

Thames Environment



The Environment Agency strategy for
land-use planning in Thames Region

March 1998



**ENVIRONMENT
AGENCY**

Foreword

Over the past ten years, the concept of sustainable development has played an increasingly important role in the operation of the land-use planning system. The launch of the Environment Agency in April 1996 demonstrated government commitment to the achievement of sustainable development, and the Agency has become an effective partner of all those involved in strategic land-use planning. The Thames Environment 21 strategy shows how the partnership can be widened and strengthened.

Thames Environment 21 offers a long-term vision for the future of sustainable development and incorporates principles and methodologies that can help achieve it. It is an exemplary initiative. I commend it to all those organisations and individuals who are concerned with planning for a greener future.



Jed Griffiths

Past President — Royal Town Planning Institute



Preface

Thames Region is already intensively developed and faces pressures for further large-scale development. The Thames Environment 21 strategy provides an approach to achieving sustainable development in these demanding circumstances. It gives the key environmental issues that the Agency wishes to see addressed through the land-use planning system in Thames Region and indicates the enhancement and mitigation measures that are required from developers if the environment is to be protected and enhanced in the way we all want.

Thames Environment 21 will make a significant contribution to regional planning in terms of all the major environmental issues facing the Region. We are particularly keen to discuss these issues on a continuing basis with the Regional Standing Conferences, the London Planning Advisory Committee (LPAC), and the Government Offices for London and the South East. Thames Environment 21 will also assist in providing environmental input to the initial work of the future Greater London Authority and Regional Development Agencies.

We are discussing with the Regional Planning Conference for the South East (SERPLAN) the position concerning water resources. This is one of the most critical environmental challenges facing the Region and could be a constraint on future development.

Thames Environment 21 provides a method for assessing the impact of development on the environment and indicates to all those involved in the planning process how that impact can be managed and a better environment achieved.

The secret of success lies in partnership with all those other organisations and individuals that have responsibilities and concerns for the environment. This is the key message in the Environment Agency's overall policy statement: 'Environmental Strategy for the Millennium and Beyond'.

We will work to make effective partnership a continuing reality in Thames Region.

Chris Birks

Regional General Manager



Contents

Page

Executive Summary ————— 6

The Thames Environment 21 strategy

What are its aims?

How will the strategy's aims be achieved?

The function of this document

Chapter 1 ————— 8

The context of Thames Environment 21

1.1 The duties, powers and interests of the Environment Agency

1.2 The Thames Region – overview

1.3 Thames Environment 21 strategy

1.4 Partners

1.5 Delivering Thames Environment 21 at a local level

1.6 The Process of Environmental Appraisal

Chapter 2 ————— 15

The Environment Agency's approach to sustainable development

2.1 The national framework

2.2 Thames Region Sustainability Principles

Principle 1 – Water Resources

Principle 2 – Flooding

Principle 3 – Pollution

Principle 4 – Waste

Principle 5 – Conservation

Principle 6 – Recreation

Chapter 3 ————— 36

The Thames Environment 21 strategy for land use planning

3.1 Sustainability and development

3.2 Key pressures and potential effects

3.3 Climate change

3.4 The Thames Environment 21 strategy and regional diversity

3.5 Techniques for implementing the strategy

3.6 The Environmental Appraisal Process

3.7 Guiding Messages

3.8 Planning Strategy Tables

3.9 Working together for sustainable development

Maps

Map 1 Thames Region in context ————— 9

Map 2 Physical Features of Thames Region ————— 10

Map 3 Local Environment Agency Plans in Thames Region ————— 13

Map 4 Water resources ————— 21

Map 5 Water Companies ————— 22

Map 6 Biological water quality ————— 27

Map 7 Environmental assets ————— 32

Appendix 1: Duties powers and interests of the Environment Agency ————— 59

Executive summary

The Thames Environment 21 strategy - what are its aims?

The objective of the Thames Environment 21 strategy is to help secure an overall enhancement of the quality of Thames Region through the land-use planning system. It affirms the Agency's commitment to work in partnership with all those involved in the land-use planning system in Thames Region. It also provides guidance and methodologies that will help make that partnership significantly more effective.

The Agency has a duty to contribute to the attainment of sustainable development throughout England and Wales. In addition, the Agency is a statutory consultee in the planning process. It relies on persuasion and goodwill to optimise its influence, and has done so with considerable success.

Thames Region is already intensively developed and high levels of development continue. The Region has less than 10% of the land area of England and Wales, but nearly 25% of the population. The Government's consultation document *Household Growth: where shall we live?* indicates that housing requirements in the South East are likely to be higher than previously planned.



People working at these offices at Stockley Park enjoy the benefits of modern buildings in pleasant green surroundings, enhanced by the presence of 'living' water.



The Agency is not opposed to development as such. It is however concerned about major developments that may prove environmentally unsustainable. Smaller developments, acceptable in themselves, may cumulatively affect the environment adversely. A pro-active approach by the Agency will make it more likely that the environmental impacts of development will be known and addressed at a very early stage and that as a result, the

Region's natural resources will be managed in a more sustainable manner and its environment more effectively protected and enhanced.

How will the strategy's aims be achieved?

This document sets out six Sustainability Principles – on Water Resources, Flooding, Pollution, Waste, Conservation and Recreation – and accompanies them with a series of 'Guiding Messages' and 'Planning Strategy Tables'. The Principles cover the environmental factors that should be taken into account in land-use planning work. The 'Guiding Messages' and 'Planning Strategy Tables' give practical guidance to planners and developers on how the Principles should be implemented.



The Agency already works closely with a wide range of different partners. They include strategic planning bodies, local authorities, the development industry, water companies and environmental organisations. The Principles and supporting statements will help and encourage all these partners to include appropriate environmental mitigation and enhancement measures at the earliest possible stage. In this way, the goal of sustainable development is much more likely to be attained.

The function of this document

The document presents the Agency's new strategy for the Thames Region and shows, in broad terms, how it should be implemented. It provides a coherent approach for Agency interests to be incorporated into Regional Planning Guidance and Development Plans, particularly Structure Plans.

The document offers an important environmental input into the work of the future Regional Development Agencies and of the future Greater London Authority. These bodies will play a major part in determining the location, quantity and quality of any development.

Vision for the Thames Region:

To secure an overall enhancement of the quality of the environment of the Thames Region through the land use-planning system.

This will be achieved by:

- *ensuring that new development contributes to the quality of the environment*
- *preventing further erosion of the Region's intrinsically rich heritage, man-made and natural*
- *promoting the restoration of damaged environments*
- *contributing to the sustainable management of the Region's natural resources.*

Chapter 1

The context of Thames Environment 21

1.1 The duties, powers and interests of the Environment Agency

The duties, powers, and interests of the Environment Agency laid down in the Environment Act 1995 and the Environmental Protection Act 1990 are wide-ranging. They include specific powers and duties concerning water resources, flood defence, pollution prevention and control, waste regulation, fisheries and navigation. In the case of air pollution and the decontamination of land, the Agency shares a role with local authorities. The Agency also has a general duty to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters. This duty includes the conservation of flora and fauna which depend on an aquatic environment and the supervision of the recreational use of inland waters. The Agency has a general duty to have regard to archaeological and heritage issues when carrying out its work. It has an overarching duty to make a positive contribution towards achieving sustainable development and to balance costs against benefits in all its activities.

The Agency is a statutory consultee under the Town and Country Planning Acts. This role continues to provide opportunities for close partnership with local authorities, the development industry and environmental organisations and as a result helps the Agency in the implementation of many of its policies and programmes. (The interests of the Agency with regard to land-use planning in Thames Region are set out in Appendix I).



An Agency inspector checks that radio-active materials have been used safely in a laboratory.

The Environment Agency sums up its duties, powers and interests in its national vision:

"A better environment in England and Wales for present and future generations"

To achieve its vision, the Agency emphasises cooperation, education, pollution prevention and, when necessary, vigorous enforcement of the appropriate regulations.

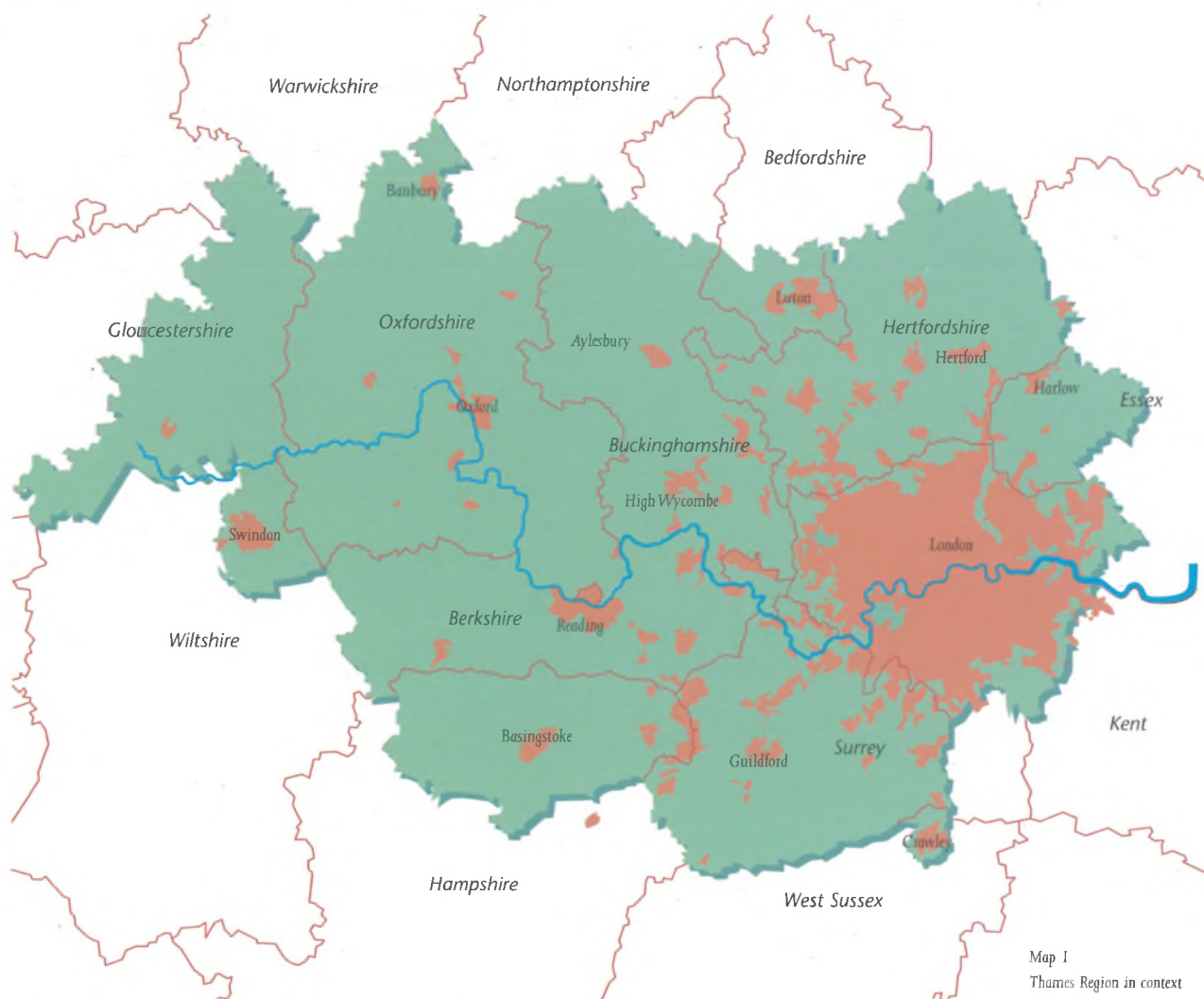
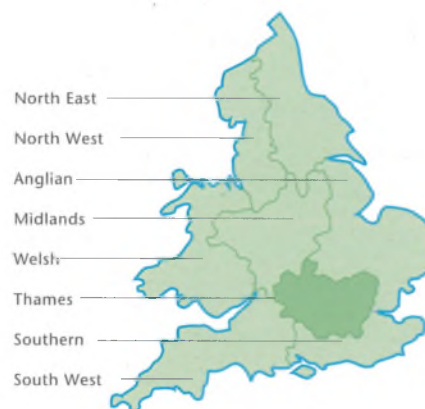
1.2 The Thames Region – overview

Thames Region, already intensively developed, continues to attract high levels of growth. It contains nearly a quarter of the population of England and Wales, generates more than a quarter of Gross National Product and a similar proportion of all construction work. The Region is at the forefront of new industries such as information technology, biotechnology and advanced engineering. No less than 88% of the working population in the Region is employed in the service sector.

Key Thames Region facts and figures

(% of England and Wales equivalents in brackets)

	England and Wales	Thames Region	London	Counties
Area sq km	150,000	13,000 (8.6%)	1,600 (1%)	11,400 (7.6%)
Population millions	52	12.0 (23.1%)	7.0 (13.5%)	5.0 (9.6%)
1994				
Households millions	23.4	5.0 (23.5%)	3.2 (14%)	1.8 (9.5%)
1994				
Planning applications per year	426,000	109,000 (25.8%)	56,000 (13.3%)	53,000 (12.5%)
GNP £M	506,000	138,000 (27.4%)	85,000 (16.9%)	53,000 (10.5%)
per year				
Value of contractors' new orders £M	18,146	4,827 (26.4%)	3,019 (16.5%)	1,808 (9.9%)
per year				



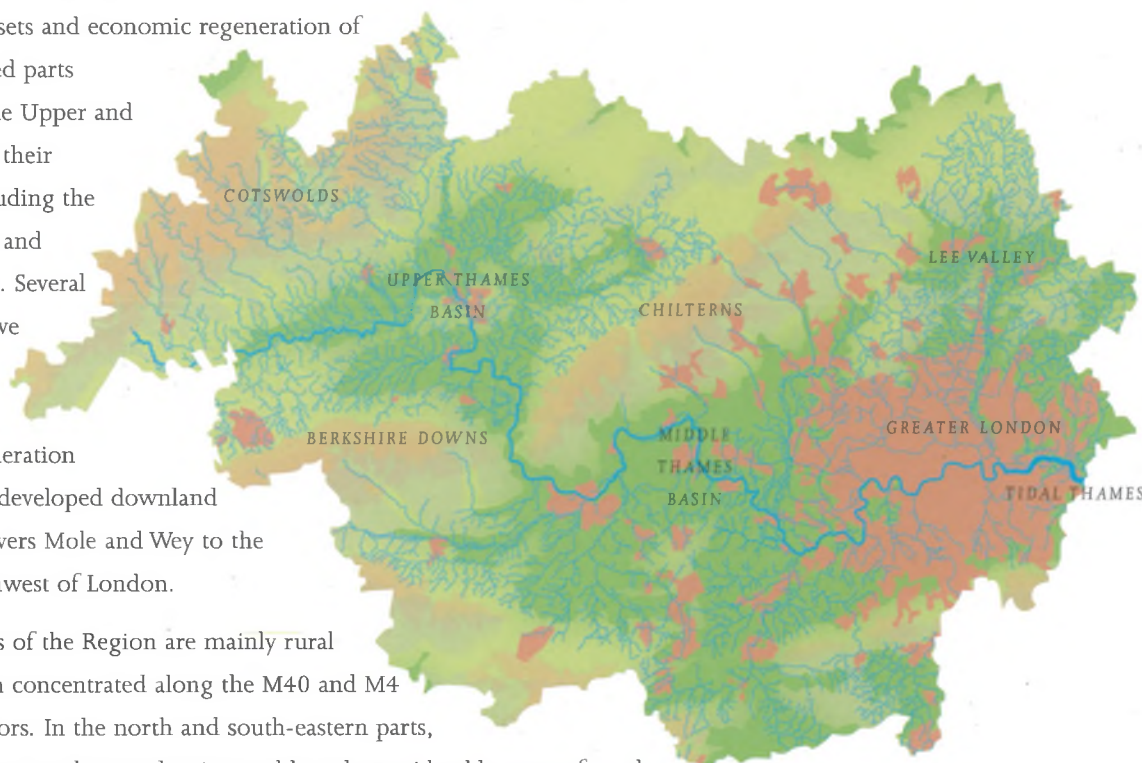
Map 1
Thames Region in context

The estimates of household growth in Thames Region are set out in the Regional Planning Guidance for the South East and South West (RPG9 and 10) for the period 1991 – 2006. However, the Government's consultation document 'Household Growth – Where shall we live?', which is based on its 1992 Department of the Environment Household projections, predicts a substantially higher requirement for the period 1991 – 2016. For most of Thames Region, this means an increase in construction from approximately 32,600 new houses per annum to 35,900.



