

Box 6

# National Groundwater and Contaminated Land Centre

## Business Plan

1999 – 2000  
and beyond



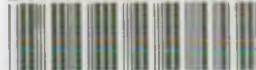
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# NATIONAL GROUNDWATER AND CONTAMINATED LAND CENTRE

## BUSINESS PLAN 1999/2000 TO 2001/2002

### Executive Summary

The National Groundwater and Contaminated Land Centre has established a customer focussed outlook and has developed this Business Plan in consultation with our main clients within the Agency: Head Office Functions, Region and Area Operational staff.

The Plan has been prepared in the knowledge that new legislation covering almost the entirety of the Centre's range of interest will be introduced within the Plan period. The Centre has a powerful combination of multidisciplinary technical skills and therefore is well placed to play a key role in the uptake of the new Agency powers and duties during the coming year. The New Burdens include:

- The contaminated land provisions of Part IIA of the Environmental Protection Act 1990
- Section 161A Works Notices
- IPPC Directive
- Groundwater Regulations that will fully transpose the EC Groundwater Directive into UK law.

In the longer term the emergence of the EU Water Framework Directive is providing the legislative underpinning of the groundwater resource management programme. There remain uncertainties over the scale, priority and phasing of these new burdens but nevertheless there are **major** implications for the Agency's operational workload. There is much preparative work required to:

- Assist policy development as an aid to the application of the Groundwater Regulations and Part IIA
- Raise the Agency skills base
- Help define the roles and best practices in the Agency
- Continue to Influence the Directive development and prepare for its implementation
- Demonstrate that the Agency approach is based on sound science

This Plan provides a prioritised summary of the programme of work considered necessary to fulfil the Agency's obligations and maintain the Centre as a national focus of excellence. Work areas have been sub-divided to itemise where possible the tangible, deliverable items which the Centre will produce during the period of the plan. Some of the key outputs will include:

- Revision of the Policy and Practice for the Protection of Groundwater to include new legislation
- National map series of groundwater source protection zones – a key resource for Agency and external groups: regulators, water companies, planners, developers etc
- Operational advice and support to Region and Area staff
- Management of the DETR programme for Local Authority SCA projects
- High profile education event – Groundwater Festival

Much of our work covers technically complex areas, which are new and unfamiliar topics for many in the Agency and outside. The Centre can continue to provide a lead for the relatively small pool of groundwater and contaminated land operational expertise and with some extra resource can be instrumental in helping to develop consistency in regulation. The Water Framework Directive presents further fundamental technical challenges that have not previously been addressed. There will therefore be a need to invest considerable resources over the next 5 years to underpin policy development in integrated river basin management.

## 1. Introduction

The Agency is charged with a range of duties and powers relating to the management and protection of groundwater. Groundwater is a major resource supplying nationally over 35% of all public water but a considerably higher proportion in lowland England where there is most pressure. Land and soil are increasingly seen as a national "resource" and considerations of their quality and vulnerability to pollution is an emerging environmental area.

There are mostly indirect powers currently in place relating to the remediation of land contamination and polluted groundwater but additional responsibilities will be introduced in 1999 (Part IIA of the Environmental Protection Act 1990; Section 161A of the Water Resources Act 1991 and; the Groundwater Regulations 1999). Major changes to the framework of the overall management of groundwater are also in development (Abstraction Licensing Review). The National Groundwater and Contaminated Land Centre has a key part to play in delivering the Agency response on these issues.

### 1.1 Role and Purpose

The National Groundwater and Contaminated Land Centre was established in 1997 to provide the technical focus for both groundwater and contaminated land issues so that the Agency's regulatory decision-making processes can be underpinned by a sound science base. Through its mission statement it intends to be:

**"A national centre of technical excellence in groundwater and contaminated land issues and to promote well informed, consistent regulation by the development and dissemination of effective methods based on sound science and sustainability principles."**

### 1.2 Aims and Objectives

The National Centre's aims and objectives can be divided into four broad areas:

- **Supporting Head Office policy functions** and relevant government departments by undertaking policy support work and guidance preparation and dissemination commissioned by HoFs in line with their Function Action Plans; (approximately 30% of Centre effort)
- **Promoting best practice, technical excellence and consistency in decision-making by providing an expert advisory service to operational staff in Regions/Areas and external partners;** (approximately 30% of Centre effort)
- **Providing technical leadership** and developing and maintaining linkages with relevant national and international groups, to ensure that the Agency is at the forefront of new developments and thinking **by undertaking and disseminating research** and best practice. (approximately 30% of Centre effort)
- **Providing a focus for industry and interest groups** outside the Agency on the interface between technical issues and regulation. (approximately 10% of Centre effort).

