the structures have a multi-functional purpose. The NRA also provides, and in that case generally owns, other infrastructure installations to facilitate navigation, but the NRA is seldom the sole provider of this type of installation. The NRA owns patrol boats, road vehicles and other plant and equipment needed to operate and maintain the navigations.

The compilation of a comprehensive register of Navigation assets will need to be undertaken as a separate exercise. In doing this it will be necessary to establish consistent boundaries between Navigation and other functions (particularly Recreation, Flood Defence and Water Resources) as treatment at present is variable.

(iii) Staff

At present 129 full-time equivalent staff are attributed to the Navigation Function, and a comprehensive listing is attached based on the 1990/91 out-turn contained in the 91/92 Corporate Plan. This listing disguises a wide variety of organisational arrangements since the majority of staff who carry out work for the Function are in fact multi-functional.

(iv) Financial

At present Navigation charges income is £2370K (Gross) operating costs ~~£4850K~~ and capital expenditure ~~£2300K~~ annually. A comprehensive listing is attached based on the 1990/91 out-turn contained in the 91/92 Corporate Plan. These figures do not tell the whole story; a substantial proportion of the income from navigation charges is treated by the Treasury as taxation and its application is not controllable by the NRA, this results in a gross deficit (90/91) of £4780K but a grant in aid requirement of ~~£6450K~~. As with staffing, much of the expenditure attributable to Navigation relates to multi-functional activities and is not manageable without consideration of the other functions involved.

7. Key Issues, Challenges and Opportunities

7.1 Preamble. Consideration of this topic has quickly highlighted the existence of a number of important general factors needing to be taken into account, and which owe their existence mainly to the very inception of the NRA.

The first of these is the high expectation of the navigating public and of some politicians that something will soon be done to sort out the administrative muddle which has for so long afflicted the British inland waterways network. This now has all the hallmarks of a self-fulfilling prophecy in which many are expecting the NRA to take the leading role; if it does not it is likely that this greatness will be thrust upon another public body.

The second factor is the degree of importance which the NRA places upon the full integration of the management of rivers and other inland and coastal waters. This affects all NRA functions but is absolutely basic to the choice of a strategy for navigation.

A third is the considerable difficulty which is likely to attend the achievement of satisfactory consistency throughout the NRA without unsatisfactory disruption of genuine and worthwhile local differences. Somehow the NRA will have to achieve a satisfactory combination of the attributes of the Seventh Cavalry and a Local Hero simultaneously! This is likely to be painful at times.

The net results of all this are likely to be that some elements of navigation strategy and decisions stemming from it will have to be based on factors not previously considered relevant to individual navigations, and that the NRA will need to be proactive and outward looking on navigation matters if it is to retain its place as a leading navigation authority.

7.2 Select Committee Matters and Other Legislative Considerations.

The Parliamentary Environment Select Committee Inquiry into the British Waterways Board took evidence which indicated a high level of public concern at the considerable confusion, administrative difficulty and cost which arises out of the present fragmented organisation of inland navigation in England and Wales. There is no doubt that the public concern is largely justified and that its causes are real. The recommendation of the Select Committee to remedy this situation was that Parliament should within three years review the administration of inland navigation with a view to the formation of a single inland navigation authority for England and Wales.

It must be doubted whether the Select Committee fully appreciated the complexity of the present position in making their recommendation. It is estimated that on a wide definition there are probably about 200 inland navigation authorities in England and Wales at present, all separately constituted and with a great variety of powers and duties. Even on a narrower and perhaps more traditional (but possibly misleading) definition which would exclude many harbour authorities there are 40 or 50. The political difficulties attaching to enforced amalgamation would be likely to be considerable.

Since the Select Committee Report was published, the Conservative Central Policy Studies Unit has published a pamphlet which recommends, inter alia, the dismemberment and partial privatisation of British Waterways and the transfer of most of the navigation powers, and assets (and operating losses) to the NRA. Whether this is likely to become Government policy is unknown, but at the least it represents a further step along the road to change from the present arrangements.