Thames Region covers the basin of the River Thames and its tributaries. Its main geographical characteristics are:

- the Upper Thames Basin lying between the Cotswold and Chiltern Hills with its unique high-quality and often relatively remote environment
- the Middle Thames Basin between Goring and Teddington lying to the south east of the Chilterns. This area contains several historic towns and ecologically-rich tributaries and chalk streams in an attractive landscape
- London, a world-class city, where the environmental focus is on improving its metropolitan assets and economic regeneration of its most deprived parts
- the valleys of the Upper and Middle Lee and their tributaries, including the attractive Beane and Mimram valleys. Several of the towns have significant potential for economic regeneration
- the extensively developed downland valleys of the rivers Mole and Wey to the south and southwest of London.



Map 2
Physical features of Thames Region

The western parts of the Region are mainly rural with urbanisation concentrated along the M40 and M4 motorway corridors. In the north and south-eastern parts, urbanised land-uses tend to predominate, although considerable areas of rural land-use remain. The eastern part is dominated by Greater London where land-use is heavily urbanised and constrained by the Green Belt.

Over 40% of Thames Region is classified as Areas of Outstanding Natural Beauty (AONB) or Green Belt or enjoys some other form of protection. The protection and enhancement of areas of high-quality natural environment and the opportunities for urban regeneration, particularly in London, represent key issues for the Agency and for local planning authorities.

1.3 Thames Environment 21 strategy

The objective of the Thames Environment 21 strategy is to help secure an overall enhancement of the quality of the environment of the Thames Region through the land use-planning system. In particular, it aims to ensure that new development contributes to the quality of the environment, that further erosion of the Region's intrinsically rich heritage, both natural and man-made, is prevented, that damaged environments are restored and that the Region's natural resources are sustainably managed.

The strategy affirms the Agency's commitment to work in partnership with all those involved in the land-use planning system in Thames Region. It also provides guidance and methodologies that will help make the partnership significantly more effective.

Thames Environment 21 seeks:

- to strengthen partnerships with Government offices, regional planning bodies, local authorities, the development industry and environmental organisations, and work with them to promote sustainable development and resource management
- to provide positive and comprehensive guidance on the full range of environmental safeguards (concerning for instance flooding, water resources and riverside restoration) which the Agency would expect to see addressed when any kind of development is being considered
- to promote techniques for implementing the strategy, including an appraisal methodology that will assess potential environmental effects of future development pressures across the Region
- to raise awareness of the Agency's concerns on future development across the Region
- to explain the role of the Agency in environmental management.

The key elements are:

- Six Sustainability Principles

In Thames Region, the Environment Agency has identified six

Sustainability Principles – on Water Resources, Flooding, Pollution, Waste,

Conservation and Recreation. They encapsulate all aspects of the Agency's work and indicate how the Agency will contribute towards sustainable development.

The Agency will use its powers to support attainment of these Sustainability Principles but recognises that their wider benefits can only truly be realised through close working partnerships with other relevant organisations.

- 'Planning Strategy Tables', 'Guiding Messages' and the 'Environmental Appraisal Process'

The Guiding Messages are relevant to those bodies and organisations, including local planning authorities and developers, with whom the Agency hopes to develop close relationships. The Planning Strategy Tables provide them with a practical guide to implementing the Sustainability Principles, and the Environmental Appraisal Process provides a methodology.



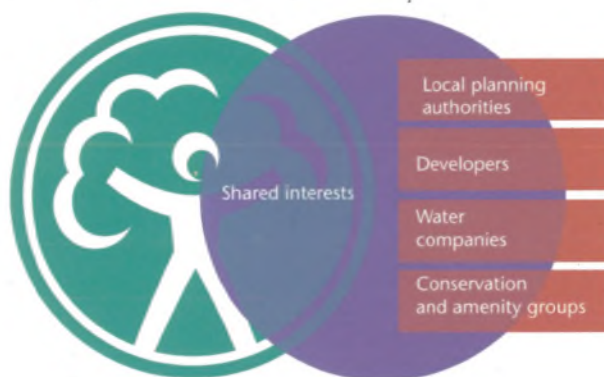
Overall, Thames Environment 21 seeks to realise the vision by giving strategic guidance on the concerns and opportunities offered by future development, and by outlining what commitments and support the Agency will provide to the land-use planning process in the interests of sustainable development.

1.4 Partners

In the land-use planning process, the Agency works with a range of partners, notably the Department of Environment, Transport and the Regions (DETR), Government Offices, Regional Planning Conferences, London Planning Advisory Committee (LPAC) and Local Authorities. In striving for a more sustainable form of development, Thames Region also expects to work with other partners, among them: Government Agencies such as English Nature, English Heritage and the Countryside Commission, conservation groups including the RSPB and the National Trust, landowners and the development industry (ie builders, architects, engineers and finance houses, and their clients).

Further potential partners are the proposed Greater London Authority (GLA) and Regional Development Agencies who will offer fresh opportunities for tackling environmental issues. The GLA is likely to take an integrated and strategic view of environmental concerns, building on the successful partnership approaches to environmental issues in London developed by the Government Office for London (GOL) and LPAC.

There are many organisations with specific environmental responsibilities working in the Region. It is obviously essential that the Agency and all such organisations work together to ensure that development-related issues affecting the environmental agenda are given clear, consistent expression.



Thames Environment 21 has been produced with input from representatives of local planning authorities and the Regional Planning Conference for the South East (SERPLAN). In addition the document in draft form was the subject of a consultation exercise and two external seminars, attended by a wide range of interested partners. Many valuable suggestions were made which have been incorporated.



The Blackwater Valley. An example of a partnership with highway authorities to create an enhanced river corridor.



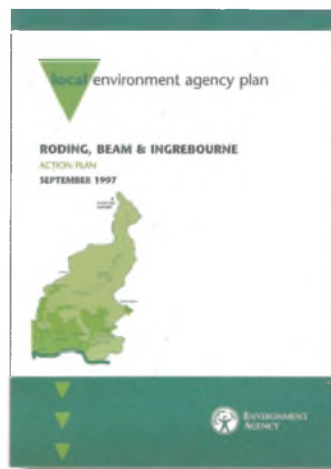
1.5 Delivering Thames Environment 21 at a local level

Thames Environment 21 and Local Environment Agency Plans (LEAPs) deal with a wide range of environmental issues, but at different levels of detail.

Thames Environment 21 gives guidance in principle on how detrimental effects can be minimised and beneficial effects enhanced at a strategic level on land use issues. LEAPs deal with the application of the strategy and with wider environmental management issues, and establish Action Plans for tackling the issues in a practical way at a local level.

LEAPs are non-statutory documents, developments of the Catchment Management Plans (CMPs) published by the former National Rivers Authority. They cover the full range of the Agency's responsibilities. They are being produced for all catchments within the Thames Region, and give a coordinated statement of the Agency's proposals for local environmental management over a five year period.

One of the key elements of the LEAP process is the involvement of the community. Local people are invited to identify the issues that concern them and assess a range of possible solutions. They can also address the potential environmental impacts of future development proposals. This link with the public is extremely important because the LEAPs are used by the Agency and other organisations to prioritise future allocation of resources for improving the environment.



Map 3
Local Environment Agency Plans
in Thames Region



Everyone has a role in contributing to the achievement of sustainable development. The Agency works with individuals through its involvement with Local Agenda 21 (LA21) groups and through its contribution to environmental education at schools, colleges and generally to a wider public. The Agency will also help whenever possible by providing speakers and offering advice and assistance as appropriate. (LA21 groups are voluntary associations that seek to carry forward the decisions of the 1992 Earth Summit at Rio at a local level into the 21st century.)

Thames Region also produces a range of teaching packs for schools on environmental issues, sometimes on specifically local concerns – for example: 'Go with the Flow', a learning pack for the Wandle, Beverley Brook and Hogsmill Rivers in south London. Some of the packs are supported by developers and industry.

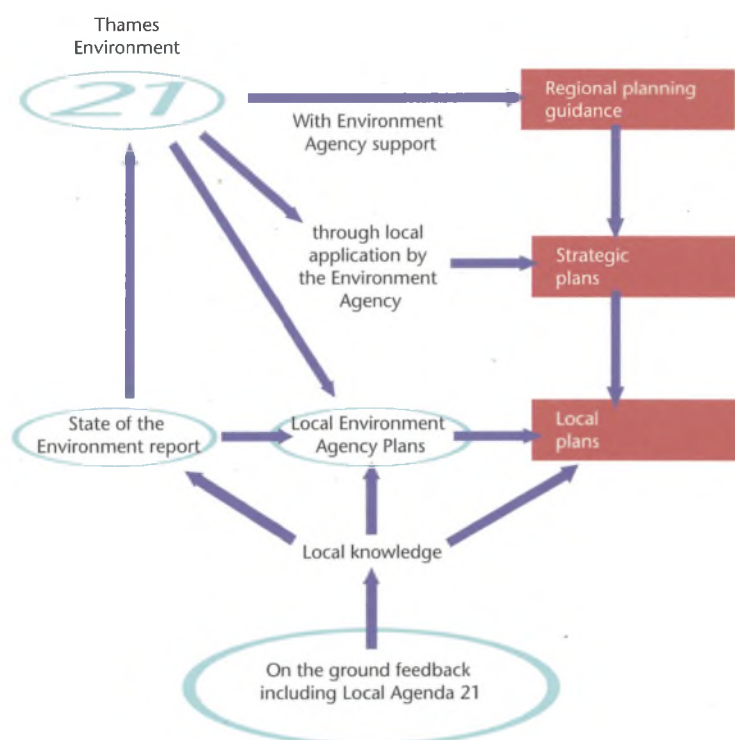


1.6 The Process of Environmental Appraisal

Through Thames Environment 21 the Agency is offering an Environmental Appraisal Process that stakeholders can use independently or collectively to assess the impacts of development on the environment. Thames Region is seeking continually to refine this process. This document reflects the position to date.

Already our Environmental Appraisal Process is being applied to assist local planning authorities in making decisions about the location of future development. It may also be used to improve understanding of the relationships between the environment, development and economic regeneration. The process may further be used to help influence both the location and quality of development as well as mitigation and enhancement measures and the environmental appraisal of development plans.

In the long run, the Agency hopes to mobilise the concepts of environmental capital and carrying capacity. These are not available for application to regional issues at this stage, but development of the State of the Environment Report for Thames Region (due in mid-1998) will facilitate the use of these concepts. Future initiatives will be geared to reviews of Regional Planning Guidance and to monitoring aspects of the strategy's implementation.



Chapter 2

The Environment Agency's approach to sustainable development

2.1 The national framework

The Government's UK Strategy for Sustainable Development sets out an agenda for achieving a more sustainable future. The Agency and local authorities have been specifically charged with taking the lead on developing and implementing many of the actions to implement this agenda.

Sustainable development can and is being defined in terms of identifiable and measurable goals, one of which is environmental improvement. The Agency, in parallel with local authorities and other environmental organisations, is developing a range of techniques to effect change. These include environmental management and audit schemes, state of the environment reporting, Local Agenda 21 and environmental appraisal and assessment methods. All these techniques enable environmental issues to be addressed. They can be used as part of the planning system to help achieve specific improvements on the ground.



Environmental impacts do not respect geographical boundaries. For that reason, the challenge is to develop through partnerships a more integrated style of environmental management. Globally, we must respect the international agenda which includes addressing climate change, reducing the production of ozone-depleting substances, and maintaining stocks of natural resources and world-wide biodiversity (variety of wildlife).

The aim should be to minimise negative impacts and maximise positive action. Nationally, the Agency is required to operate in the following way. It must:

- take a holistic approach to the protection and enhancement of the environment
- take a long term perspective
- conserve and enhance biodiversity and protect the natural and man-made heritage
- contribute to protecting the global atmosphere
- investigate the scope for reconciling the needs of the environment and those of development
- develop close and responsive relationships with the public, local authorities and other representatives of local communities and other organisations
- provide high-quality information and advice
- take into account likely costs and benefits.

These guidelines are developed in greater detail in the Agency's national, 'Environmental Strategy for the Millennium and Beyond', which states that we will concentrate on those areas where we have a direct or a shared responsibility, including development planning.

The environmental issues specifically identified in the Agency's national strategy are:

- addressing climate change
- improving air quality
- managing water resources
- enhancing biodiversity
- managing freshwater and estuarine fisheries
- delivering integrated river-basin management
- conserving the land
- managing waste
- regulating major industries.

In Thames Region, the Agency recognises parallel objectives of respecting and strengthening the Region's critical role in the national economy while maintaining a high-quality local environment. In London and elsewhere there is a need to go further by using opportunities for economic growth and development to stimulate urban regeneration and create a better quality environment for local people.

In practice, a more sustainable approach will also necessitate the integration of topic-based strategies or plans currently being developed by many different organisations or specialist departments.

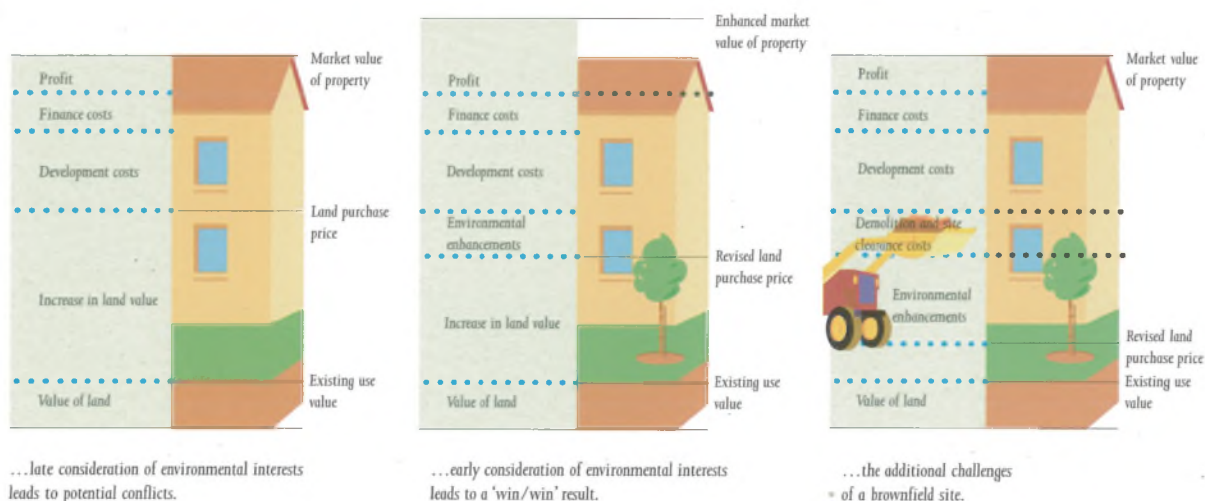
Key topics requiring integration include:

- development plans and transport planning
- economic and environmental strategies
- development plans and air quality management
- waste plans and waste management and regulation strategies.

At Fairford Leys a consortium of developers comprising Bryant Homes, Taywood Homes and Wimpey Homes have funded river restoration on the Bear Brook, Stoke Brook and Hartwell Ditch which run through the site. This has involved creation of sinuous two stage channels including pools and riffles and enhancement of the river corridor. The consortium states 'the development has benefitted from a good working relationship with the Environment Agency in which partnership and a proactive approach on both sides has resulted in environmental enhancement of the site'.



In providing advice to local authorities on environmental and development issues, the Agency is required to balance the likely costs and benefits of the measures it advocates.



Developers arrive at the price they are prepared to pay for a site from their calculation of the market value of a completed development. From this they subtract development costs, finance costs and an element of profit. Unless they are aware of a requirement for environmental enhancement, the residual sum will be the maximum they are prepared to pay. It is clearly 'reasonable' to ask for substantial enhancements if these are financed out of the gratuitous increase of the site value brought about by the granting of an outline planning permission.

It should be noted that whilst the Agency plays a valuable role in advising the local planning authority on required or desirable environmental enhancements, it is the planning authority which negotiates the package of benefits (including environmental enhancements) which will be required of developers using planning agreements.

When the Environment Agency specifies its requirements for environmental enhancements in advance, through the local planning authority's development plan, through a planning brief, or through a planning agreement between land owner and a local planning authority, the developers take the environmental enhancements into their financial calculations and offer correspondingly less for the site. The landowners may make less profit on the sale, but if the environmental enhancements are the key to their realising the development value of the land, they are still better off than if they had held the land back or if planning permission had not been forthcoming. The environmental enhancements are likely to increase the value of the completed development and can go a long way towards financing themselves.

The Agency therefore recognises and stresses the need for any environmental requirements arising from new development to be fed into the planning process at an early stage. Ideally this should be done through discussions with local authorities during the preparation of development plans and briefs.



2.2 Thames Region Sustainability Principles

The Agency has developed six Sustainability Principles for the Thames Region which it will use in its work of influencing the land-use planning process. We hope others will use them as well and that they will be reflected in environmental management strategies and development plans. These Principles seek to ensure that the Region's environmental resources are given sufficient weight in the planning process. In particular, environmental resources must not be subject to gradual erosion by the impact of development. Furthermore, development opportunities must be harnessed to achieve environmental improvements and enhancements whenever possible. Particular opportunities occur, for example, adjacent to watercourses or on derelict urban sites contaminated by past uses.

