

**A GUIDE TO**

**THE NATIONAL CENTRE FOR RISK  
ANALYSIS AND OPTIONS APPRAISAL**





ENVIRONMENT AGENCY

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Kings Meadow House, Kings Meadow  
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## THE NATIONAL CENTRE FOR RISK ANALYSIS AND OPTIONS APPRAISAL

### AN OVERVIEW

The National Centre for Risk Analysis and Options Appraisal has been established to lead the Environment Agency in the development and application of key techniques such as risk analysis, environmental forecasting, economic appraisal, policy evaluation and options appraisal. The National Centre also addresses strategic overarching issues such as transport, energy and land use which are critical to the delivery of sustainable development.



### The National Centre is the focal point for:

- the development of consistent and high quality risk assessment techniques. These will enable the Agency to determine the factors that contribute to the risk as well as the severity of any impacts;
- safety case assessments for the disposal of radioactive waste;
- the comparison of risks to enable prioritised allocation of Agency resources;
- development of a new generation of environmental models, which maximise the benefits of spatial and temporal data;
- forecasts of the future state of the environment. These enable the environmental benefits of policy options to be determined;
- guidance on costs and benefits to enable the Agency to meet its statutory obligations;
- advice on sustainable environmental management techniques, such as the use of geomorphology and environmental assessment;
- guidance on the integration of social issues (e.g. public perception) in decision making processes;
- management of relevant research and development programmes.



The National Centre is a multidisciplinary body of expertise and takes a holistic view of the risks and values, critical to environmental management.

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## RISK ANALYSIS

Understanding the risks facing the environment, and the factors that govern whether such risks occur, is essential to a proactive approach to environmental management. Risks arise from natural sources such as flooding or drought, as well as from man's activities, for example, the disposal of waste, atmospheric emissions or contaminated land.

The National Centre develops risk analysis models which enable the Agency to balance the various pressures on the environment.



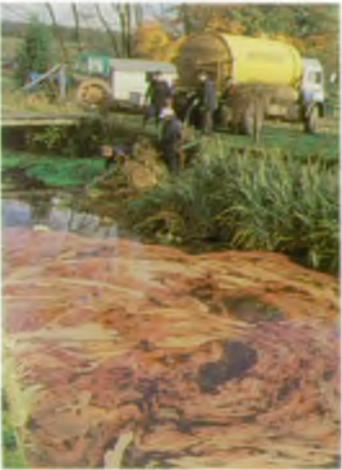
### **Risk Screening and Prioritisation**

Methods for screening risks are developed to enable the most important risks to be assessed through more complex techniques later. This saves time and effort as well as placing each risk in its true context. When all the risks are known, they are prioritised to allow the Agency to decide which to address first and which to leave.



### **Generic Risk Analysis**

Techniques such as Crystal Ball<sup>®</sup>, decision trees, fault charts and @Risk<sup>®</sup> are used to determine the probability that particular activities may result in environmental damage. This enables the National Centre to qualify risks very rapidly without the need for specific models to be developed.



### **Tailored Risk Analysis**

The National Centre provides the Agency's capability for the assessment of the safety cases for disposal of radioactive waste. Issues such as these require specific risk models due to their complexity and the severity of the potential impact.



## ENVIRONMENTAL FORECASTING

Predicting the future state of the environment is at the heart of effective environmental management. In particular, knowing how the environment is likely to respond to the variety of pressures placed upon it enables the Agency to focus its policies, resources and manpower in the right areas.

The National Centre develops the environmental forecasting tools for air, land, water and ecology and uses these to predict the future state of the environment.

### Environmental Forecasts



The National Centre uses a range of models to generate forecasts for the future state of the environment using trend information on known pressures (e.g. increasing road traffic) and data on existing environmental quality from the Environment Agency's Environmental Data and Surveillance National Centre. Such forecasts are used to determine the effect of policy options, risk reduction strategies and planned operational activities.

### Forecasting Models



The arrival of high resolution spatial data presents a challenge for environmental modelling and is one of the drivers for the development of new modelling techniques. The National Centre is the focus for all environmental modelling developments and will enable the Agency to converge its activities in this area to improve quality and consistency.

### Environmental Standards



The Agency uses over 1400 standards and targets to measure the state of the environment. However, many environmental facets are not covered by such standards and the National Centre is developing risk-based criteria to enable progress in environmental improvement to be measured. Even where standards do exist, comparison across media is not always possible. Work at the National Centre will enable the Agency to take a holistic view of the environment.



## OPTIONS APPRAISAL

Understanding the relative merits, costs and implications of the options available for environmental management, enables the Agency to make better and more informed decisions. It is also important that the Agency assesses emerging technology and techniques as they may affect the way in which future policies and practices are framed. The Agency also has a duty to consider the costs and benefits of the decision it takes.