### 1.3 Business Areas and Functional/External Links

The specific "business areas" covered by the National Groundwater and Contaminated Land Centre lie within or across the Water Resources, Water Quality, Land Quality, RSR, and Waste Functions. There is also relevance to the PIR Function, through the IPPC Directive, and to the Environmental Strategy Directorate. Most of the areas of activity are based on specific regulatory drivers and have as their ultimate customer the operational field staff within Regions/Areas. The "in-Agency" requirements for new work are therefore

derived from a wide perspective and have to be assessed for need and prioritised accordingly.

National Centre activities are often carried out in liaison with operational staff located in integrated pollution control or water management teams in Areas and in Functional teams in Regions. This has helped to develop a groundwater and contaminated land "community" within the Agency and ensured that scarce expertise is harnessed appropriately. There is close interaction with Head Office staff over policy development and new legislation and there are links with the Environmental Strategy Directorate and between other National Centres/Services. The latter is important to ensure that there is synergy rather than competition between the expert groups.

Since the "business area" of groundwater management and contaminated land remediation effectively involves most land use issues the Centre has widespread links (direct advice, collaborative projects and secondments) with external bodies of four broad kinds:

- Regulatory bodies (e.g. SEPA, Local Authorities, Environment Agencies overseas);
- Government departments and associated Agencies (e.g. MAFF, DETR, BGS);
- Research groups, agencies and funders both within the UK and abroad, (e.g. BGS; NERC/EPSC; university departments; US EPA; TNO);
- Technology providers, contractors, consultants, industry and other land users.

## 2. Work Programme

The work programme has been developed as a prioritised list of deliverable items or services and is laid out in the tables in the Annex C. Projects are grouped by the main customer i.e. Head Office Function. Where projects are multi-functional and hence have more than one customer this is indicated and the proposed funding distribution is shown. In addition, further projects which relate to potential new burden work are itemised. The intention is to provide a flexible programme capable of re-assessment and adjustment as circumstances dictate and subject to Client Board approval. It is important to note that the potential impact of these new burdens on the Agency are large. Major regulatory changes will occur through the implementation of:

- Groundwater Regulations (implementation November 1998)
- Contaminated land provisions, Part IIA EPA 1990 (implementation July 1999)
- Works notices (implementation November 1998 and July 1999)
- IPPC Directive
- Radioactive contaminated land regime
- Water Framework Directive

The establishment of this Centre was driven in large part by the impending new legislation. Items needed to fully formulate and deliver the Agency response to the new burdens have been discussed with the relevant Head Office Functions. The Centre is one of the few parts of the Agency technically equipped to:

- Assist policy development as an aid to the application of the Groundwater Regulations and Part IIA
- Raise the Agency skills base through training and education
- Help define the roles and best practices in the Agency
- Continue to influence the Directive development and prepare for its implementation
- Demonstrate that the Agency approach is based on sound science

Without work already going on in the Centre the Agency would be unprepared for the introduction of these new regulatory powers. Key examples of work needed are

- definition and structure of the charging regime intended for the Groundwater Regulations for recovery of costs in the future

- policy advice to Head Office on the impacts of contaminated land regime: guidance on how to deal with new site responsibilities
- development of new methodology to estimate recharge of aquifers and hence groundwater resource future availability

The Centre now has an indication of the likely allocation of new resources associated with the Groundwater Regulations and Contaminated Land project and these are identified in the section on Resources (Section 2.2) and in Annex C. Note that the new resources identified to date will not allow the Centre to deliver all the items which we feel will be required. Further projects, particularly in response to Groundwater Regulations are identified in the prioritised work plan (Annex D).

Items in the programme (Annex C) are referenced to the relevant environmental key themes and the legislative drivers for the work. The inter-related nature of groundwater, surface water and land issues means that, in most cases, several themes and drivers apply to each project item.

However, the on-going core programme, apart from new burdens work, will produce a number of key outputs during the coming year, these are:

- *Revision of the Policy and Practice for the Protection of Groundwater to include new legislation e.g. Groundwater Regulations and Part IIA of EPA 1990.*
- *National map series of groundwater source protection zones – a key resource for Agency and external groups: regulators, water companies, planners, developers etc*
- *Operational advice and support to Region and Area staff on groundwater and contaminated land issues e.g. groundwater resource modelling*
- *Management of the DETR programme for Local Authority SCA projects*
- *High profile education event – Groundwater Festival*

Issues identified as important that are not included in the programme with current funding could provide additional outputs should further resources be allocated (e.g. guidance documents for Part IIA).