The Agency is committed to taking a holistic approach to environmental management and the six Principles cover air, land and water in an integrated manner. They are intended to be complementary and provide a framework to improve the way environmental matters are addressed in Thames Region by the many organisations and bodies operating in this field. They are equally applicable to urban and rural locations and to every kind of geographical area in the Region.

The Principles have been tested against major development locations in the Region and the Agency is satisfied that they provide a robust and systematic approach to environmental issues. The Principles are explained in greater depth in the following sections.



Mill Lane, Carshalton. The River Wandle used to run in a culvert through this former chemical works. Redevelopment has allowed the river to be restored to a more natural state, enhancing the quality of the new residential development and the environment.

Sustainability Principles for the Environment Agency Thames Region

Principle 1

Water resources

To manage groundwater and surface-water resources to achieve the right balance between the needs of society and of the natural environment.



Principle 2

Flooding

To manage floodplains and flood risk for the benefit of people and the natural environment and for the protection of property.



Principle 3

Pollution

To maintain and where possible improve the quality of air, land and water through the prevention and control of pollution and by applying the 'polluter pays' principle.



Principle 4

Waste

To achieve reductions in waste through minimisation, re-use and recycling and improved standards of handling and disposal.



Principle 5

Conservation

To conserve and enhance the natural, cultural and historic value of river corridors, their landscapes and biodiversity.



Principle 6

Recreation

To retain, improve and promote water and waterside land for the purposes of public access and enjoyment, navigation, and appropriate recreational use.





Water Resources

To manage groundwater and surface-water resources to achieve the right balance between the needs of society and of the natural environment.

Thames Region is amongst the driest areas in the UK. It receives an average of 690mm rainfall a year, of which only 250mm is effective recharge for rivers or aquifers. The rest is lost through evaporation and transpiration. Yet the demands for water are very high, with an average daily demand of 4700 million litres, equivalent to 135mm of rainfall a year.

Unless progress is made on water conservation and demand management, demographic trends, lifestyle changes and 'quality of life' expectations will ensure that demand continues to rise steadily. Irrigation for agriculture and horticulture, new housing and recreational developments such as golf courses, holiday villages and waterways, all increase the demand for water and add to increasing demand from the existing users. Planning to meet this increasing demand may be in conflict with the role of water in the maintenance and improvement of the Region's biodiversity. Progress is therefore essential on measures for demand management and the proper conservation and use of water resources. Water Companies in particular will be a focus for these issues, especially where they concern leakage levels and demand growth.

Maintaining a balance between the needs of abstractors and those of the environment is especially important in planning for droughts. Prolonged periods of drought are natural features of the hydrological regime. The 35 month drought from April 1995 has resulted in low river flows and depleted groundwater levels. In 1997, groundwater levels in parts of the Region dropped to the lowest levels ever recorded.

The location and level of licensed abstractions are fundamental to the maintenance of a sustainable balance between abstractors and the environment. Some licences, mainly granted as Licences of Right under the 1963 Water Resources Act, have caused (or continue to cause) environmental problems because abstractions have increased towards the maximum allowed. Action is still required to solve low-flow problems caused by licensed abstraction on the rivers Beane, Wey (at Alton) and Churn and the Ampney Brook. Similar problems have been resolved (on the rivers Pang and Ver, for instance) or are in process of being resolved (as in the case of the Misbourne).

By contrast, the problem in London itself is the rise in water levels. Abstraction, mainly for commercial and industrial purposes, used to keep water levels in the deep chalk aquifer at an artificially low level but, as a result of reduced demand since 1945, water levels have been rising steadily. In 1996, water levels rose by three metres.



The Environment Agency is responsible for the regulation of water resources. Through its powers to grant and enforce water abstraction licences and discharge consents, it seeks to balance the needs of abstractors with those of the environment. However, the surplus of supply in relation to demand is small in Thames Region compared with other parts of the country. The effect of the rates of development implicit in the 1992 household forecasts could be to bring forward a potential deficit in water resources. Furthermore, in the longer term, the potential effects of any climate change on the quantity and pattern of rainfall may be major factors in future planning.

Overall, the Agency believes that the Region's water resources can meet forecast levels of demand until 2011. There may however be shortfalls in particular locations where new infrastructure may be required to reallocate existing resources. New resources may be needed as well. Examples of areas where these problems may arise include: Aylesbury (5,800 new homes proposed to 2011), Banbury (3,900 new homes), Basingstoke and Deane (13,000 new homes), Swindon (8,500 new homes) and Newbury (4,000 new homes to 2006).

Beyond 2011, the maintenance of the balance depends on making the best use of licensed resources currently available and the success of a range of demand-management techniques, although in the longer term, major new strategic resources may be needed. The successful promotion and implementation of such schemes – for example, the proposed reservoir near Abingdon – cannot be guaranteed, given the potential range of environmental and social concerns.

In developing their water-supply services, many water companies are progressing sustainable water-resource development and demand management in parallel, so as to minimise the risk of water-use restrictions in both the short and long term. Demand-management measures include leakage reduction, increasing public awareness of water conservation and metering.



The dry bed of the River Misbourne at Chalfont St Giles. Groundwater reserves in parts of the Region are at an historic low. Many streams dry up during the summer, and flow is below normal at other times.



Thames Water

Operationally, water supply in the Thames Region is split into two areas: London and the Provinces.

London: London's water supply is derived primarily from the rivers Thames and Lee, although contributions are also taken from groundwater sources within the south east London and Lee Valley areas.

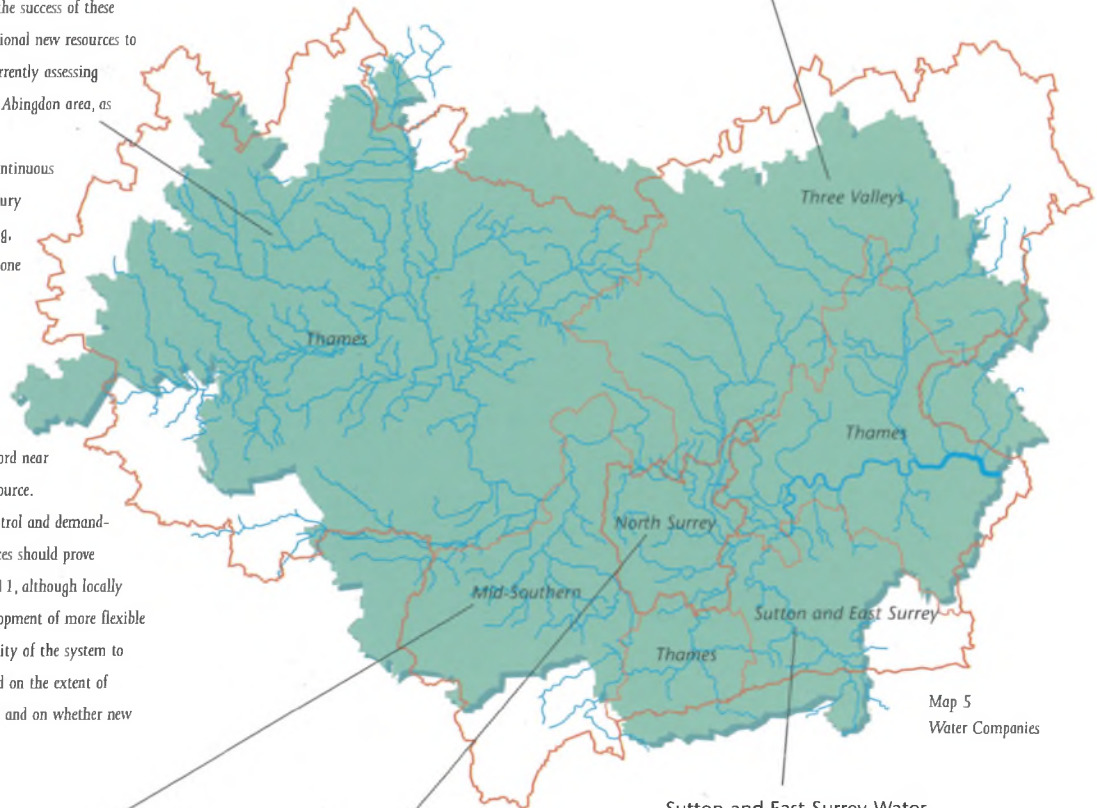
Thames Water is undertaking a major demand-management programme in London to make better use of available resources. Leakage reduction, promotion of water conservation by the public and selective metering will play key roles. In the longer term, depending on the success of these measures, there may be a need for additional new resources to supply the city, and the Company is currently assessing the feasibility of a new reservoir in the Abingdon area, as well as other alternative schemes.

Provinces: The Provinces comprise a continuous zone from Slough, Wycombe and Aylesbury through to Swindon and include Reading, Newbury and Oxford, with a separate zone around Guildford.

Supplies are derived largely from groundwater from the chalk and Cotswold limestone. Surface water abstraction, notably at Farmoor near Oxford, Fobney near Reading and Shalford near Guildford, is an important strategic resource. Depending on the success of leakage control and demand-management initiatives, existing resources should prove adequate for known demands up to 2011, although locally there could be shortfalls requiring development of more flexible infrastructure. Beyond 2011, the capacity of the system to serve additional development will depend on the extent of further demand-management measures and on whether new resources can be made available.

Three Valleys Water

Supplies are derived from groundwater sources, abstraction points on the lower Thames at Datchet and Iwer and by supplies from Grafton Water. There is unlikely to be scope for further development of groundwater resources given the low flows in Chiltern rivers. Augmentation of supplies from Grafton Water would be subject to negotiation. There is therefore a possibility of water-supply deficits by 2011 in times of peak demand.



Map 5
Water Companies

Mid-Southern Water

Supplies are derived primarily from groundwater sources. There is a related low-flow issue in the River Wey at Alton. Abstractions from the River Thames at Bray used in conjunction with groundwater will allow redistribution southwards. There is also the possibility of artificially recharging the greensand aquifer. Short-term incapacities in the local distribution system in NE Hants may act as constraints on future allocations for development.

North Surrey Water

Supplies are derived primarily from abstraction points on the lower Thames and are likely to be adequate to meet anticipated levels of development. There may however be some shortfall at times of peak demand in the long term.

Sutton and East Surrey Water

Supplies are derived from groundwater sources and from the Bough Beech Reservoir. Unless additional resources can be developed, there is likely to be a limit on the amount of future development in the Company's area.



Flooding

To manage floodplains and flood risk for the benefit of people and the natural environment and for the protection of property.

The flooding of land adjacent to watercourses (the floodplain) is a natural process which can have many benefits for the environment. The floodplain also provides temporary safe storage space for floodwater. However, where flooding occurs in developed areas it can result in damage to property, disruption to services and even loss of life. The Agency is responsible for managing rivers in order to protect people and property from flooding, and to maintain floodplain biodiversity.

Development on floodplains inevitably increases the risk to property and life, not only because these areas are inherently prone to flooding, but also because development reduces the capacity of floodplains to store floodwater and impedes flood flows. The problem is not associated solely with large developments; the incremental effect of small-scale development can be equally important.

The channels and floodplains of many of the Region's rivers, especially in London and other urban areas, have become restricted by development. As a result, they are unable to accommodate large storm flows and serious flooding incidents can occur unless flood defence works are provided. These often take the form of flood walls or embankments. In London, where tidal influences are dominant, other solutions have been implemented, most noticeably the Thames Barrier. Flood defence works of course reduce the extent of the floodplain and the number of foreshore wildlife habitats, all of which is of concern to the Agency.

Development away from the floodplain can influence the risk of flooding. If a development includes large areas of impermeable surfaces or extensive culverting, then the rate of surface water run-off will increase, particularly during storms or periods of heavy and prolonged rainfall.

Natural catchment characteristics can also influence run-off rates. The clay geology of the Rivers Mole and Roding makes them particularly prone to flash flows.

Past development practices within Thames Region have increased the risk of flooding, either by promoting rapid surface-water run-off (for instance in the areas round Luton) or by encroaching on the floodplain (throughout London, for instance, and along many other rivers including the Mole, Cole and Kennet).

Unless properly planned and managed, it is likely that future development will further increase the risk of flooding by reducing floodplain areas or increasing surface-water run-off rates. Both problems could occur in potential development around Bracknell, Aylesbury, Newbury, Oxford, Stansted Airport, Banbury, Caversham, Horley and along the Rivers Gade, Bulbourne, Lee, Thames and Mole.



Apart from localised flooding, mainly during summer thunderstorms, there have been no major flood events in Thames Region for some years. However, the risk of flooding remains, and reducing it constitutes a major part of the Agency's responsibilities. Several major flood alleviation schemes are now being implemented, including those along the River Colne in West London and on the River Thames at Maidenhead, Windsor and Eton.

The Agency's policy (set out in 'Policy and Practice for the Protection of Floodplains') discourages inappropriate development on floodplains whether for housing, recreation or other uses. This policy has generally been accepted by Planning Authorities in Thames Region.

Controlling rates of surface-water run-off from impermeable surfaces can be of great benefit in minimising the impact of development on the water environment and hence on the likelihood of flooding. This is an issue not specifically addressed in the land-use planning system at present but which the Agency believes requires great recognition in planning guidance. In the Luton area however, run-off control is being developed as a method of reducing the impact of flooding in the town centre. In addition, storage ponds as a source-control technique have been successfully incorporated in developments across Thames Region, including parts of the M40 Motorway and Newbury bypass, and development on the western fringe of Witney, Oxfordshire.

The Agency is aware that as the likely effects of any climate change become clearer – for example in terms of rising sea levels and the frequency of summer thunderstorms – there could be implications for existing and future flood defence provision.



The reclamation of an area of semi-derelict land adjacent to British Airways' new office complex at Harmondsworth Moor and the building of flood defences provided the opportunity for creating a parkland landscape with valuable recreation opportunities.





Pollution

To maintain and where possible improve the quality of air, land and water through the prevention and control of pollution, and by applying the 'polluter pays' principle.

Air quality

Many industrial processes can have a serious detrimental impact on the land, water or air environment. The Agency regulates the largest, most technically complex and potentially most polluting industrial processes through a system of Integrated Pollution Control (IPC). This is a continuous process and authorisations are regularly reviewed so that, for example, when cleaner technologies are developed, operators may be required to install them.

IPC authorisations deal with plant design and operation as well as releases to the environment. The Agency applies the principles of BATNEEC (best available techniques not entailing excessive costs) and BPEO (best practicable environmental option) when considering an industrial process which requires an IPC authorisation. The planning system operated by local planning authorities has an important role to play in alerting the Agency to changes in the polluting potential of various land-uses, as discussed in PPG 23 ('Planning and Pollution Control'). Process operators are responsible for justifying and minimising their releases to the environment.

The Agency can also provide technical advice and support to help determine those planning applications which will be the subject of an application for IPC authorisation by the Agency in due course. Early involvement in the development process increases awareness of pollution control issues and leads to better designed and more environmentally friendly development, and to the harmonisation of planning and pollution control regimes and requirements.

The Agency's direct responsibility for air quality is limited to its powers under Waste Regulation (which deal with waste disposal sites) and under IPC. The Association of London Government, in partnership with the South East Institute of Public Health, monitor air quality throughout the city. Elsewhere in the Region there is less consistency.

Within Thames Region there are comparatively few major polluting industries. Most air pollution is caused by motor vehicles. As a result, poor air quality is likely to be found in the Region's urban areas and in transport corridors. The Agency has no powers to deal with non-point source emissions but advises the Government on its National Air Quality Strategy and intends to work in partnership with Local Authorities, who have responsibility for implementing the Strategy, and advise on such aspects as air-quality modelling and abatement techniques.



Air pollution over St Paul's



To meet IPC requirements, the coal-fired boilers at Didcot Power Station have been fitted with burners which minimise the releases of nitrogen oxides to the atmosphere.

Land quality

Increasing development pressures are bringing a greater number of brownfield sites and former Ministry of Defence sites to the market. Many of these brownfield sites are contaminated. However, their remediation prior to redevelopment offers new opportunities for improving the quality of the urban environment, particularly in London where environment quality is an essential element in the promotion of economic development.

Most land contamination (either chemical, or very occasionally radio-active) occurred before today's preventative regimes were in place. Contaminated sites are typically old gas works, industrial and chemical plants and landfill sites. Their re-use can pose a risk to health, to the quality of surface-water and groundwater and to ecosystems, unless the sites have been rendered safe before development takes place. This is achieved either by neutralising or containing the contaminants.