Against this background the formation of the NRA with its inheritance of important but dispersed navigations of itself does little to alter the picture. It does, however, bring with it an important change in that there is now a national organisation with wide duties and powers relating to most aspects of the management of all rivers and most other inland waterways in England and Wales. Two things follow from this: firstly, the NRA has a legitimate interest in most aspects of the management of nearly all inland waterways, other than direct navigation management where it is not the navigation authority: secondly, with its general duty to promote recreation the NRA is uniquely placed to act as a catalyst and facilitator in resolving the widespread problems perceived by the public in the present administration of navigation countrywide.

More specifically the NRA will need to consider its position in relation to the Select Committee recommendation for the formation of a single navigation authority. Failure to act positively could lead to the imposition of arrangements inimical to the NRA. Consideration of this goes beyond the Navigation function alone since all NRA functions could be affected and potentially compromised. For the Navigation Function to succeed, the NRA will need to promote an administrative solution which will achieve the public desire for an effective National inland navigation network while avoiding the political and practical pitfalls of over-hasty organisational change. This will require a co-operative effort with other major navigation authorities while keeping in mind the operational and managerial differences between rivers and man-made waterways as they affect all NRA functions.

There are some other potential legislative changes on the horizon arising mainly from work currently being done by the EC Commission. This is likely to result in Directives requiring UK legislation on topics such as the construction and loading of small vessels, and competence standards for the masters of small vessels. Navigation authorities clearly will be unable to escape some involvement in this, but the question will again arise of who will be the lead agency in England and Wales for setting and enforcing standards in detail. The NRA will need to position itself as it thinks best.

7.3 Achieving Consistency.

With the formation of a NATIONAL Rivers Authority it is clear that members of the navigating public are expecting to receive similar treatment wherever they see the NRA sign; they are also expecting the NRA to achieve reasonable consistency with the navigation standards and practices throughout the nation. The NRA itself has good cause to seek consistency to improve effectiveness and efficiency rather than maintaining varying practices which exist solely because of previous separation.

In seeking consistency it must be recognised, however, that different navigations have widely differing characteristics and demands upon them. Regional and, indeed more localised, differences need to be recognised as desirable when they are there for good reasons and it would be a serious mistake to attempt to achieve standardisation in all things.

Subjects to which a consistent approach is seen to be important are:

(i) Construction and Use Standards for Boats. For the boat owner it is important that there should be nationally consistent standards. These affect mainly the safety of operation of boats and pollution prevention. The latter element is of national importance to the NRA, since it affects all navigable waterways. There is already little disagreement between the major navigation authorities on this topic and the NRA is now in a good position to promote a National Standard.

(ii) Charging Structures. The variability of the charging, licencing and registration arrangements for boats is nationally the main administrative nightmare for navigation users. There is substantial variation in practice between NRA navigations at present.

It is highly desirable that there should be a consistent basis for navigation charges across the NRA and that it should have regard to the practice of other major navigations nationwide. More detailed consideration of this will be necessary but it is as well to recognise at once that it is a complex as well as a potentially very contentious issue. There are several possible bases for comparison which could be used to establish a consistent approach to charging which are to some extent mutually exclusive, and which one is chosen could have a major influence on charging structures. Customers are likely to be looking for comparable and consistent value for money, but this itself is difficult to define particularly since the characteristics of waterways are so diverse - should we be comparing quantity or quality for instance. A different approach could be to achieve a constant proportion of direct operating costs being borne by direct users and this would probably yield very different results. There are other possible approaches.

A simpler task should be to achieve a consistent application of charges to boat sizes, licencing periods, etc.

In all this it will be necessary to be able to incorporate mechanisms to use the charging system to the best commercial and incentive advantage to suit local circumstances.

(iii) Byelaws. It would be desirable for the NRA to have common Navigation Byelaws (to include those referring to particular local matters), but the diversity of the primary legislation under which NRA navigations operate probably makes this impossible in the short term. This should not prevent some rationalisation of the individual sets of byelaws over a period of time, and it will be essential that any new byelaws are cast with the national position in mind. Once again consistency with other navigations nationally is desirable.

7.4 Interchange Between NRA and Other Navigations.

This item considers the strategic elements of this topic which will need to be the subject of separate and more detailed consideration.

The administrative complexity and often the cost of moving by boat around the national inland waterways network is one of the main areas of public concern noted in Item 7.1. The impact of this in practice varies considerably from place to place and from person to person. Those whose boating consists of mainly short trips and who are based well within the boundaries of a largish authority may seldom cross a boundary or experience any difficulty, for others most trips will involve crossing authority boundaries and licencing their craft for a number of navigations. Those who cruise long distances will inevitably be involved in interchanges between authorities.