All the intended outputs and deliverables for the proposed programme are included in the timetable (Annex E), however this is an initial construct subject to change as the Functional programmes develop.

The Centre also provides a focus for external groups who wish to contact or work with the Agency. This is best seen in the R&D management carried out within the Centre. Three R&D topics are led by Centre staff and projects costing £1.2M to the Agency are planned with a net total value of £2.6M. This initial gearing factor can be expected to improve further based on past experience. Clearly, at this early stage in the R&D programme development there have been limited opportunities to secure matching funding, thus far. Once projects are confirmed this will change. This ability to attract matching funding is due in part to the technical existence of the Centre. The likely R&D projects are included in Annex F.

The Centre aim to disseminate best practice will be fulfilled through the production of up to six technical booklets during the year centred on key environmental issues for groundwater or land.

## 2.1 Staffing and structure

The Centre has a current complement of 16 full time equivalent (FTE) posts. Fourteen of these were approved as the start-up complement in the initial Centre business plan. During 1998 two additional FTE were transferred from Head Office, Land Quality Function. Both of these posts are intended to provide programme management to the DETR for their Supplementary Credit Approval funding of land contamination improvements carried out by Local Authorities. This programme management includes general technical advice on site approval and prioritisation plus provision of site specific advice as previously carried out in

1998.

The Centre will also have allocations of additional staff not in the previous draft plan through the allocation of resources from the new Groundwater Regulations and Part IIA Contaminated Land project. Three additional FTE for the Centre are anticipated. All Centre posts, including these 3 additional ones, are identified in the table below, grades and the staff resources are included.

Post ref.	Title	Grade	Position filled by:
PC500	Head of Centre	EM1	Permanent staff
- PC505	Business Support Officer	3	Permanent staff
PC501	Principal, Contaminant Remediation	6	Permanent staff
- PC509	Senior remediation scientist	5	Permanent staff
- PC512	Senior remediation engineer		Contractor – see note
- PC507	Senior contaminant hydrogeologist	5	Permanent staff
- PC???	<i>New Burden post 1</i>	5	<i>Permanent staff</i>
- PC???	<i>New Burden post 2</i>	4	<i>Permanent staff</i>
PC502	Principal, Programme Management and Information	6	Permanent staff
- PC504	Senior project manager	5	Permanent staff
- PC513	Senior data scientist	5	Secondee from BGS
- PC511	Data and information scientist	4	Permanent staff
PC503	Principal, Groundwater Management	6	Permanent staff
- PC508	Senior groundwater modeller	5	Permanent staff
- PC510	Senior hydrogeologist	5	Permanent staff
- PC506	Hydrogeologist	4	Permanent staff
- PC???	<i>New Burden post 3</i>	5	<i>Permanent staff</i>
PC514	Principal, Capital Fund Projects	6	Permanent staff
- PC515	Programme Officer	4	Secondee from Agency, Wales

Note: three recruitment rounds (including internal and external advertising) failed to identify a suitable candidate for this post and so short term arrangements have been made with external contractors. This is a temporary arrangement and the post will require a longer-term solution in the future, several options are under consideration.

## 2.2 Resources including anticipated New Burdens allocations

The Centre budget for 1999/2000, is summarised in the following tables. Key expenditure items and/or changes from the previous year are:

- Staff costs
  - increased in line with the transfer of 2 staff from Land Quality Head Office
  - increased to reflect the anticipated allocation of new resources from the Groundwater Regulations and Part IIA Contaminated Land project
- Associated staff costs – reduced now that all staff approved in the 1997/8 Business Case are in post.
- Printing costs – reduced since publications proposed are included as identifiable projects.

Following discussions with Head Office and the project managers for the Groundwater Regulations and Part IIA Contaminated Land project the following additional resources are anticipated.

New Work Area	Function	Manpower (FTE)	Direct (£K)
Part IIA – contaminated land	Land Quality	2	0
Groundwater Regulations	Water Quality	0	35
<b>Totals</b>		<b>2</b>	<b>35</b>

These allocations have been included in the resource tables below. £30k provided for Groundwater Regulations has been converted to 1 FTE