Local authorities have a major role in making contaminated sites safe and in bringing them back into use. The Agency provides its expertise to assess the risk of pollution to ground and surface waters and to advise on the disposal of waste arising from site reclamation. The Agency's advice will take costs into account and be aware of the issues and options from the earliest stage. It collates information on such sites and analyses data on the extent to which they may have been already remediated. While the Agency's role is to secure with others the remediation of contaminated land, the new powers and responsibilities of the Agency and Local Authorities relating to definition, inspection, remediation and registration under the Environment Act 1995 are yet to be enacted and described in detail.

Processes that use or dispose of radio-active substances are regulated by the Agency to protect both the public and the environment. Radio-active substances should not be created unnecessarily, and their use must be safely and properly managed, with proper disposal of wastes. The storage, use or disposal of radioactive substances require Agency consent, and premises where these activities are carried out may need local authority planning approval.



The clearance at Bell Green, Lewisham, of the former gasworks made it possible to enhance the Pool River with a sinuous channel, cascade and riffles, all of which helps the passage of fish. Residual contamination and poor ground conditions meant that the channel has to be impervious. Public access has been provided by a riverside walk.



A capping operation to neutralise the hazard from asbestos provided the opportunity for improving public access to the River Lee's recreational facilities at Waltons Walk.

Water quality

Water is a valuable resource whose quality must be maintained to ensure that it can support both a diverse aquatic ecosystem and, of course, a range of human uses. The Agency is responsible for the protection and improvement of both ground and surface-water quality and carries out this responsibility by regulating and monitoring polluters and, when necessary, taking enforcement action against them.

For surface waters, the Agency sets River Quality Objectives. These are use-related and consist of a target class and date by which the objective should be achieved. Mindful of these objectives, the Agency regulates discharge consents and ensures that they meet strict criteria for maintaining and wherever possible improving water quality.

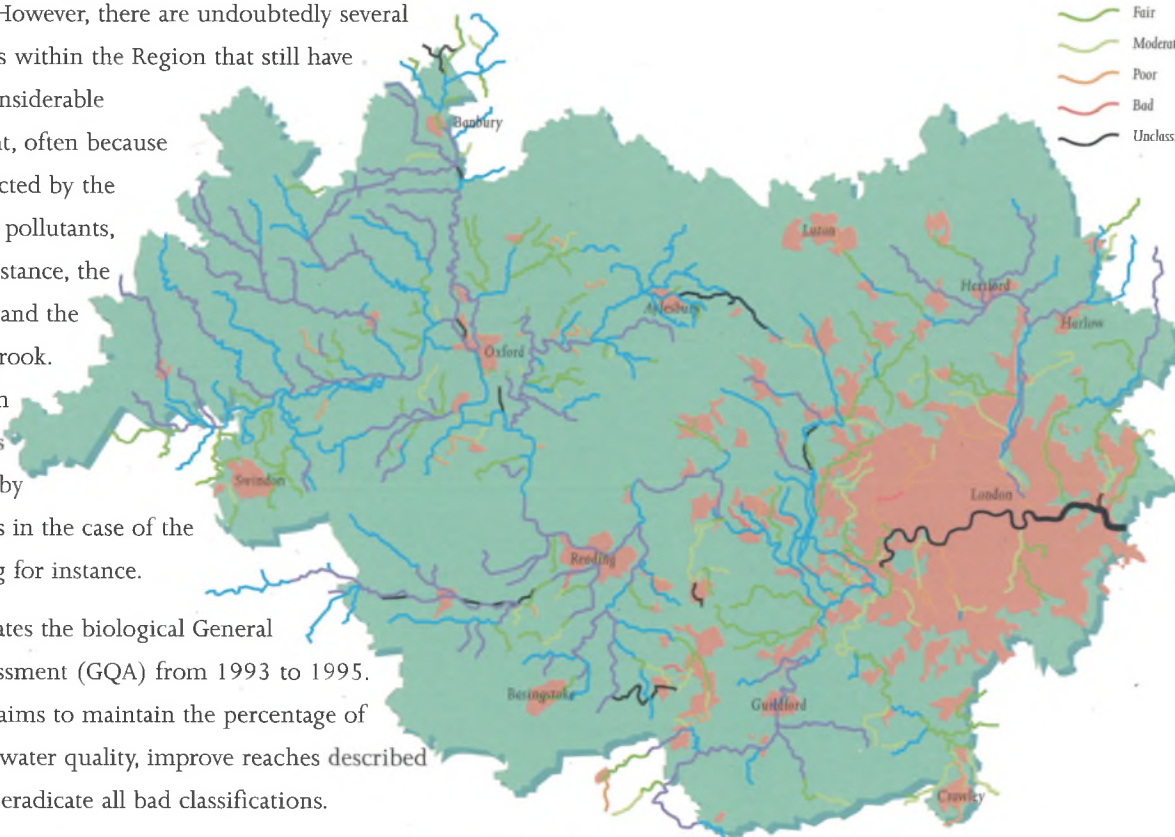
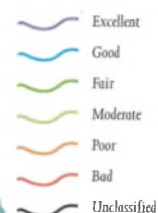
At present, the rivers of the Thames Region are predominantly of good to fair water quality, and the quality of the Region's rivers as a whole is gradually improving. However, there are undoubtedly several river systems within the Region that still have scope for considerable improvement, often because they are affected by the discharge of pollutants, as are, for instance, the Rivers Mole and the Houghton Brook. This problem is sometimes exacerbated by low flows, as in the case of the River Roding for instance.

Map 6 indicates the biological General Quality Assessment (GQA) from 1993 to 1995. The Agency aims to maintain the percentage of 'good' river water quality, improve reaches described as 'fair', and eradicate all bad classifications.

Groundwater provides the base flow for many rivers and is an important source of water for public and private supply. Groundwater can be affected by many activities at or near the land surface and once polluted is particularly difficult to rehabilitate. The Agency therefore defines groundwater protection zones which require careful land-use planning and management of activities.

Within Thames Region, water quality is under pressure because of the intensive use of water. Further increases in population and development could aggravate the situation because the rivers do not have the capacity to cope with increased sewage treatment works effluent, urban run-off and other discharges and eutrophication.

Map 6
Biological water quality
General Quality
Assessment Scheme
(1993-1995)



The increase of impermeable areas being created by new development across London brings with it (in addition to the flooding problems already described) the problems associated with rapid rates of polluted surface-water run-off. The speed at which run-off enters the water course, and the type of material that is transported with it, also lead to increased pollution. This has been a particular problem in the Lee Valley.

In addition, intensification of development in London has overloaded the sewerage network. The subdivision of properties into flats (creating more separate households), poor plumbing and the growth in population have together caused sewage to overflow into London's rivers. Watercourses such as the Wealdstone Brook in North London have been degraded in this way. The problem is now one of the many targets for the water companies via the Asset Management Plan process.

Further housing development in Thames Region is of particular concern where it occurs over the important permeable chalk or greensand aquifers located in the north and west of the Region. These are used for public water supply but are also inherently vulnerable to pollution. In these instances the introduction of permeable pavements as a source-control measure may not be appropriate – because they allow infiltration of possibly polluted surface water.

In some areas, groundwater has been contaminated by past land-uses – for example by old landfill sites along the lower River Colne and by manufacturing industries based around Luton. The actual extent of groundwater pollution is however hard to identify. New development in such contaminated areas presents the risk of groundwater pollution, as do mineral extraction and waste management activities or deep excavations for various development proposals.

Other possible infrastructure development of potential concern because of the implications for water quality include the transfer of water from the River Severn in Gloucestershire to the River Thames, Thames Water's Abingdon Reservoir proposal and possible expansion of the Region's airports.

In addition to its activities in the land-use planning system, the Agency focuses on education, partnership and application of the Agency's legislative controls to ensure the implementation of what are often practical and simple pollution prevention measures. In the River Ock catchment, for example, a farm pollution prevention campaign was undertaken in 1995/6. It involved site visits and the inspection of 145 farms. Farmers were advised on how to prevent pollution, and the Agency continues to work in partnership with farmers, MAFF, ADAS and the National Farmers Union (NFU).



Waste

To achieve reductions in waste through minimisation, re-use, recycling and improved standards of handling and disposal.

Within the South East in general, landfill voidspace continues to be used up at a faster rate than it is created and a radical change in practice is required. SERPLAN has developed a waste management strategy based on the waste hierarchy. The hierarchy lists methods for managing waste in order of preference, and aims to reduce the Region's waste-disposal problems by placing the emphasis on the efficient use of re-usable resources. Options at the top of the hierarchy, such as waste minimisation and recycling, have the potential to contribute towards sustainable waste management and help meet Government targets for waste reduction, recovery and recycling.

In Thames Region, most waste is sent to landfill sites. However, it is predicted that available voidspace at these sites will be exhausted in many parts of the Region early next century, to leave London, South Bucks and Hampshire with especially pressing waste management problems. Furthermore, some landfill sites are restricted in the range of material they can accept because of the potential for groundwater pollution – the Cotswold Water Park, a typical case, accepts only inert waste.

LPAC has published draft supplementary advice on waste planning in London which seeks to establish links between waste management and economic development opportunities and to implement the Government guidance for London set out in RPG 3.

The approach of SERPLAN and LPAC is in line with international and European Union advice, and follows Government guidance in the 1995 White Paper 'Making Waste Work'. This advice includes targets for the recycling or composting of 25% of household waste by 2000, and reducing landfilling of controlled waste from 70% to 60% by 2000. Emphasis is also placed on managing waste as near as possible to its source (the proximity principle) balanced by the mode of transport, with road less preferable to river or rail transport.

Local authorities across the Region recognise the major challenges that waste management in Thames Region presents. However, the implementation of the hierarchy is by no means straightforward, with local people often vigorously opposing the construction of new waste management facilities such as waste-to-energy plants – this has been the experience in Hampshire and Surrey. There is also an issue related to the inequitable distribution of waste management solutions across the Region, with Bedfordshire, Essex, Buckinghamshire and Surrey being net importers of waste (mainly from London).



The Agency is working with SERPLAN and LPAC to develop a regional view on managing waste and determining the mix of options that provide the greatest overall benefit relative to both financial and environmental costs.

LPAC's waste strategy reflects an initiative by the London Pride Waste Action Programme to set up an integrated system of facilities with the aim of increasing London's recycling rates. Recycling rates as high as 35% (recorded by the London Borough of Sutton) are currently comparatively unusual but demonstrate what can be achieved. Partners in the project include LPAC, the Association of London Government, the Government Office for London, the Agency, the Boroughs and business and industry. The approach focuses on proximity and self-sufficiency. City Challenge funding of £12 million has been secured over three years and is expected to trigger substantial amounts of private sector investment.

Other waste management initiatives depend on people and organisations making greater efforts to reduce their waste production and taking more responsibility for the disposal of what they have produced. The Agency supports initiatives by Surrey County Council and East Hampshire District Council who require Civic Amenity sites to be provided for developments of over 50 houses. These will greatly facilitate increased re-use, recycling and reprocessing of products from the domestic waste stream.

An integral part of any sustainable waste strategy must be the environmental standards required by the Agency and local authorities in the development of new waste facilities. Most facilities will need planning approval and a waste management licence or accreditation. Some types of facility may need to be regulated under the Environmental Protection Act (EPA) 1990 by either the Agency or local authorities for releases to air. New facilities offer benefits in terms of improved technology and the use of more environmentally friendly processes. They may also lead to the removal of existing 'bad neighbour' uses.

Waste transportation accounts for a huge number of lorry movements and so contributes significantly to air pollution in the Region. Consideration must be given to the provision of facilities, particularly in London, that support the transportation of waste by river – as advised in RPG3 Strategic Guidance for London. A reduction in waste movement by road is vital to the city's long-term environmental well-being.



The fluidised bed boiler system at Slough Combined Heat and Power Station is designed to the most modern standards and a proportion of the fuel is derived from source-segregated commercial waste, some of which is pre-consumer packaging material.



A mobile tyre-pyrolysis process which converts waste tyres to oil.



The waste incinerator operated by S G Grundons at Colnbrook disposes of health-care waste generated within London and the Home Counties. It has recently had its air filtration equipment upgraded as required under its IPC authorisation.



Conservation

To conserve and enhance the natural, cultural and historic value of river corridors, their landscapes and biodiversity.

The Agency has a responsibility for taking a full and active role in delivering parts of the UK's Biodiversity Action Plan, particularly in relation to aquatic and riverine species. Biodiversity provides economic benefits through agriculture and recreational use of wildlife sites; and it has an aesthetic, social and educational value.

The UK's Biodiversity Action Plan provides a common agenda for all conservation groups through which they can work not only to protect rare or threatened species but to influence what happens in the wider environment.

There are many challenges facing the conservation of biodiversity in Thames Region. These include the pressure for further urban development and other land-use changes, and the possibly adverse effects of past human activities.

Despite the many pressures facing the Region, it contains a large number of sites that are important for nature conservation, including areas proposed for designation as Special Areas of Conservation (SACs), Ramsar sites and Special Protection Areas (SPAs) for birds. Numerous Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs) also make a valuable contribution towards protecting and enhancing habitats.

Rivers and their corridors provide much of the habitat of conservation value. Chalk rivers and streams such as the Kennet, Lambourn, Chess and Mimram are of conservation importance, as are the limestone rivers of the Cotswolds, such as the Coln, Churn and Windrush. The latter is particularly important because signs of otter have been consistently found there over the past five years. Areas of wetland conservation importance are not exclusive to the west of the Thames. For example, the Lee Valley and the West London Reservoirs and Gravel Pits are being considered for designation as SPAs.

The Region contains a rich variety of landscapes, to which river corridors and farmland make an important contribution in terms of both landscape character and conservation value. The northern and western parts of the Region in particular contain large areas of intrinsically rich habitat that is also of considerable landscape importance – the Chilterns and Cotswolds are outstanding examples. A significant proportion of the Region is therefore designated as areas of outstanding natural beauty. The more productive farmland is also of great economic and strategic importance.



The River Colne at Staines.

Re-development of the Staines Central Trading Estate at Lino Mills on the River Colne has provided the opportunity for the Environment Agency to carry out works as part of the Lower Colne Improvement Scheme which both improve the local environment and provide an enhanced level of flood defence. The River Colne had been straightened and contained within hard, engineered surfaces resulting in shallow flows and a sterile environment of little conservation value. Lowering the height of the weir, constructing a fish pass and creating a sinuous channel with marginal shelves have generated a faster flow and the creation of new habitats as well as improving the appearance of this reach.

Within this landscape, the Region contains a wealth of historic and archaeological features, frequently associated with the river corridor, that are worthy of conservation.

Encroachment by past development has adversely affected many of the Region's conservation assets. Examples include the complete loss of several of London's rivers, including the Effra, Fleet, Tyburn and Westbourne, and the culverting of nearly 40% of the Ravensbourne river system in south east London. Depleted groundwater levels caused by over-abstraction also affect the conservation value of some of our chalk and limestone rivers such as the Mimram and Churn, as well as sites such as the Surrey heathlands.

There is continued demand for major development in areas of conservation importance, with current pressure points that include the floodplains of the River Kennet at Reading and the Stort Valley. Proposed growth at Swindon has considerable implications for the Rivers Cole and Ray, as well as the Great Western Community Forest.

Freshwater and estuarine fisheries within parts of Thames Region are gradually improving because of water and habitat quality improvements. For example, a wider range of species is now present in the tidal Thames than has been recorded for well over a hundred years. Elsewhere, fisheries are declining in quality. One cause is the seriously low flow in many of the Region's chalk streams. The Environment Agency will continue to use its powers to ensure the maintenance and enhancement of the Region's fisheries, as well as promoting the restoration and rehabilitation of damaged fisheries in conjunction with new development.