The confusion and complexity which are experienced arise from the fragmentation of the organisation of navigation combined with the lack of any central coordination and in many cases also the lack of readily available public information (it is sometimes difficult to discover who the navigation authority is without buying a specialist map).

Ironically the cost problem which is often perceived arises partly from the changes by most navigation authorities in recent times to the issue of periodic licences giving unrestricted use of a navigation in place of the mileage charges and lock tolls which were normal in the days of mainly commercial traffic. The results of this are, that within each

navigation administration is simple and cheap, price is unrelated to individual use being average-cost based, giving a good bargain to the heavy user but a bad one to light user and particularly bad for the transitory customer. Given that navigation costs are relatively insensitive to marginal changes in traffic volumes and patterns of usage, each navigation authority needs a predictable and reliable income based on a charging structure which also is insensitive to marginal effects, and there is therefore little incentive for authorities to move away from the present licencing arrangements. Taking the inland navigation network as a whole the total income requirement will remain sensibly constant and whatever tariff structure was adopted would need to realise the same total. It follows that a revision of tariffs to ease the boundary effects either in order to give a better relationship between cost and services provided or for ease of administration for the customer could be achieved only by agreement between the neighbouring authorities and, in many cases, by some form of income pooling and redistribution.

7.5 Navigations without active Navigation Authorities.

Navigations under the above heading fall into four categories.

- 1(a) Waterways with provision for public navigation with a navigation authority which is "unable to carry out its duties".
- 1(b) Waterways with (or believed to have) provision for public navigation but no known navigation authority.
2. Waterways with no provision for public navigation but where navigation takes place by agreement.
3. Waterways with no provision for public navigation but where navigation takes place without either authority or agreement.

Although there is a clear difference between categories 1(a) and 1(b), the Water Act 1989 grants permissive byelaw making powers to the NRA in respect of both such categories of navigation provided that there is a public right of navigation. Therefore from an NRA strategy viewpoint categories 1(a) and 1(b) can be considered together.

It may be noted here that although the Acts of establishment of most inland navigation authorities made provision for a public right to navigate the waterways concerned (i.e. the navigation authority was obliged to accept all comers subject only to other specific provisions of its Act) and that there is a general common-law right to navigate tidal waters, many of the original Acts have been modified to exclude the public right (including all the waterways nationalised by the 1947 Transport Act) and some Acts dealing with tidal navigations also have modified or removed the public right from specific tidal waterways. The term, "Provision for public navigation" has therefore been used to cover all cases where there is statutory provision for navigation by the public, whether as a right or subject to the permission of the navigation authority, or a common-law right of navigation. From most practical standpoints the precise status has little effect, the important point being whether or not there is statutory provision for the public to navigate or a common law right. The status can be important for the navigation authority, however, as it can have a substantial effect on its powers to regulate traffic and levy charges. It is particularly relevant to the NRA with respect to its powers under Section 158 of the 1989 Act which apply only to waters on which there is a public right of navigation.

The potential importance of the latter point has been heightened by the recent judgement on the appeal in the Derwent case. If this decision stands (it may not, since further appeal may take place) there is considerable potential for a large increase in the number of waterways on which there would be a public right to navigate and on the majority of which there would be no active navigation authority. This could impact heavily on the NRA.

INSET →

1. Waterways with provision for public navigation but no known or "active" navigation authority

1.1 Legislation

For many of the navigations in this category the legal status particularly in relation to the navigation authority is unclear. In many instances where navigation authorities have become inactive, records have been lost or mislaid. In several notable cases, considerable efforts have been made to determine the legal status so that controls on navigation can be re-established. On some waterways there is no known navigation authority although provision for public navigation exists, this includes most estuaries where there is no harbour, port or navigation authority. In many cases the legal status in respect of the public right of navigation is also unclear.

For navigations falling into this category the NRA has permissive powers to formulate byelaws provided that a public right to navigate exists.

1.2 Management Options

- i Ignore the permissive powers, and decline to take on further responsibilities.

On many of the navigations in this category, there has been long standing public pressure for a competent authority to take control. The NRA's new powers are now well known. Public safety and the protection of land and property are major issues in this context. A lack of activity in this area would be seen as a derogation of duty. There could be serious criticism if a major incident were to occur and the NRA had taken no preventative measures.