The National Centre provides the guidance on technology and management options open to the Agency as well as expertise on economic appraisal and integration of social issues into decision making.



### **Technology and Environmental Foresight**

The National Centre monitors emerging technology and practical environmental management techniques, and assesses their potential for protecting and improving the environment. In this way the Agency is able to determine whether its policies and practices should be adjusted to account for new developments. Integral to this is the impact the Agency has on the environment through its own activities. In response to this, the National Centre provides guidance on environmental assessment, sustainable river management and geomorphology.



### **Economic Guidance and Society's Views**

The National Centre collects data and information on the value of environmental features, as well as the costs of protecting and improving the environment. This information helps to ensure that staff at all levels routinely consider the costs and benefits of their decisions.

The National Centre is also the Agency's focal point for developing techniques by which social issues, and the public's perceptions and aspirations can be considered in the decision making process. This includes advice on establishing dialogue with various sectors of society.



## BUSINESS STRATEGY

Having an effective business environment within which informed decisions may be taken, is essential for both the National Centre and the Agency as a whole. Risks, costs and benefits are integral to decisions taken at all levels from policy development to Local Environment Agency Plans (LEAPs).

The National Centre provides risk-based business tools to aid decision making and the effective allocation of resources.

### Policy Appraisal and Resource Allocation

The National Centre provides guidance on the consideration of risks, costs and benefits in the development of policy options. This includes the level of environmental protection provided for the resources allocated, the potential conflicts between policies, and the contribution made to the Agency's Environmental Strategy.

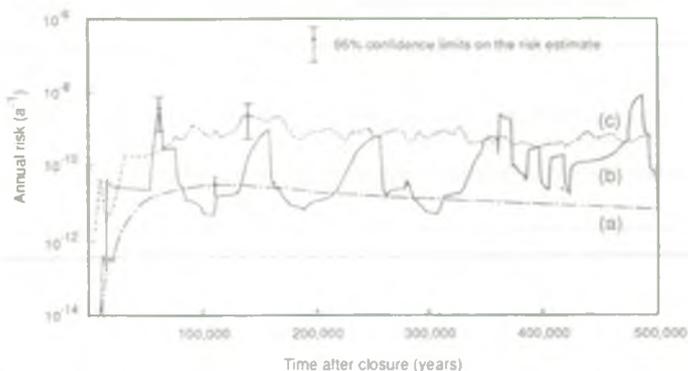
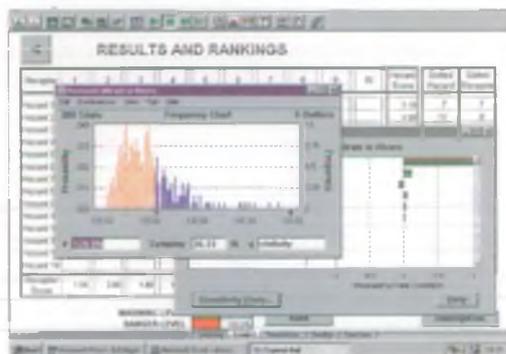
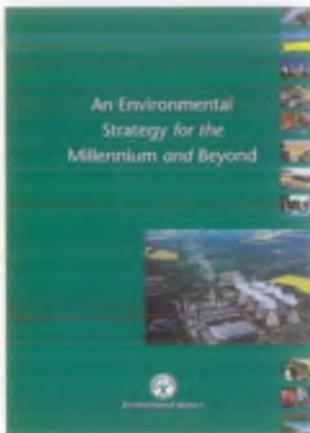
Equally important is the allocation of resources to address the most important risks to the environment. The National Centre's model can be applied to LEAPs, and to the Agency's overall corporate plan.

### Statistics and Models

The National Centre provides statistical tools and advice for all Agency functions and develops modelling frameworks that help staff become familiar with a wide variety of models.

### Information and Outputs

The National Centre collects the best available scientific data and information to ensure the work is of the highest quality. A number of help desks are provided to ensure operational staff have access to quick, informed advice. The National Centre publishes its major findings and ensures the transfer of expertise through training course and pilot projects. This ensures that all Agency staff benefit from its work.



## MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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## NATIONAL CENTRE FOR RISK ANALYSIS AND OPTIONS APPRAISAL

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### Head of National Centre

Gareth Llewellyn

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Help Desk

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Fax: 01222 798 555



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 GENERAL ENQUIRY LINE

**0645 333 111**

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

### ENVIRONMENT AGENCY EMERGENCY HOTLINE

**0800 80 70 60**



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