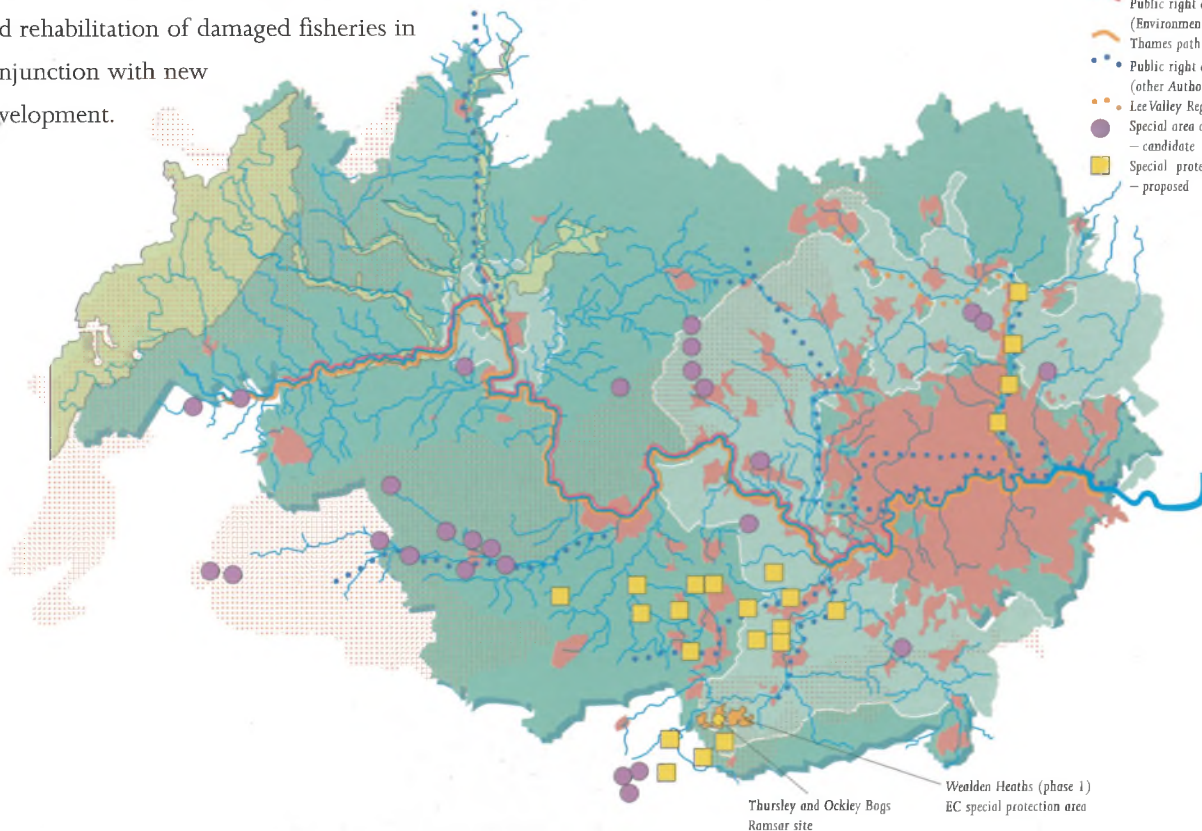


Apart from relieving Maidenhead, Windsor and Eton of the risk of flooding, the Maidenhead flood alleviation channel, now under construction, will be a significant environmental asset.

Map 7

Environmental assets

- Urban area
- Green belt
- AONB
- Environmentally sensitive area
- Rivers
- Public right of navigation (Environment Agency)
- Thames path
- Public right of navigation (other Authorities)
- Lee Valley Regional Trail
- Special area of conservation (SACs)
 - candidate
- Special protection area (SPAs)
 - proposed



Thursley and Ockley Bogs
Ramsar site

Wealden Heaths (phase 1)
EC special protection area

The Environment Act requires the Agency to have regard to protecting and conserving buildings, sites and objects of archaeological, architectural, engineering or historic interest. An archaeological survey of the Tidal Thames is being undertaken in partnership with English Heritage, the Museum of London and University College. It is gathering information on the River Thames foreshore between Teddington and the Thames Barrier. This information will assist understanding of the river's historic development and the conservation of features of importance. There is need for similar survey work in other parts of the Region.

The Environment Agency promotes conservation through its consultee role in the development planning process, and by participating in water level and estuary management plans. The Agency is also active in local conservation forums and initiatives, providing ecological advice to landowners, commissioning research, and undertaking surveys and habitat enhancement schemes.

Recent initiatives include the restoration of the River Cole (an EU LIFE demonstration project), the Cherwell Otter Habitat Project (working in partnership with BBONT – the Berks, Bucks and Oxfordshire Naturalist Trust – landowners and local authorities), development of a significant wet grassland and reedbed nature reserve at Otmoor (in partnership with RSPB) and enhancements made possible by gravel extraction at the Cotswold Water Park.



The new Wildfowl and Wetland Trust nature reserve at Barnes is a fine example of how the development planning process can lead to habitat enhancement on a significant scale. The site consisted of the reservoirs and filter beds which supplied south west London and were made redundant by the Thames Water Ring Main. The large expanse of water had attracted flocks of water birds which led to the site being designated a site of special scientific interest. The new wetland centre at Barn Elms is a collaborative venture between the Wildfowl and Wetland Trust, Thames Water and Berkeley Homes. The project involves the creation of a 40 hectare complex of wetland habitats and the visitor centre funded by the new housing development on part of the site.



As part of the Watford Colne Valley regeneration project, the Environment Agency is working in partnership with local authorities on a river improvement scheme to create backwater habitats and wetland berms for the benefit of flora and fauna.



Recreation

To retain, improve and promote water and waterside land for the purposes of public access and enjoyment, navigation, and appropriate recreational use.

Recreation

The Region's water-bodies and associated land are major recreational and sporting attractions, with activities including walking, bird-watching, rowing, angling, punting, canoeing and cruising. These areas are especially important as an amenity in urban areas, where other forms of natural open space are limited. Canals (and their towpaths) are man-made waterways that are frequently suited to recreational use, particularly in towns and cities – good examples include the Kennet and Avon Canal and the Grand Union Canal.

In urban locations even degraded areas round water-bodies are important as a recreational amenity. Lakes, reservoirs (e.g. the Queen Mary and Elizabeth reservoirs in west London) and former mineral workings also have a significant role to play in the provision of recreational amenity in the Region.

Broad indications are that demand for water-based recreation is increasing, but sensitive management of recreational activities is required to ensure that detrimental environmental impacts do not arise. For example, tidal barrages are seen to have recreational benefits, but they can also have an adverse environmental impact, as has occurred with past development such as the River Wandle barrage.

Balancing the demands for recreation with the need to sustain a healthy environment is an issue that exists across the Region. The Stort Valley on the border between Essex and Hertfordshire, the Lower Colne Valley between Rickmansworth and the Thames are all examples of this on-going management dilemma. Conversely, in the case of rivers such as the Mole, access to the river corridor at suitable locations is severely restricted and has scope for improvement.

New development can provide opportunities to improve the recreational usage of river corridors – for example, as proposed by a private developer at Caversham Lakes in Oxfordshire. However, there is a danger that already fully-exploited recreational resources will be over-used as a consequence of new development.

The Agency has a duty, when exercising its statutory powers, to promote the use of the water environment for appropriate recreational purposes. The Agency will therefore liaise with the wide range of agencies interested in water-related recreation, seeking partnerships in order to optimise recreational usage in those areas with the environmental capacity to support it, while minimising disturbance to tranquil or otherwise sensitive areas.



The Environment Agency, working in partnership with the Countryside Commission, is successfully promoting public access to the River Thames along the Thames National Trail, linking the source of the river with the Thames Barrier. Another successful example of working in partnership is the promotion of public waterside access as part of the River Lee Flood Relief Channel, a joint initiative between the Environment Agency and the Lee Valley Regional Park Authority. Riparian planning authorities, river users and Government Agencies have also played a key role in the preparation of the Recreation Strategy for the River Thames and they are invited to adopt its advice in their development plans and leisure strategies.

Navigation

Navigable waterways are a valuable transport resource. The River Thames is among the most popular pleasure-boating waterways in the country as well as being a major commercial route.

The Environment Agency is the navigation authority for the non-tidal River Thames and will therefore support planning policies which encourage the maintenance and improvement of navigation on the Thames, provided that any increase in river-based activity is not beyond the capacity of the environment to absorb it. There are a number of other navigation authorities in the Region, including British Waterways for the rivers Lee and Stort and the Grand Union Canal, and the Port of London Authority for the tidal Thames. These are key partners of the Agency with respect to managing commercial and recreational navigation within the Region.



Opening up the Rickmansworth Lakes with a countryside trail has been a partnership venture between the Agency, Three Valleys Water, the Countryside Commission, Local Councils and Nissan UK. The works have been undertaken to improve public access and to manage water levels so as to encourage roosting by waterbirds.



The Cotswold Canal Trust has begun to restore the Thames and Severn Canal in the vicinity of the Cotswold Water Park at Wildmoor Way Lock. It will provide a valuable recreational asset.

Chapter 3

The Thames Environment 21 strategy for land-use planning

3.1 Sustainability and development

Sustainability is frequently seen as a constraint on development. The Environment Agency does not share this view. It believes that the pursuit and implementation of sustainability is an inherent part of social and economic development and offers special opportunities for increasing the stock of environmental assets. The Agency is however opposed to development which is harmful to the environment because of its nature, design or location.

This chapter outlines the environmental pressures (including possible climate change) that might affect different parts of the Region, identifies the environmental constraints and opportunities the pressures may create, and highlights the recommendations of the Thames Environment 21 strategy. These are set out in the form of 'Guiding Messages' and 'Planning Strategy Tables' and include advice aimed at assisting planners and developers in the implementation of the strategy.

3.2 Key pressures and potential effects

The Agency has tested its Sustainability Principles against major development locations across the Region using an environmental appraisal technique. The results of this test assisted in the identification of key pressures and their potential effects, both in the short and longer term.

Key pressures	Potential environmental constraints and opportunities	Relevant Sustainability Principles and Planning Strategy Tables					
		1	2	3	4	5	6
Transport and Dispersed Development: Decentralisation of homes, jobs, and leisure facilities have produced a car-dependent society in Thames Region. The number of journeys made and the distances travelled have all increased, leading to severe traffic congestion in many parts of the Region and high resource-use, especially of minerals and energy. A more compact form of development, preferably using brown-field sites and with good access to public transport, can help avoid many of the damaging environmental effects. The increase in the transportation of goods by road has added to the problem.	<ul style="list-style-type: none"> • Deterioration in local air quality • Contribution to global warming • Increased flood risk from new roads and built development • Water pollution from increased surface water run-off • Threat to floodplain habitats and biodiversity • Greater fragmentation of river corridors 						
							

Key pressures	Potential environmental constraints and opportunities	Relevant Sustainability Principles and Planning Strategy Tables					
		1	2	3	4	5	6
Housing growth: The Government's Green Paper 'Household Growth: where shall we live?' suggests that current planned levels of growth will be exceeded by approximately 10%. This estimate is based on the Government's 1992 Household Projections. The Agency will be closely involved in assessing the consequences of proposed additional growth and its effect on the environment. It supports in principle the use of brownfield sites for such development.	<ul style="list-style-type: none"> • Increase in demand for public water supply • Increase in flood risk from built development • Increase in rates of surface water run-off • Threat to floodplain habitats and biodiversity • Fragmentation of river corridors • Increased waste production 						
							
Industrial and commercial development: Growth in the number of business parks and the development of high technology industry continue in an arc stretching from Northamptonshire through Oxfordshire and Berkshire to Surrey. Greenfield sites are usually chosen, with the effect of increasing the cumulative impact of degradation in hitherto attractive areas. At the same time, there has been a decline in traditional employment sources in London and other urban centres such as Oxford, Luton, Harlow and Stevenage. Economic regeneration is a major policy issue in such areas offering considerable scope for improving the quality of the built environment.	<ul style="list-style-type: none"> • Potential increase in demand for water • Increase in flood risk from built development • Increase in rates of surface water run-off • Threat to floodplain habitats and biodiversity • Fragmentation of river corridors • Increased waste production 						
							
Contaminated land: Development can frequently lead to environmental improvement especially where it takes place on derelict land - as is the case with many sites in London and the Thames Gateway.	<ul style="list-style-type: none"> • Pollution threat to air and water • Land remediation can reduce long-term pollution risks • Regeneration offers opportunities for recreation, conservation and landscape enhancements 						
Mineral extraction: Mineral extraction in Thames Region is primarily based on exploitation of valley gravels deposited in river corridors. The Cotswold Water Park in Gloucestershire and Wiltshire is the largest gravel-extraction area in England, but there are many other smaller sites, including those in the Windrush and Kennet valleys.	<ul style="list-style-type: none"> • Impact on groundwater levels • Increased flood risk • Threat to floodplain habitats and biodiversity • Fragmentation of river corridors • Threat to the integrity of the landscape • Conservation, recreation and landscape enhancements following restoration 						
Waste: On average each year every one of the 12 million people living in Thames Region throws about a third of a tonne of waste into the dustbin. Industry and commerce add another 25 million tonnes a year, much of it in the form of concrete and brick rubble. Managing waste disposal is an increasingly difficult task. Disposal of many kinds of waste to landfill sites is now considered unsatisfactory, especially in the longer-term.	<ul style="list-style-type: none"> • Loss of natural resources • Pollution threat to air, land and water 						
							

3.3 Climate change

Climate change is likely to compound the effects of pressures already acting on the environment and could have significant implications for the Thames Region.

Possible effects of climate change in Thames Region

Water resources

- changes in patterns of rainfall
- reduced recharge to groundwater
- increased demand for public supply and agriculture

Flood risk

- more frequent and intense storm events leading to increased flood risk
- sea level rises could impact upon the Thames Barrier and other tidal defences

Pollution control

- lower flows could reduce the dilution of effluents and discharges affecting water quality
- worsening air quality
- changes in rainfall and temperature could adversely affect processes in landfill sites

Species and habitats

- northward migration of plant and animal species
- reduced oxygen levels in rivers harming aquatic biodiversity
- adverse effect of low river flow on migrating fish

Recreation

- increased demand for water-based recreational activity.



Climate change may come to challenge our vision of a sustainable environment and of what further development within the Region can be regarded as sustainable. It is certainly an issue with which land-use planners must grapple both to help reduce emissions of 'greenhouse' gases and to respond to the effects of any climate change.



3.4 The Thames Environment 21 Strategy and regional diversity

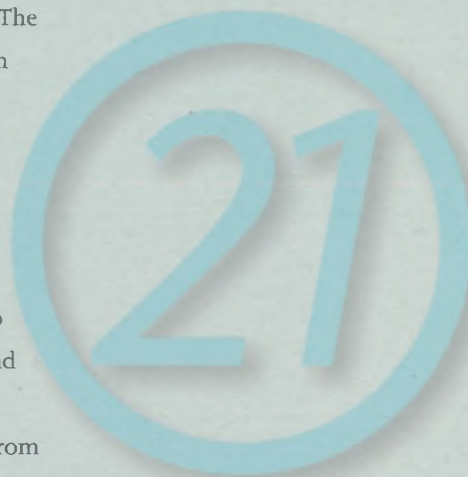
The strategy aims to conserve and enhance the distinctiveness and diversity of the environment in the Thames Region. This very diversity means that the strategy's implementation will vary according to particular circumstances in different parts of the Region. The Strategy's Guiding Messages, Planning Strategy Tables and Environmental Appraisal Process provide the framework for managing this diversity. They will also provide the criteria against which the activities will be assessed.

Within London the emphasis will be on the contribution that the environment can make towards securing a sustainable future for the capital and contributing towards its role as a world-class city of opportunity. The Agency will support the Greater London Authority in developing an integrated and strategic view of what will need to be done to achieve this. There is great scope for the restoration and enhancement of the Thames and other rivers, the deculverting of watercourses and the landscaping of river corridors. All these improvements can assist local authorities to establish green chains and improve their aesthetic and recreational value. Other environmental issues of particular concern in London include air pollution from both traffic and industrial sources, sustainable waste management and the remediation of contaminated land, particularly in inner urban areas.

Within all the older urban areas throughout the Region, the Agency will be seeking to work in partnership with local authorities and developers to optimise regeneration and redevelopment opportunities. Such opportunities occur particularly in the Thames Gateway, the Lower Lee Valley, the Wandle Mouth and urban centres in Hertfordshire, Bedfordshire and Buckinghamshire.

The Agency welcomes the safe remediation of contaminated land and supports initiatives which bring former derelict or contaminated sites into productive use. Development and regeneration of this kind offers excellent opportunities for overall environmental enhancement plus specific improvements such as habitat creation or improvement and the provision of recreational facilities.

Within the more rural parts of the Region, the main thrust of the Agency's work will be in the conservation of existing natural assets. These areas will continue to come under pressure from requirements for housing, business parks, roads, mineral extraction and waste management. The Agency's approach to these development pressures is to seek to secure a net improvement in environmental assets as part of the development process and to resist development only where the loss of critical natural assets is involved.



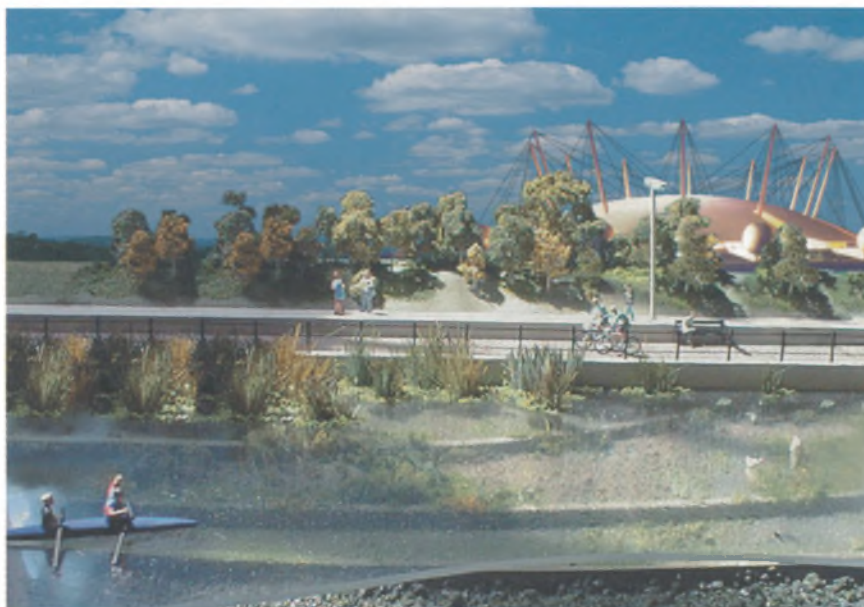
3.5 Techniques for implementing the Strategy

Integrated environmental planning

Integrated environmental planning is the key to delivering continuing environmental improvement and, ultimately, sustainable development - and the key word is integrated. The Agency has a wide range of powers and duties to protect certain clearly defined environmental resources and will continue to contribute to other aspects of environmental management which are the prime responsibility of others. However, concerted action between the Agency and all its partners is essential if the objective of sustainable development or, more particularly, of sustainable land-use planning and development is to be achieved.