- ii Complete an inventory of navigations in this category. Assess the importance of and issues relating to each such navigation. Initiate appropriate action on a priority basis. The need to secure consistency between NRA regions should be considered in the promotion of any new byelaws.

2. Waterways without provision for public navigation, but where navigation takes place by agreement

2.1 Waterways

Such waterways occur throughout England and Wales and are growing in number as groups such as the British Canoe Union and Welsh Canoeing Association negotiate local access agreements.

2.2 Agreements

These agreements are usually written documents detailing the periods and conditions under such navigation can take place. On some occasions a fee is charged, but often the agreements are free of charge if not freely given!

2.3 Issues

- i Some groups of navigators feel that there should be a public right of navigation on all rivers, and resent having to (or refuse to) negotiate for access agreements.
- ii The finalisation of the detail of access agreements is notoriously difficult because of the mistrust borne of years of conflict, and the belief that any loophole will be taken advantage of to the detriment of one or other party.
- iii An agreement of this type necessarily has to be between two recognisable bodies, eg the land owner and a canoe club or association. Whilst such clubs and associations can exercise some measure of control over their members, and thereby comply with the terms of the agreement, they have no such control over non-members.
- iv Land/fishery owners or their agents find it difficult to distinguish between club members and non-club members on the river bank, and any misdemeanour by non-members can reflect badly on the club and put any agreement in jeopardy. A system of registration of all craft would enable miscreants to be identified and dealt with.
- v Under the 1989 Act the NRA now has a duty to promote where appropriate recreation on waters under its jurisdiction.

3. Waterways without provision for public navigation but where navigation takes place without either authority or agreement

3.1 Waterways

Navigation by canoes/rafts or rubber dinghies etc occurs to a varying extent on most waterways from time to time. It is therefore probable that most waterways (not in category 1 and 2) capable of taking a boat of some kind fall into this category.

3.2 Legal position

Since there is no provision for public navigation nor an access agreement, any person navigating such waterways is technically trespassing.

3.3 Issues

- i On many such waterways, the use of boats of any kind is so rare that an access agreement is not practical. However, isolated incidents can lead to conflict between riparian owners and would-be navigators.
- ii Some rivers, particularly the smaller flashy rivers, which are good game fisheries, are also attractive to the more adventurous navigator. Access agreements and access have been denied by the fisheries owners, leading to some violent incidents.
- iii On many of these rivers the prospect of an access agreement has been jeopardised by the militant attitude of some navigators and also by the intransigence of some land owners.

7.6 Interactions with other NRA functions and duties

The use of a watercourse for navigation is likely to affect most other NRA functions to some extent, particularly on rivers which have been "improved" for navigation purposes by the installation of locks and weirs.

Where levels or flows are regulated there is obvious interaction with flood defence and water resources operations and the water quality, fisheries and conservation attributes are likely to be influenced (not necessarily deleteriously by any means). The passage of craft and the associated human activity have their own effects.

The way in which these interactions occur and need to be managed depends very much on the local NRA organisation of operational activities on the waterway concerned, and it is not possible to generalise. The main thing to be said is that in business planning and operational planning and management the needs of navigation need to be taken into account by all functions, and vice-versa where navigation is managed as a separate activity.

The great majority of navigation which takes place is for recreation, whether by individuals or provided as a commercial undertaking, and navigation may be regarded as a specialised branch of the recreation function, and business planning for the function and interactions may be managed on this basis.

It is important to note that these interactions are equally important on navigable waterways for which the NRA is not the navigation authority but on which it has to discharge all its other functions and duties. The establishment and maintenance of satisfactory relationships with other navigation authorities is therefore a matter of importance for the NRA at both the functional planning and the operating levels.

8. Future Strategy

8.1 Navigation Function Aim

The aim of the Navigation Function is to maintain, improve and regulate waterways and their facilities for which the NRA is the navigation authority for the benefit of the public, those using boats and others, and to ensure that the NRA plays an appropriate part in the National Waterways Network.

To achieve its aim the Function will:-

Enforce navigation statutes and byelaws and to regulate the use of navigations in a consistent manner.

Undertake programmes of repair, maintenance and improvement of NRA navigations and to provide new facilities when appropriate.