Environmental mitigation and enhancement

The Agency will continue to identify specific opportunities for suitable on-site mitigation and enhancement associated with new development. As a statutory consultee in the planning process, it will continue to press for development that through its location and design minimises negative environmental impact and maximises environmental benefits. Environmental assessment, including scoping studies, is a useful technique for ensuring that environmental issues are comprehensively addressed in each development proposal.



The Greenwich peninsula site has been decontaminated and is being developed for the Millennium exhibition. The Environment Agency has worked closely with British Gas and English Partnerships to obtain an imaginative flood defence scheme incorporating enlarged beaches and tidal terraces with improved habitats for wildlife.

Environmental data and 'State of the Environment' report

To achieve sustainable development the Agency recognises the need to establish an 'environmental baseline'. The Agency already monitors and reports regularly on water quality, water resources, river corridor habitats, fisheries and ecology, regulated industries and processes, flood risk and much else. New duties require monitoring and reporting of contaminated land sites and waste production. The Agency has begun preparation of a 'State of the Environment' report for the Region that will further develop our understanding of its environmental assets and the appropriate management strategies needed to conserve and enhance them.

Resource management

The Agency will promote sustainable resource management. It will manage the Region's air, land, water and associated flora, fauna and human resources to ensure that any new development avoids wasteful use of those resources and does not lead to significant or irreversible environmental changes that may jeopardise the benefits they offer now and in the future.



The removal of a culvert as part of a redevelopment scheme at Farnham.

The six Sustainability Principles will be used to help gauge the ability of the environment to accept any new development. We will develop a range of methodologies in environmental indicators, environmental-carrying capacity, threshold analysis, cumulative impact assessment and strategic environmental assessment. Much of this work has already begun and the Agency will work with other organisations such as SERPLAN, Local Authorities, English Nature and the RSPB to develop coherent and integrated strategies for environmental management in Thames Region.

Identification of carrying capacity

In particular the Agency believes that this baseline data can be used to help identify 'environmental-carrying capacity' (defined as 'the capacity of an area to accept further development without overall loss of environmental quality'). This is an emerging concept and one that is likely to be critical in the Region's future planning. The Agency already uses the concept in some of its work - for instance in setting standards and targets for water quality. It should prove invaluable in future planning on water resources, waste management, habitat protection and much else.

The Agency will continue to work towards defining environmental-carrying capacities across a range of environmental issues and towards the development of environmental indicators as part of our 'State of the Environment' reporting procedure. The environmental indicators will help measure change in the environmental quality of Thames Region and enable us to adapt objectives and management approaches accordingly.

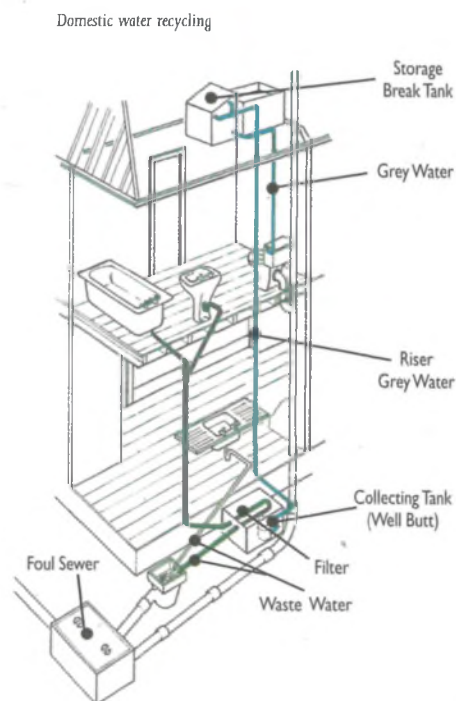
3.6 The Environmental Appraisal Process

Our Environmental Appraisal Process was used during the preparation of Thames Environment 21 to analyse strategically the potential and potentially cumulative environmental impacts of a number of major development proposals across the Region. An integral aspect of this work has been the development of a profile of environmental constraints and opportunities for each county within the Region and for London. These will be updated to reflect changing demands and will aid the Agency in its discussions with local planning authorities.

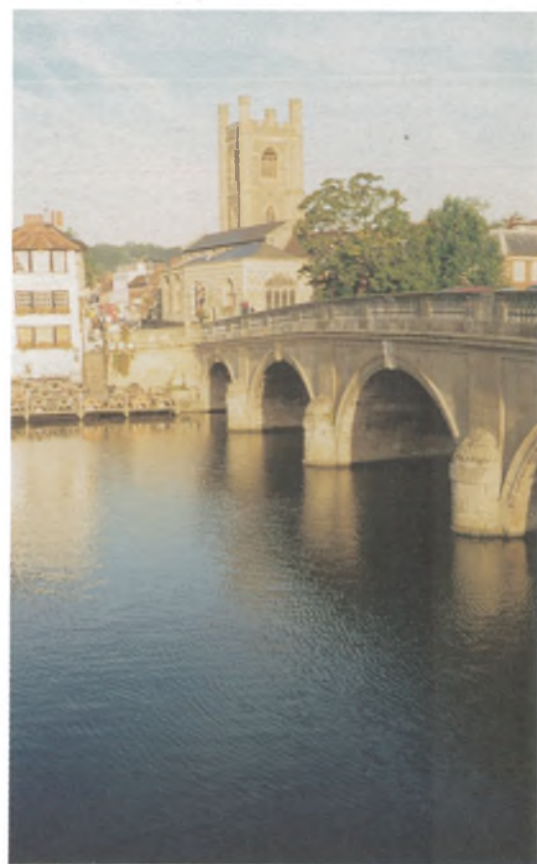
The Agency will welcome opportunities to work with partners to apply this Environmental Appraisal Process. Your first contact will be the relevant Area Customer Services Manager or the Regional Strategic Planner (contact details on back cover).

The Environmental Appraisal Process is currently being applied in London, Hampshire, Swindon and Hertfordshire and will be applied to other parts of the Region to support the Agency's role in the preparation of development plans and in its contribution to any Inquiries.

These Studies provide a focus for forming partnerships with organisations involved in land-use planning to identify and appraise environmental constraints and opportunities.



At Shenley in Hertfordshire, Crest Homes are trialling a 'well butt' system to recycle water in new homes and reduce domestic water consumption by up to 40%. If successful, it could become a feature of all new Crest Homes.



3.7 Guiding Messages

The Guiding Messages that follow are intended to clarify the Agency's approach and objectives, and to give practical help to all those involved in land-use planning and development who are working to the same goal of sustainable development.

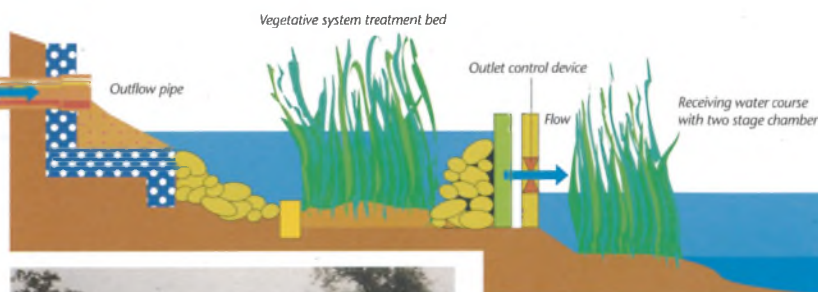
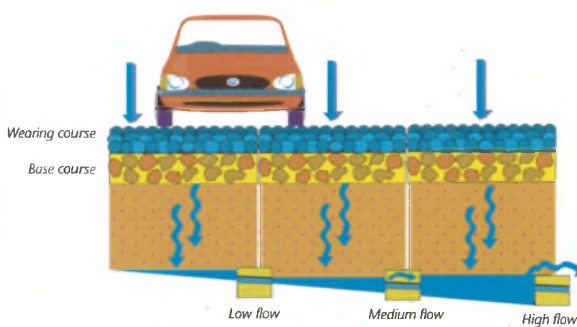
To Strategic Planning Organisations:

- The protection and enhancement of the natural environment should be central to the future development of the Region and should be reflected within Government and Regional Planning Advice and in local authority development plans.
- New development should be planned to minimise the demand for natural resources, the generation of waste and the impact on the environment. These requirements should be promoted in local authority development plans and design guides, developers' in-house practices and all public building projects. Where possible, the adverse environmental effects of former development should be corrected.
- Development should be located and designed to minimise the risk of pollution to land, air, and water.
- All opportunities should be taken to raise public awareness and understanding of environmental issues, including the use of natural resources and the minimisation and re-use of waste.
- Sustainable development is only possible if the Region's biodiversity is maintained and enhanced.
- Where appropriate, the use of improved technologies and environmentally-friendly processes should be adopted in all new development.



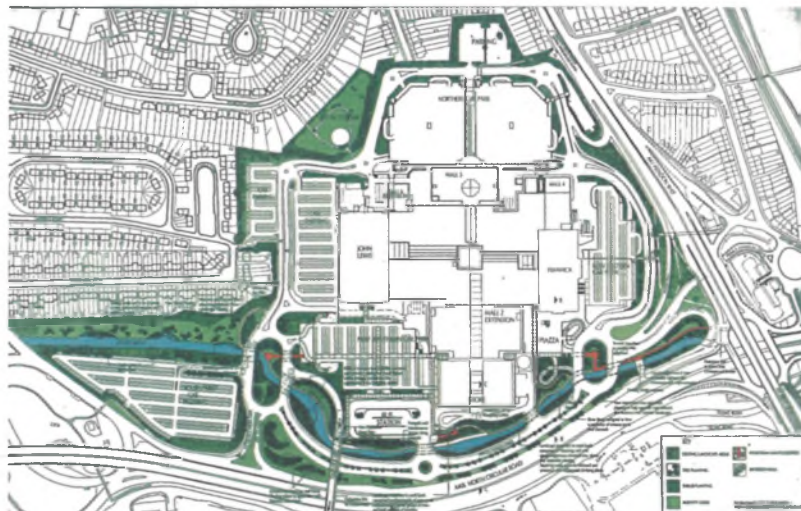
Both the developer and the Local Authority co-operated with the Environment Agency to enhance the river environment at Soho Mill, Woburn Green and provide an improved setting for the new development.

An excellent example of the integrated management approach is provided by source control measures. New development with hard impermeable areas can significantly increase rates of surface water run-off during heavy rainfall. This results in the rapid loss of water from the catchment before it can permeate through the ground and replenish aquifers. The Agency is therefore promoting a range of 'source control' measures, relating to the appropriate design and layout of new development. These measures can have a beneficial effect upon the quality as well as quantity of surface water run-off. The Agency can advise planning authorities and developers about catchment-wide source control measures such as appropriate design and layout of new development, on-site water attenuation and permeable surfaces. These measures offer a variety of benefits: they can alleviate flood risk, improve water quality and promote groundwater recharge. The car park at this superstore demonstrates several aspects of source control. A permeable pavement prevents rapid run-off of surface water which is collected through pipes in the sub base and discharged for filtration through a reed bed. A two-stage channel restricts the rate of discharge into the local stream.



Regarding development in general:

- Development activities not incorporating measures to control pollution to acceptable levels should not be considered an appropriate use of land
- Any development near potential sources of pollution should be given appropriate protection.
- An integrated approach to air-quality management should be developed so that air-quality planning is considered alongside transport and land-use planning.
- Development should normally be located away from areas with water-supply difficulties.
- Development should be avoided on areas at risk from flooding or where development would increase the risk of flooding elsewhere.
- Development on areas at risk from flooding should only be considered where appropriate environmentally-sensitive flood-management measures can be implemented.
- The integrity of London's tidal defences must be maintained.
- Development on increasingly rare and threatened floodplain habitats of conservation interest must be avoided.
- Encroachment of development into rivers or river corridors must be avoided.
- Natural surface-water drainage methods should be incorporated into all major development proposals so as to minimise the increased risk of flooding caused by rapid surface water run-off.
- The diversity of the landscape and the character of river corridors should be conserved and enhanced.
- New development should facilitate improvement and enhancement of the ecological and recreational value of riverside areas.
- Development should respect and where appropriate utilise natural processes which maintain ecological diversity and allow the buffering of adverse environmental impacts.
- New land-contamination should not occur and the remediation and re-use of contaminated land should be achieved wherever possible.



The proposed extension of the Brent Cross shopping centre will provide the opportunity to divert the River Brent to a more natural channel which will include pools, riffles, and improved access. It will also include measures to prevent siltation at the Welsh Harp reservoir.



A variety of sites within built up areas are being identified for development. This proposed housing development at Hampton Green is on the site of former filter beds of the adjacent water works.

Regarding water resources:

- Water conservation and leakage control should be given the highest priority in order to reduce demands on water resources and supply infrastructure.
- Advice to local planning authorities on the location of the new development should take account of the availability of water resources to meet increased demands, and the potential environmental impact of any associated water resource developments.
- Appropriate measures to minimise the water usage of new development, for example by including water saving devices, re-use or recycling, should be encouraged.

Regarding waste management:

- The waste hierarchy should be applied in a flexible manner according to the nature of individual waste streams and the Best Practical Environmental Option for their management and disposal.
- Finite resources should be conserved wherever possible through implementation of the waste hierarchy.
- Delivery of a sustainable strategy will require significant changes in the handling, management and use of the Region's waste. Waste-management and disposal issues need to be tackled by the many organisations involved working in partnership. The overall strategy must be reflected in local plans and in a future plan for Greater London.
- High environmental standards must be applied in the construction and operation of new waste facilities.
- Waste should be processed as close as possible to its source, and rail or river transportation should be used wherever feasible.



Regarding minerals:

- Use of high-quality aggregates should be restricted to appropriate purposes. Secondary and recycled materials should be utilised wherever possible.
- The Region's gravel resources are usually located in river valleys, which are often areas of great natural, historical and cultural value. Mineral exploitation must not exceed an area's environmental-carrying capacity and should recognise the sensitivity of the landscape.
- Mineral working, restoration and aftercare should be sensitive to the overall quality of the environment, the management of water resources and the flood risk.
- Reclamation of mineral working sites provides opportunities for returning land to a wide variety of uses, including agriculture (grazing on water meadows for instance) and recreation.



3.8 Planning Strategy Tables

The following Planning Strategy Tables provide our partners with practical help in implementing the Agency's Sustainability Principles.

Principle 1

Water resources



Principle 2

Flooding



Principle 3

Pollution



Principle 4

Waste



Principle 5

Conservation



Principle 6

Recreation



Planning Strategy Table for

Sustainability Principle 1:

To manage groundwater and surface-water resources to achieve the right balance between the needs of society and of the natural environment.

1. Environment Agency position statement	<p><i>Present or future use of water resources should not create long-term deterioration of the natural environment. To support new development, adequate water resources and supply arrangements must be available. Additional abstraction from ground and/or surface water sources will only be licensed by the Agency if it does not cause detriment to the natural environment or existing users. Vigorous promotion of water-conservation and demand-management measures, targeting particularly those parts of the Region with high leakage, must be a precursor to the licensing of any new resources. In exceptional circumstances, proposals for new reservoirs, such as at Abingdon, or other major supply sources may be considered on their merits, with the need for the additional resource, hydrological and site impacts, and overall benefits to the Region's environment all being taken into account. Water-resources plans should be robust to fluctuations in rainfall and potential climate change. They should incorporate appropriate safeguards for the environment and balance the impacts on users with those on the environment at times of drought.</i></p>
2. Considerations for planners and developers	<p>Does the policy or proposal:</p> <ul style="list-style-type: none"> • Consider the availability of existing water resources and infrastructure? • Create the need for new supplies which may need to be planned in association with the water companies and the Agency on a long-term basis? • Promote the efficient use of water through the adoption of water efficient appliances, fixtures, fittings and landscaping? • Affect the flow, level and quality of surface waters and groundwater? <p>Future issues for the planning agenda:</p> <ul style="list-style-type: none"> • Levels of development which increase water demand to the point where resources cannot be found to meet the needs of existing and new consumers without detriment to the environment. • Mitigation or deferral of the need for new resources by incorporating water-conservation measures. • Increasing river flows through effluent or surface water run-off return upstream of surface-water abstraction points.
3. Baseline data	<ul style="list-style-type: none"> • Hydrometric surveys • Ecological surveys • Balance between forecast demand and resource availability • Licensed abstraction data • Geology maps
4. Potential environmental indicators	<p>Pressure:</p> <p>Abstraction as % of effective rainfall</p> <p>Rate of increase in demand / consumption</p> <p>Resource – demand balance / forecast imbalance</p> <p>Length of main river suffering low flows due to abstraction</p> <p>Number of drought orders / drought permits required</p> <p>State:</p> <p>Volume of abstraction by purpose</p> <p>Water consumption by use</p> <p>Domestic consumption per capita</p> <p>Groundwater level trends</p> <p>River-flow trends</p> <p>Storage trends in reservoirs</p> <p>Quantity lost through leakage</p>



Response:

Water conservation policies in development plans

Leakage targets and water-conservation policies

Amount of new development incorporating water efficiency

Alleviation of low flows/length of main river restored

Promotion of new resource schemes where growth in demand cannot be managed

5. Mitigation and enhancement opportunities

- Use of water-efficient fixtures, fittings, appliances and processes.
- Use of low-water-use landscaping and site rehabilitation methods.
- Water-metering in all new development.
- Improved per capita water consumption.
- Longer-term development of rainwater and, possibly, grey water re-use systems for domestic and commercial properties.

6. Environment Agency commitment

When required, the Agency will appear at public inquiries to support reasons for refusal, or local planning authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or where no policy is included, we will submit an objection and when necessary appear at inquiry to support our case.

Supporting Agency documents:

- Thames Region Water Resources Fact File (1997)
- Future Water Resources in the Thames Region (1994)
- Water: Nature's Precious Resource (1994)
- Local Environment Agency Plans

Priorities and targets:

- To ensure that new development does not create pressures which result in or exacerbate problems of over-abstraction and to develop appropriate environmental management responses.
- To promote the concepts of leakage-control and water conservation.
- To ensure that new abstraction licenses are only granted where water companies can demonstrate proven long-term commitment to demand management measures and performance against economically established targets.
- Only to grant abstraction licenses where abstraction is sustainable and where full demand-management and conservation measures can be demonstrated.
- To encourage local authorities and developers to discuss strategies and incentives for ensuring the efficient use of water in new development.
- To protect surface-waters and groundwaters from pollution and depletion.

7. Partners and customers

Local authorities through their planning and building regulation roles, OFWAT, water companies, developers and consumers.

8. Key legislation and planning guidance

Environment Act (1995), PPG12, PPG17, MPG2, MPG6, RPG3, RPG9, RPG10, Sustainable Development – The UK Strategy (1994), Biodiversity Challenge (1995), Water Resources and Supply – Agenda for Action (1996), Water Summit – Action on Leakage (May 1997)

Planning Strategy Table for

Sustainability Principle 2:

To manage floodplains and flood risk for the benefit of people and the natural environment and for the protection of property

1. Environment Agency position statement

Past development within the Thames catchment has frequently exacerbated the risk of flooding either by promoting rapid surface water run-off or because the development itself has encroached upon the floodplain. It is extremely expensive to provide flood defences in response to increased flood risk and can additionally be damaging to floodplain habitats. Consequently any new development which would be at risk of flooding or cause flooding elsewhere should be resisted. Where development does take place in the floodplain, the developer must fund and construct new flood defences and provide for their maintenance and renewal. Sustainable flood-defence management must take into account natural processes and avoid committing future generations to inappropriate highly engineered and high-cost flood defence schemes.

Climate change may alter flood risks in different parts of the Region through sea-level rises and new rainfall regimes, and extra caution will be needed in planning for future flood risk.

2. Considerations for planners and developers

Does the policy or proposal:

- Involve development, including an intensification or change of use or landraising on land with an unacceptable flood risk?
- Represent an exceptional case where development should proceed subject to appropriate mitigation measures?
- Involve culverting or any other restriction in the capacity of a watercourse?
- Affect the integrity of fluvial and tidal flood defence structures?
- Conserve the floodplain and any sensitive floodplain habitats?

Future issues for the planning agenda:

- Incorporating measures in the design and layout of new development to reduce rapid rates of surface-water runoff from areas of hard surfacing.

3. Baseline data

- Hydrometric survey results
- Flood modelling data
- Floodplain maps

4. Potential environmental indicators

Pressure:

Number of properties/land at risk from flooding
New development in flood-risk areas
Population living in flood-risk areas

State:

Number of heavy rainfall warnings/storms
Length of main river in different land-use bands
Length of tidal defences in London

Response:

Coverage of water level management plans
Investment in flood-control structures and river maintenance
Number of flood warnings issued
Number of Thames Barrier closures



5. Mitigation and enhancement opportunities

- Protection and reinstatement of natural floodplains to provide storage and free flow of flood water.
- Creation or enhancement of floodplain habitats.
- Protection and improvement of existing flood defence structures, especially London's tidal defences.
- Provision of new defences which work with rather than against natural processes.
- Provision of on-site stormwater storage areas within new development areas.

6. Environment Agency commitment

When required, the Agency will appear at public inquiries to support reasons for refusal, or local authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or no policy is included, we will submit an objection and when necessary appear to support our case.

Supporting Agency documents

- Thames Region Flood Defence Fact File (1997)
- Policy and Practice for the Protection of Floodplains (1997)
- Local Environment Agency Plans
- Water Level Management Plans

Priorities and targets

- To develop a strategic framework for the management of rivers and estuaries.
- To prepare water level management plans for sensitive wetland habitats.
- To develop a framework for restoring floodplain capacity.
- To increase usage of washlands/floodplains for stormwater run-off from roads and new development.

Research and development

- To increase understanding of geomorphology and linkages with flood risk.
- To develop new methodologies, techniques and supporting information to assist flood defence management.

7. Partners and customers

Local authorities, MAFF, British Waterways, National Trust and developers and landowners.

8. Key legislation and planning guidance

Environment Act 1995, Water Resources Act 1991, DOE Circular 30/92, RPG3, RPG3B, RPG9, RPG9A, RPG10.

Planning Strategy Table for Sustainability Principle 3:

To maintain and where possible improve the quality of air, land and water through the prevention and control of pollution, and by applying the 'polluter pays' principle.

1. Environment Agency position statement

The Agency promotes an integrated approach to preventing and controlling pollution of air, land and water.

In regulating the largest and most potentially polluting industrial processes the Agency applies the principles of best available techniques not entailing excessive costs and best practicable environmental option when assessing processes requiring Integrated Pollution Control (IPC) consent. The Agency will provide Local Authorities with technical advice and support on pollution issues to help them determine any planning applications which also require IPC consent. Non-point source emissions, especially vehicular, are however the main contributors to poor air quality in Thames Region. Whilst the Agency has no powers to deal with such emissions, it will provide technical advice to help Local authorities implement the National Air Quality Strategy.

The remediation, re-use and enhancement of contaminated and derelict sites, particularly in urban areas, should be encouraged. The creation of further contamination should be avoided.

Maintaining and improving the quality of groundwaters and surface-waters in the Region is critical if they are to support a range of human uses and maintain biodiversity. The Agency sets Statutory Water Quality Objectives for surface-waters across the Region which determine the standard of water quality that must be achieved by a specified date. The Agency applies these objectives when regulating discharge consents, and advises Local Authorities and developers on the potential impacts of development proposals upon water quality. Key water-quality issues across the Region relate to the impact of rapid surface water runoff in urban areas and the capacity of sewage treatment infrastructure to cope with increased development pressures.

2. Considerations for planners and developers

Does the policy or proposal:

- Support the prevention and control of pollution to groundwater and surface-water, air and land?
- Involve development which will pose a risk to the quality of ground or surface waters?
- Breach the capacity of sewage treatment works or receiving waters in rivers to accept increases in sewage treatment outflows without adversely affecting water quality?
- Affect the ability of existing drainage and sewerage infrastructure to cope with new demands?
- Promote the safe remediation of contaminated land?
- Incorporate advice to developers on pollution prevention measures on construction sites?

Future issues for the planning agenda:

- Design and layout of sites to reduce and treat on site polluted runoff from areas of hard surfacing, particularly roads and car parks.
- Developments to incorporate measures for the prevention and control of potentially polluting activities or processes including:
 - provision of buffer zones along watercourses
 - the use of pollution abatement technology.
- Control of pollution-generating development likely to affect adversely areas of localised poor air quality.

3. Baseline data

- Maps showing the chemical and biological quality of rivers
- Groundwater vulnerability maps
- Groundwater source protection zones
- Maps of point source emissions to air.



4. Potential environmental indicators

Pressure:

Emissions from vehicles, industry and homes
Consented industrial discharges
Consented treated sewerage discharges as % of river flow
Number and volume of storm-water discharges
Pollution incidents by type and severity

State:

Urban air quality
River and Thames Tideway water quality (GQA)
Contaminants (organic) in fish
Area of land classed as contaminated

Response:

Designation of air quality management areas
Schemes in Water Industry's 'Asset Management Plans'
Surface water quality objectives
Area of contaminated land regenerated

5. Mitigation and enhancement opportunities

- Benefits associated with use of improved technology and environmentally friendly processes.
- Redevelopment of older industrial areas, derelict sites and contaminated land to improve environmental quality.
- Relocation of 'bad-neighbour' uses.
- Reduction in the incidence of sewage misconnections especially in London.

6. Environment Agency commitment

When required, the Agency will appear at public inquiries to support reasons for refusal, or local planning authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or when no policy is included, we will submit an objection and when necessary appear to support our case.

Supporting strategies

- Thames Region Integrated Pollution Control Fact File (1997)
- Thames Region Water Quality Fact File (1997)
- Contaminated Land and the Water Environment (1994)
- Policy and Practice for the Protection of Groundwater (1992)
- Local Environment Agency Plans

Priorities and targets

- To develop new techniques for preventing and controlling surface-water pollution from road run-off, firewater and other accidental spillages, or from deliberate spillage.
- To increase usage of washlands/floodplains for storage and treatment of polluted storm-water run-off from roads and new development.
- To develop a strategy for the control of eutrophication (nutrient enrichment).
- To develop a strategy for use of buffer strips to reduce/diffuse water pollution and conserve soils.
- To develop a strategy with the water industry and others for the safe disposal and beneficial use of sewage sludge with particular regard to its spreading on agricultural land.
- To develop a methodology to identify and evaluate the environmental effects of the release of Radio-active substances into the environment.

7. Partners and customers

Local authorities, regulated industries, water companies, the Highways Agency and developers and landowners.

8. Key legislation and planning guidance

Environmental Protection Act (1990), Environment Act (1995), Sustainable Development – The UK Strategy, PPG12, PPG23, National Air Quality Strategy, National Strategy on Contaminated Land, RPG3, RPG9, RPG10.

Planning Strategy Table for

Sustainability Principle 4:

To achieve reductions in waste through minimisation, re-use, recycling and improved standards of handling and disposal.

1. Environment Agency position statement

In an average year, each of the 12 million people living in the Thames Region throw about a third of a tonne of rubbish into the dustbin. In addition industry and commerce discard about 25 million tonnes of waste – much of it in the form of concrete and brick rubble. Consequently, significant and urgent changes are needed in methods of handling, managing and disposing of the Region's waste. The volume of waste produced must be minimised and efficient use made of the remainder which represents a re-usable resource.

The Region urgently needs an up to date framework of local authority Waste Local Plans and Integrated Municipal Waste Management Strategies. The Agency is committed to working with the many groups and organisations concerned in the production, management and disposal of waste materials to achieve a sustainable waste management strategy which must include better integration between waste planning in London and the rest of the South East.

The Agency supports implementation of the waste hierarchy and proximity principles. In advising on waste management options, however, the Agency acknowledges that individual decisions must assess the full range of direct and indirect environmental impacts of each option in order to identify the Best Practicable Environmental Option which, on balance, minimises the overall negative environmental impact and maximises potential benefits.

2. Considerations for planners and developers

Does the policy or proposal:

- Contribute to, and make provision for meeting the Government's primary waste targets?
- Provide an optimum mix of waste handling, management and disposal facilities for Thames Region in accordance with the waste hierarchy. New facilities should be provided in an environmentally acceptable manner?
- Support the principle that waste should be recovered and disposed of as close as possible to where it is produced?
- Utilise rail and water modes to transport waste over longer distances whenever this is feasible?

Does the proposal for landfilling or landraising:

- Affect groundwater or surface-water quality or groundwater flows?
- Avoid the floodplain?
- Affect the amenity or recreational value of river corridors?
- Make adequate provision for leachate and landfill gas monitoring and collection?
- Include plans for site restoration which make allowance for any special requirements arising from pollution control measures?

Future issues for the planning agenda:

- Increased re-use of construction and demolition material, particularly on-site re-use and recycling.
- Provision of local recycling facilities in new housing, commercial and industrial developments.

3. Baseline data

- Amount (by weight) of waste generated
- Amount of waste going to landfill
- Volume of landfill void space
- Waste to energy capacity
- Recycling capacity

4. Potential environmental indicators

Pressure:

Waste produced by weight for the different waste streams
Landfill void capacity/% of waste arisings landfilled

State:

Waste transported by mode
Waste to energy capacity
Recycling process capacity

Response:

Waste minimisation initiatives
% of waste stream reused or recycled
% of construction/demolition waste recovered

5. Mitigation and enhancement opportunities

- Rehabilitation of landfill sites particularly for conservation or recreation.

6. Environment Agency commitment

When required, the Agency will appear at public inquiries to support reasons for refusal, or local planning authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or where no policy is included, we will submit an objection and when necessary appear to support our case.

Supporting Strategies and Information:

- Thames Region Waste Regulation Fact File (1997)
- National Waste Classification System
- National Waste Database for Industrial and Commercial Waste Arisings
- Life Cycle Assessment Methodology
- Best Practical Environmental Option Methodology
- Strategic Waste Management Assessments
- Local Environment Agency Plans

Priorities and Targets

- Achievement of national waste strategy targets for the recovery, recycling and composting of municipal waste.
- Achievement of national waste strategy targets for the reduction of waste disposed to landfill.

Research and Development

- Research into the technical needs of successful waste management, including best practice and best practical environmental options.

7. Partners and customers

SERPLAN, LPAC, London Waste Action Programme, local authorities in their roles as waste collection, disposal and planning authorities; the waste industry and waste producers.

8. Key legislation and planning guidance

Environment Act (1995), PPG23, RPG3, RPG9, RPG10, Making Waste Work (1995).



Planning Strategy Table for

Sustainability Principle 5:

To conserve and enhance the natural, cultural and historic value of river corridors, their landscapes and biodiversity.

1. Environment Agency position statement

No part of the Region's natural environment is untouched by the impact of human activity and there has been overall a major decline in natural habitats and indigenous species during last 50 years. London contains some of the most heavily urbanised river catchments in the country where development extends right up to the river edge and where long sections of river channel are culverted or run in artificially surfaced channels. Elsewhere the Thames catchment retains habitats and landscapes of immense conservation value including many of national importance.

The Agency employs landscape, conservation and fisheries specialists who work with specialists in other organisations and can advise on environmental projects. The Agency's conservation duties extend to heritage and archaeology, particularly adjacent to watercourses where we work with County archaeologists to decide appropriate actions.

Biodiversity (the variety of wildlife) provides significant economic benefits and has aesthetic, social and educational value. It is also one of the most important indicators of the overall state of the environment and environmental quality. Development pressures are set to continue to place further demands on the Region's environment in general and the water environment in particular. There are also likely to be significant adverse environmental impacts due to poor air quality and, in the longer term, predicted climate change.

Through the use of its powers and duties with regard to water management and pollution prevention and control, and through partnerships with those involved in the strategic planning process, the Environment Agency will strive for improvements in environmental quality, leading to the conservation and enhancement of the Region's biodiversity, landscape character and heritage features. In particular the Agency will work towards the improvement of degraded river corridors in London and other urban areas where new development and partnerships offer significant opportunities for environmental improvement. Outside of these areas the emphasis will be on the protection of high quality habitats and landscapes such as the river corridors of the Cotswolds and Chilterns.

2. Considerations for planners and developers

Does the policy or proposal:

- Affect river landscape character and water-related heritage?
- Affect rivers and associated land and their role as wildlife corridors?
- Affect wetland sites of heritage or archaeological value?
- Identify and avoid risk of disturbing sensitive wildlife habitats?
- Impact on or cause loss of tidal or non-tidal foreshore, including mudflats, salt marshes and beaches?
- Support the conservation value of natural floodplains and other wetlands?
- Maintain the biodiversity of the area affected, avoiding adverse or irreversible impacts on wildlife?
- Maintain or improve water quality and river flows which are important factors for fisheries and aquatic wildlife?