Achieve optimal use of NRA navigations and consider the need for the NRA to seek under S158(2) of the Water Act to become the navigation authority for other waters.

Seek to recover from users so far as is practicable the specific identifiable costs of providing navigation facilities.

Ensure that a proper balance is maintained on waterways between navigation activity and the other duties and functions of the NRA.

Ensure that there is proper consideration of navigation issues by the RRACs.

Ensure that the NRA plays an appropriate role in the provision of navigation facilities nationally.

8.2 Strategies

8.2.1 Select Committee and Legislative matters:-

- (a) In order to consolidate and improve its effectiveness in waterway management the NRA will seek to play a leading part in National Navigation matters.
- (b) The NRA will seek to influence EC and UK legislation on all Inland Navigation matters.
- (c) The NRA will make the fullest use of its powers and position as a National body and act pro-actively to achieve administrative simplification for the users of the national inland waterways network irrespective of the ownership of individual waterways.

8.2.2 Achieving Consistency

- (a) In respect of the Construction and Use Standards for Boats the NRA will seek to achieve a nationally agreed standard specification, which should be capable of administratively easy amendment to take into account the rapid technological changes which are taking place.

- (b) All NRA navigation charges will be set on a consistent basis having regard to appropriate common factors. Scales of charges will be compatible throughout the NRA and as far as possible with other authorities. Charges will continue to take into account local and commercial factors.
- (c) Every effort will be made to revise NRA navigation byelaws to make them consistent between NRA navigations and nationally when appropriate. In the longer term the legal framework will be sought to enable a single set of byelaws to be made.

8.2.3 Interchange between Navigations:-

The NRA will seek to reach agreements with other navigation authorities to:-

- (a) Simplify the administration and licencing requirements for through navigation.
- (b) Achieve a better relationship between charges and services given for vessels navigating across authority boundaries.

8.2.4 Navigations without active authorities:-

The NRA recognises its permissive powers in respect of navigations without active navigation authorities and will:-

- (a) Compile an inventory of all navigations in this category.
- (b) Assess the importance of and issues relating to each such navigation.
- (c) Prioritise and determine actions required in respect of these navigations.
- (d) Ensure that any byelaws promoted are consistent with the national strategy.

8.2.5 Waterways with no authorities but where navigation takes place by agreement:-

The NRA will:-

- (a) Encourage where appropriate the use of rivers for navigation, taking into consideration the legitimate rights of land owners and fishery owners and the NRA conservation duty.
- (b) Offer the services of NRA officers to act as 'mediators' in the negotiation of access agreements if necessary appropriate and agreed by both parties.
- (c) Seek the promotion of primary legislation requiring the registration of all craft in any inland or tidal water.

8.2.6 Waterways with no authorities but where navigation takes place without agreement:-

The NRA will:-

- (a) Advise, through liaison meetings, literature and other media, both riparian/fishery owners and navigators of each party's views and requirements.
- (b) Promote literature and other forms of publicity on ways in which use of the rivers by navigators, anglers and others make take place satisfactorily.
- (c) Encourage greater liaison between user groups and moves towards further access agreements.

8.2.7 Interactions with other NRA functions:-

Navigation will be treated as a specialised branch of the Recreation Function which interacts with most NRA functions. This will be taken into account at the business planning and operational planning and management levels of all functions.

8.3 Targets

8.3.1 National Launch Safety Specification

The NRA will seek to achieve the completion, adoption and implementation of a National Launch Safety Specification in collaboration with and with the agreement of the British Waterways Board, the Boards Authority and the British Marine Industries Federation to the following timetable:-

Completion of agreed draft	March '92
Completion of consultation	Sept '92
Formal adoption and commencement of implementation. (NB dates of implementation of individual specification requirements will be contained in the specification and will depend on legislative requirements and reasonable practicability).	1st Jan '93

Method: extension of long standing joint arrangements in Thames Region to whole NRA.

8.3.2 Harmonisation of NRA Navigation Charges

The NRA will produce proposals for and implement a scheme of harmonised charges for its navigations to the following time table. The proposals will have regard to the need for consistency throughout the NRA, necessary local commercial and operational factors, the practices of other navigation authorities.

Completed Draft agreed by FRCN	April '92
(Raised) draft agreed by Board	May '92
Consultation completed	Sept. '92
Scheme adopted and implemented from	Oct '92 - Jan '93

Method:- FRCN task group to draft proposals paper.

8.3.3 Harmonisation of Navigation Byelaws

The NRA will take steps to harmonise the byelaws applying to its navigations and to ensure that all future byelaws are consistent and so far as practicable common.

Step 1 Lawyers Group asked to advise on principles report back
to FRCN. Dec '91

Step 2 Decide on basis of step (1) out-turn.

Step 3 Regions to report to FRCN Committee all proposals for
local byelaw amendments. Immediate

8.3.4 Interchange between Navigations

- (a) The NRA will seek to achieve agreements with contiguous navigation authorities for the simplification of the administration and licencing of interchange traffic, with particular reference to short period interchanges, to the following timetable:-

National FRCN discussions with British Waterways to identify and prioritise target interchange points and agree common methodology.
Completion Dec '91

Regional discussions to agree details for first priority points.
March '92

Implementation for first priority points. May '92

Completion of arrangements for all BW interchanges Dec '92

Regional discussions with other authorities and implementation by Dec '93

- (b) The NRA in collaboration with the British Waterways Board and the Boards Authority and other interested navigation authorities will seek to set-up a National Navigation Licencing and Information Centre to deal with all NRA, BW and BA navigation licences (and others if interested) to the following timetable.

Open discussions with BW & BA Jan '92

Start pilot trials (NRA, BW, BA only) Spring '93

Full-scale operation in parallel with existing arrangements (BW, NRA, BA only) Dec '93

Thereafter in the light of experience.

8.3.5 Navigations without active authorities

- (a) The NRA will compile an inventory of all navigations in this category for completion. Dec '91

Method:- Organised by National FRCN by contract.

- (b) The NRA will develop a prioritised programme of actions for improving the administration and operation of navigations currently without active authorities, to the following timetable.

Draft programme proposals to FRCN Committee June '92

(Revised) draft issued for comment. Sept '92

Programme adopted and start of implementation Nov '92

8.3.6 Development and Implementation of Navigation Levels of Service

The NRA will develop and publish Level of Service statements for its navigations which will constitute the NRA's service offer to its navigation customers, and will measure and publish the service levels achieved on a comparative basis. Levels of service will be specific to each major navigation or group of navigations but will be drawn from a National list of service headings and stated on a common methodology. Service headings will be a combination of customer deliverables (eg. hours of lock opening; depth of the water maintained) and NRA duties (eg. quantified patrol activity; safety inspection turnaround); all will be described and measured in a manner readily understood and recognised by customers.

Timetable:-

Draft National Level of Service headings to	FRCN Committee
	April '92
Final National LOS headings agreed	
	June '92
Regional quantified LOS statements produced for consultation.	
	Oct '92
Regional LOS statements implemented	
	Jan '93

Method FRCN task group to produce National Headings.
Regional Navigation Management to produce and implement Regional statements.

Note See also Section 9 - Performance Monitoring to which this target will contribute.

8.4 Navigation R & D Needs

R & D needs divide into two main areas, operations and marketing. Operational topics cover such matters as boat hull and propulsion systems design for minimum wash, bank protection systems, improved engineering methods for navigation installations. Marketing topics include market research as an aid^{to} infrastructure planning, the effects of incentive charging schemes.

The current R & D programme includes relevant topics and further topics will be added as needs arise.

9. Performance Monitoring

9.1 Function Outputs

Planned Navigation outputs are as tabulated (1991/92 Corporate Plan). Similar tabulations are available on a regional basis in greater detail.

9.2.2 Performance against Plan

To be produced at National and Regional levels of detail.

These measures will provide important planning information and will also be another indicator of effectiveness.

9.2.3 Performance against Levels of Service Targets

To be produced at Regional and (where appropriate) at Navigation levels of detail.

These measures will be the main indicator of the degree of success in delivering services to customers and will also provide useful input to planning.

Further development of useful and measurable performance indicators will be needed in the future.

10. Resource Requirement for Strategy Implementation

10.1 General

The implementation of the Navigation Function Strategy will require resources under three main headings:-

10.1.1 The operation, maintenance and improvement of the navigations for which the NRA is at present the navigation authority.

10.1.2 The establishment of the NRA's role in regard to navigations currently without navigation authorities and any future operating, maintenance and improvement costs which resulted.