Future issues for the planning agenda:

- An increasing recognition of the importance and role of natural resources and natural systems in maintaining biodiversity.
- Work towards the achievement of Biodiversity Action Plan targets.
- Incorporate sensitive landscape design and features to reinforce local distinctiveness and variety.
- Demonstrate a full understanding of the effects of the proposed development on wildlife in the locality.
- Use regeneration opportunities to conserve and enhance green corridors provided by rivers, particularly in London.
- Make appropriate use of local materials.

3. Baseline data

- Distribution of major species and habitats
- River Landscape Assessments
- River Corridor Surveys
- River Habitat Surveys
- Fisheries Surveys
- Distribution of heritage sites
- Maps showing chemical and biological quality of rivers and the Thames Tideway



4. Potential environmental indicators

Pressure:

Land use change arising from new development
Loss or damage to designated areas due to new development
Increased pollution levels
Increased rates of water abstraction

State:

Landscape character
Area of sites designated of special conservation importance
Biodiversity species (Agency key species)
River Habitat Quality Index
Number and distribution of ponds
Length of natural river bank

Response:

Biodiversity Action Plan Targets
Area of designated wildlife sites

5. Mitigation and enhancement opportunities

- *Planting of native trees and shrubs, particularly important close to watercourses to provide shade and cover for wildlife.*
- *Opening-up sections of culverted watercourse.*
- *Re-shaping or improvement of river channels or banks.*
- *Provision of buffer zones adjacent to watercourses to reduce pollution risk and to provide strategic wildlife corridors.*
- *Reinstatement of floodplain or wetland habitats.*
- *Creation of new ponds or renovation of existing ones.*

6. Environment Agency commitment

When required, the Agency will appear at public inquiries to support reasons for refusal, or local planning authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or where no policy is included, we will submit an objection and when necessary appear to support our case.

Supporting strategies:

- *Thames Region Conservation Fact File (1997)*
- *Thames Region Fisheries Fact File (1997)*
- *Local Environment Agency Plans*
- *Thames Region Conservation Strategy (due 1998)*

Priorities and targets

- *To help the Region's rivers recover from the effects of drainage, pollution, abstraction and development.*
- *To understand the importance of local biodiversity in the context of national and international objectives.*
- *To implement Biodiversity Action plan responsibilities for species and habitats.*
- *To promote and secure funding for river restoration and wetland rehabilitation.*

Research and development

- *Develop effective survey, monitoring and classification methods for assessing conservation and fisheries interest.*
- *Develop methodology to evaluate environmental impact.*
- *Develop cost-effective management strategies and techniques which secure conservation and biodiversity objectives.*
- *Develop best-practice techniques for improving and enhancing fish habitats.*

7. Partners and customers

Local planning authorities and county archaeologists, English Nature, Countryside Commission, Royal Society for the Protection of Birds, National Trust, English Heritage, British Waterways, Port of London Authority, Museum of London, London Ecology Unit, County Wildlife Trusts and other local environmental organisations, landowners and developers.

8. Key legislation and planning guidance

Environment Act (1995), Wildlife and Countryside Act (1981), PPG9, PPG15, PPG16, RPG3, RPG3B, RPG9, RPG10, Biodiversity – The UK Action Plan (1994)

Planning Strategy Table for Sustainability Principle 6:

To retain, improve and promote water and waterside land for the purposes of public access and enjoyment, navigation, and appropriate recreational use.

1. Environment Agency position statement

The Region's rivers and water space are major recreational and sporting attractions. The Agency has a duty, when exercising its statutory powers, to promote the use of the water environment for appropriate recreational purposes. Indications are that demand for water-based recreation is increasing. The Agency will therefore liaise with Local Authorities and others interested in water-related recreation in order to optimise the recreational potential of rivers and water space whilst conserving and enhancing their ecological, landscape and heritage value. This should be facilitated by new development which can provide an opportunity to realise the appropriate recreational usage of river corridors. Of prime concern to the Agency is the need to recognise the recreational potential of watercourses within London and other urban areas. Although many are degraded, they are extremely valuable as urban open spaces which should be conserved and enhanced for the benefit of local communities.

In future, achieving an optimal level of recreational activity will require planning and careful monitoring of pressures, particularly those associated with attractive riverside towns such as Henley and Marlow, the Thames Path National Trail; the foreshore in London; and other water-side 'honeypot' sites. Particular issues relate to public health and safety, water quality, access for all and the provision of information boards and visitor facilities. Demands could be heightened if predicted climate change makes outdoor recreation an even more attractive activity.

Canal restoration creates new recreational opportunities. However, canals require significant quantities of water to support navigation and water availability can impose a significant constraint on such proposals.

Navigable waterways can be a valuable mode of transport. The Region contains many navigations including the River Thames, one of the busiest waterways in the country. As the navigation authority for the non-tidal River Thames, the Agency supports planning policies which encourage the maintenance and improvement of navigation on the Thames, provided that any increase in river-based activity is not beyond the capacity of the environment to absorb it. The commercial use of waterways is supported by the Agency in principle as a means of reducing the environmental impacts of other modes of transport.

2. Considerations for planners and developers

Does the policy or proposal:

- Involve development which supports the use of waterways as a commercial or recreational navigation?
- Lead to the loss of river-side facilities and services for boaters?
- Support the rural or riverine economy?
- Involve the creation of additional moorings – which however need to be carefully controlled to avoid problems of over-use, particularly on some sections of the River Thames?
- Support the provision of new water-based recreational opportunities, particularly through improved pedestrian and cycle access, waterside urban regeneration and restoration of former mineral workings?
- Protect existing or provide increased public access to the tidal foreshore in London?

Future issues for the planning agenda:

- Increased public bathing in inland waters.

3. Baseline data

- Surveys of moorings
- Lock traffic trends
- Pedestrian use of Thames Path National Trail

4. Potential environmental indicators

Pressure:

Length of river corridor subject to overuse from recreation

State:

Length of river bank with public access

Response:

Length of river corridor enhanced

5. Mitigation and enhancement opportunities

- Improved physical or visual access to watercourses or water-bodies.
- Creation of new public riverside footpaths and open spaces.
- Provision of river crossings for walkers and cyclists.
- Delivery of improvements in environmental quality benefiting recreation.
- Improve linkages with long distance footpaths and cycleways and other recreational initiatives such as community forests.
- Provision of slipways and egress points etc for boaters and canoeists.
- Provision of information boards for education and raising public awareness about local rivers.

6. Environment Agency commitment

When required the Agency will appear at public inquiries to support reasons for refusal, or local authority policies which accord with our aims and objectives. However, where policies or proposals conflict with the interests of the environment or no policy is included, we will submit an objection and when necessary appear to support our case.

Supporting strategies

- Recreation Fact File (Environment Agency, 1997)
- Navigation Fact File (Environment Agency, 1997)
- Recreation Strategy for the River Thames (NRA, 1995)
- Local Environment Agency Plans

Priorities and targets

- Net increase in safe access to waterside areas

Research and development

- Research the impact of all relevant forms of recreation on the river environment with the aim of establishing recreational carrying capacity.
- Develop recreational policy that complements the objectives of other relevant bodies.
- Develop measures to mitigate the impact of recreation on the environment where appropriate.
- Identify best practice recreational management techniques.

7. Partners and customers

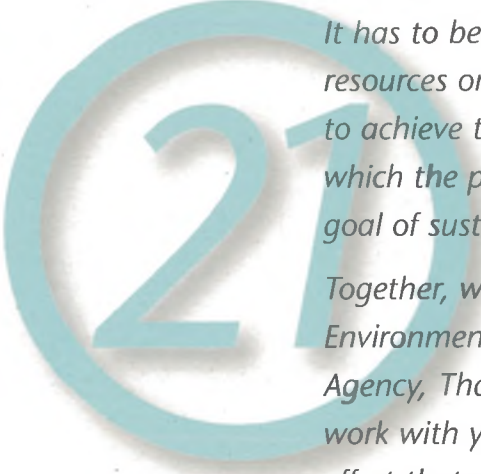
Local authority Planning and Leisure Departments, Sports Councils, Countryside Commission, British Waterways, Port of London Authority, local amenity societies and clubs, mineral companies and the leisure industry.

8. Key legislation and planning guidance

Environment Act (1995), PPG17, PPG21, MPG7, RPG3, RPG9, RPG10, RPG3B, RPG9A



3.9 Working together for sustainable development

The logo for Thames Environment 21, featuring a large, stylized number '21' inside a circular frame, with a teal color scheme.

Thames Environment 21 is a strategy for partnership. It has to be. No single organisation has the powers, resources or breadth of experience needed to achieve the progress which we all want to make and which the public expects us to make towards our common goal of sustainable development.

Together, we do have what is needed. Thames Environment 21 aims to show what the Environment Agency, Thames Region can contribute and how it can work with you and with others to create the synergy of effort that alone can succeed.

Thames Environment 21 has been produced by the Strategic Planning Team under the direction of a Steering Group chaired by the former Regional Water Manager Dr Giles W Phillips.

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Appendix 1: Duties powers and interests of the

Environment Agency

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities. The following table therefore summarises the Agency's duties, powers and interests and their relationship to land-use planning in Thames Region.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.	<ul style="list-style-type: none"> • Grant or vary water abstraction and impoundment licences on application. • Revoke or vary existing licences to reinstate flows or levels to surface-waters or groundwaters which have become depleted as a result of abstraction, and are subject to a liability for compensation. • Secure the proper use of water resources through its role in water-resources planning, the assessment of reasonable need for abstractions and promotion of more efficient use of water resources. • Monitor and enforce abstraction and impoundment licence conditions. 	<ul style="list-style-type: none"> • The more efficient use of water by water companies, developers industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure. 	The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. The Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures. The Agency seeks to influence planning decisions for new development by encouraging the inclusion of water-conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development.
Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.	<ul style="list-style-type: none"> • Control, through Land Drainage consents, development within 8m of main river (16m for tidal Thames and tributaries) (Water Resources Act, 1991 Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act, 1991 Section 23). • Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. • Undertake works to main rivers using permissive powers. • Issue flood warning relating to main river to the public, local authorities and the police. • Provide and maintain tidal defences in London. • Consent mineral workings within 16 metres of main rivers. 	<ul style="list-style-type: none"> • Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by Local Planning Authorities. • Installation of surface water source control measures e.g. flood attenuation structures. • Supervising the maintenance of ordinary watercourses which is a Local Authority remit, but may impact on main rivers. • Installation of buffer zones which reduce flood risk and have significant environmental benefits. • Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance. 	As a statutory consultee on planning applications within main-river flood plains, the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts of proposed flood plain development. The Agency will encourage best practice, including source-control measures and common standards, among Local Authorities and riparian owners to protect and enhance the environment. The Agency works with the civil authorities to prepare flood-warning dissemination plans and supports their endeavours to protect communities at risk.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
<p>Water Quality</p> <p>The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.</p>	<ul style="list-style-type: none"> • Issue discharge consents to control pollution loads in controlled waters. • Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharges consents. • Issue 'works notices' where action is required to reduce the risk of pollution. • Prosecute polluters and recover the costs of clean-up operations. 	<ul style="list-style-type: none"> • The control of runoff from roads and highways. This is a Highways Agency duty. • The greater use of source-control measures to reduce pollution by surface-water runoff. • Prevention and education campaigns to reduce pollution incidents. 	<p>The Agency will liaise with Local Authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source-control measures.</p> <p>As a statutory consultee on planning applications, the Agency will advise Local Planning Authorities on the water-quality impact of proposed developments.</p>
<p>Air Quality</p> <p>The Agency has a duty to implement Part 1 of the Environmental Protection Act 1990.</p>	<ul style="list-style-type: none"> • Regulate the largest technically-complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO. • Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes. 	<ul style="list-style-type: none"> • The vast number of smaller industrial processes which are controlled by Local Authorities • Control over vehicular emissions and transport planning. 	<p>The Agency provides data on IPC processes and advice on planning applications to Local Authorities</p> <p>The Agency is willing to offer its technical experience to Local Authorities on the control of air pollution.</p> <p>The Agency wishes to liaise with Local Authorities in the production of their Air Quality Management Plans.</p> <p>The Agency will advise and contribute to the government's National Air Quality Strategy.</p>
<p>Radio-active Substances</p> <p>The Agency has a duty under the Radio-active Substances Act 1993 to regulate the use of radio-active materials and the disposal of radioactive waste.</p>	<ul style="list-style-type: none"> • To issue certificates to users of radioactive materials and disposers of radio-active waste, with an overall objective of protecting members of the public. 	<ul style="list-style-type: none"> • The health effects of radiation. 	<p>The Agency will work with users of the radio-active materials to ensure that radio-active wastes are not unnecessarily created, and that they are safely and appropriately disposed of.</p> <p>The Agency will work with MAFF to ensure that the disposal of radio-active waste creates no unacceptable effects on the food chain.</p> <p>The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites.</p> <p>The Agency will work with the HSE on worker-protection issues at non-nuclear sites.</p>
<p>Waste Management</p> <p>The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.</p>	<ul style="list-style-type: none"> • Vary waste management license conditions. • Suspend and revoke licences. • Investigate and prosecute illegal waste management operations. 	<ul style="list-style-type: none"> • The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and Local Planning Authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters. 	<p>The Agency will work with waste producers, the waste-management industry and local authorities to reduce the amount of waste produced, increase reuse and recycling and improve standards of disposal.</p>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
<p>Contaminated Land</p> <p>The Agency has a duty to develop an integrated approach to the prevention and control of land contamination ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p>	<ul style="list-style-type: none"> • Regulate the remediation of contaminated land designated as special sites. • Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. • Report on the state of contaminated land. 	<ul style="list-style-type: none"> • Securing with others, including Local Authorities, landowners and developers, the safe remediation of contaminated land. 	<p>The Agency supports land remediation and will promote this with developers and Local Authorities and other stakeholders.</p>
<p>Conservation</p> <p>The Agency will further conservation, wherever possible, when carrying out water-management functions; have regard to conservation when carrying out pollution-control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p>	<ul style="list-style-type: none"> • The Agency has no direct conservation powers, but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. 	<ul style="list-style-type: none"> • The conservation impacts of new development. These are controlled by Local Planning Authorities. • Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to Local Authorities and developers to protect the integrity of such sites or species. • Implementation of the UK Biodiversity Plan for which it is the contact point for 12 species and one habitat. 	<p>The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, Local Authorities, conservation bodies and landowners to conserve and enhance biodiversity.</p>
<p>Landscape</p> <p>The Agency will further landscape conservation and enhancement when carrying out water-management functions; have regard to the landscape when carrying out pollution-control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.</p>	<ul style="list-style-type: none"> • The Agency must further the conservation and enhancement of natural beauty when exercising its water-management powers and have regard to the landscape in exercising its pollution-control powers. 	<ul style="list-style-type: none"> • The landscape impact of new development, particularly within river corridors. This is controlled by Local Planning Authorities. 	<p>The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with Local Authorities and developers to conserve and enhance diverse river landscapes.</p>
<p>Archaeology</p> <p>The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.</p>	<ul style="list-style-type: none"> • The Agency must promote its archaeological objectives through the exercise of its water-management and pollution-control powers and duties. 	<ul style="list-style-type: none"> • Direct protection or management of sites of archaeological or heritage interest. This is carried out by LPAs, County Archaeologists and English Heritage. 	<p>The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.</p>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
Fisheries The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.	<ul style="list-style-type: none"> • Regulate fisheries by a system of licensing. • Make and enforce fisheries byelaws to prevent illegal fishing. • Promote the free passage of fish and consent fish passes. • Monitor fisheries and enforce measures to prevent fish-entrainment in abstractions. • Promote its fisheries duty by means of land-drainage consents, water abstraction applications and discharge applications. 	<ul style="list-style-type: none"> • The determination of planning applications which could affect fisheries. 	Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and Local Authorities to protect fisheries.
Recreation The Agency has a duty to promote rivers and water space for recreational use.	<ul style="list-style-type: none"> • The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management. 	<ul style="list-style-type: none"> • Promotion of water sports. This is carried out by the Sports Council and other sports bodies. 	The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.
Navigation The Agency has a duty to maintain and improve non-tidal Thames navigation from Cricklade to Teddington.	<ul style="list-style-type: none"> • Improve, conserve and operate the non-tidal Thames navigation. • Regulate navigation by a system of licensing. • Enforce navigation legislation. 	<ul style="list-style-type: none"> • The management and operation of the Port of London, British Waterways navigations and other navigations within the region. 	The Agency will work with British Waterways, the Port of London Authority, other navigation authorities and navigation users to improve navigations generally as valuable environmental, recreational, commercial and heritage resources.

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

**ENVIRONMENT AGENCY
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