10.1.3 The establishment of the NRA's role in the national navigation network and any operating costs which resulted.

10.2 Resource Requirement for Navigations for which the NRA is currently the Navigation Authority

This requirement is that stated in the 1991/92 NRA Corporate Plan for the years up to 94/95. See Corporate Plan and Section 6 of this Strategy for details. This plan is predicated on the continuation of navigation business and operational activity broadly at present levels, and also on making good arrears of maintenance of navigation infrastructure. Beyond the period covered by the present corporate Plan when the infrastructure integrity has been secured maintenance expenditure should reduce, some more emphasis will be given to infrastructure improvements. The overall resource requirement under this heading is likely to be stable.

10.3 Resource Requirement for navigation currently without navigation authorities

The only definite requirement foreseeable at present under this heading will be that required to compile an inventory of navigations under this heading. This is likely to require the employment of a contractor to do the work; the financial implications are relatively minor.

NAVIGATION OUTPUTS

	Total 91/92	Total 92/93	Total 93/94	Total 94/95
ENFORCEMENT & REGULATIONS				
- craft licences (no)-	45915	46065	46050	46050
- licence checks (no)-	---	---	---	---
- licences checked(%)-	---	---	---	---
- licences complying (no)	---	---	---	---
- compliance	95	95	95	95
- byelaw offences(no)-	3375	3377	3377	3377
- cases taken to court (no)	234	231	231	231
- successful prosecution (no)	230	231	231	231
FACILITY OPERATION AND MAINTENANCE				
Length (km)				
- controlled	806	832	832	832
- operated	299	313	313	313
- maintained	287	339	339	339
- repaired	36	36	36	36
- lockages (no)	390415	390416	390066	390066
- structures repaired (no)	128	130	129	128
NEW WORKS				
- improvement projects (no)	21	23	21	21
- length(km) improved-	2	15	15	15

The development of defined Navigation Levels of Service will provide a separate specification of outputs in terms of customer deliverables (see Section 8).

9.2 Performance Indicators

Three series of performance indicators are planned for discrete purposes:-

9.2.1 Key Indicators

To be produced at National and Regional levels of detail. Measured in relation to the length of navigation operated and maintained:-

- i. Efficiency - man-days input per kilometre.
- ii. Effectiveness - kilometres and structures maintained vs target.
- iii. Economy - cost per kilometre.

These measures will enable inter-navigation and year-on-year comparison, but will require narrative interpretation.

Further, future, resource requirements will depend on the outcome of the first item. A decision to make byelaws would of itself have minor resource implications, but the subsequent and necessary enforcement action would have a significant but not very large requirement. A decision to take on the operation of further navigations would have major resource implications incapable of estimation at this stage.

10.4 Resource Requirement to Establish NRA
National Navigation Role

There are likely to be three elements to this:-

- 10.4.1 The managerial and technical staff resources to work up detailed proposals, take part on working groups (eg on boat specifications) and in regular routine meetings with other navigation authorities. This could probably be accommodated within existing NRA staff supplemented by bought in specialists when required.
- 10.4.2 The establishment of joint interchange arrangements with other navigations. Planning input would be included within 10.4.1 above. Financially in the long run such arrangements should be financially neutral (assuming constant traffic levels) but there are likely to be front-end costs (yet to be estimated). Operationally additional staff and processing resources would be needed (cost included in financial line above).
- 10.4.3 The establishment of a National Navigation Information and Licencing Centre. Once running this arrangement should save costs for the participating organisations, but there would be significant set-up costs and a period of parallel operation (say two years?) when additional costs would be incurred. Clearly one of the main authorities would have to act as project manager for this which would affect the staffing needs of the organisation concerned.

ii. Reviewing the Strategy

This strategy is being written at the start of what seems likely to be a period of substantial change in the management of inland navigations by the NRA and nationally. Many of the early actions inherent in the strategy are to establish the foundations upon which later decisions can be made. There may well be substantial changes in navigation matters outside the NRA which will affect NRA management of navigation.

For all these reasons regular review and updating of the strategy will be essential if it is to be a useful tool. It is intended therefore that a review should take place at 24 month intervals.

Detailed proposals will need to be managed as projects with detailed programmes and reporting milestones and a clear project management regime will need to be set up to achieve that.