Description	1999/00	2000/01	2001/02
Salaries	587	605	622
Travel & Subsistence	57	57	55
Training	20	17	15
Other Employee Costs & Allowances	5	5	5
<b>SUB-TOTAL STAFF COSTS</b>	<b>669</b>	<b>684</b>	<b>697</b>
Project direct costs -			
Professional fees and consultancy	454	470	457
Training and education materials	75	65	65
Data capture and management	20	20	20
Project softwares	20	15	15
Technical and support purchases	28	20	20
<b>TOTAL</b>	<b>602</b>	<b>590</b>	<b>577</b>
Office Equipment & Consumables	7.5	7.5	7.5
Furniture & Fittings	2.5	2.5	2.5
Advertising			
Books, Publications & Subscriptions	5	5	5
Printing	2	2	2
Stationery	3	3	3
Telephone & Fax	2	2	2
Hospitality	4	4	4
Other	5	5	5
Recharge to Midlands Region	100	100	100
<b>SUB-TOTAL OTHER EXPENSES</b>	<b>718</b>	<b>711</b>	<b>698</b>
<b>TOTAL EXPENDITURE</b>	<b>1397</b>	<b>1405</b>	<b>1405</b>

The resources can be further itemised by Function:

ITEM	BUDGET REQUIRED (£K)	FUNCTIONAL SPLIT (LQ:WQ:WR:WM:RSR) (£K)
Staff costs	587	262: 154: 127: 22: 22
Associated Costs	217	63.6: 63.8: 65: 12: 13
Project direct costs	593	102: 268: 223: 0: 0
<b>TOTAL</b>	<b>1397</b>	<b>428: 486: 414: 34: 35</b>

### 2.3 Income

There are no external sources of income listed. However, it is important to note that some aspects of the Centre's work do bring direct income or benefits in kind to the Agency:

- Sales of Groundwater Vulnerability maps and supporting reports etc through The Stationery Office. Approximately £90,000 face value sales via this route in the year 1997/8, this may reasonably be expected to increase in the current year.
- Sales of groundwater vulnerability data through value added resellers such as Landmark Information Group.
- Contribution to MSc course teaching provides a "free" place for a student nominated by the Agency (normally an Agency employee) - net value £4,000. Payment for contribution to external courses - net value £2,000.
- Income from sales of LandSim and anticipated sales from ConSim software packages (these are and will be used to fund further development and research)

In general, the income from these sources does not directly benefit the Centre. Income from The Stationery Office is received and managed by the Publishing and Editorial National Service (PENS). Income from Landmark and other "value added resellers" is received and managed by the Scientific and Technical Information Service (SATIS). Details of the arrangement made with the external organisations above should be in the business plans of the relevant National Service.

### 3. Scenario Plans

The work plan above has itemised projects and activities outlined for the coming year. The plan has been further broken down by Functional support areas. This provides a flexible plan which can be tailored to the customer needs and which may be adjusted during the year should circumstances demand and subject to Client Board approval. Currently, additional items have also been identified for which the Centre does not have resources but which are clearly important from the drivers listed. As suggested by Corporate Planning, the three additional funding scenarios (+5%, -5%, and -10%) shown previously have not been included in this draft (previous Annex A).

Any increased requirement for Groundwater Regulations advice without additional resources would threaten our ability to deliver the following projects:

- Expert advice and strategy development on site specific contaminant transport



- Report on MTBE pollution in groundwater
- Report on microbial contamination of groundwater (e.g. Cryptosporidium)
- Guidance on the integration of ground and surface water interaction for abstractions

#### 4. Continuous Improvement

The Centre has established a number of management systems to promote efficient delivery of work and computer based systems have been adopted where possible. For example, an "enquiries" database has been established to track all requests for assistance and to ensure that responses are delivered in line with the Agency's Customer Charter. The use of an electronic system for recording effort expenditure; "*Timesheet Professional*" has been instigated to provide detailed cost breakdowns which inform future work programmes and aid planning.

The Centre has also developed a set of draft performance criteria against which our work can be judged. It is intended to introduce annual customer satisfaction surveys to help the Centre to identify things done well, and more importantly to highlight areas where services could be improved. Major customers of the Centre e.g. Head Office Functions, Regional and Area offices plus external contacts will be asked for feedback at the end of particular pieces of work. This process is seen as a key mechanism in helping the Centre to remain customer focussed.

Baseline environmental performance data is being gathered in the current year (e.g. car mileages). Environmental improvement targets (e.g. 5% reduction for car use) will be monitored against this baseline. The Centre will also follow Environmental Policy initiatives introduced by Midlands Region or Head Office.

#### 5. Future Issues

This Business Plan has been prepared in the knowledge that new legislation covering almost the entirety of the Centre's range of interest will be introduced within the Plan period. However there remain large uncertainties over the scale, prioritisation and phasing of these new burdens over which the Centre will have an important role to play. These areas are both technically complex and are new, unfamiliar topics for the Agency. There is much initial work to be done in the comprehension and conception of the demands which will be placed on the Agency followed by design and management of the procedures and impacts which will result. The Centre can provide a lead for the currently small number of staff in the Regions and Areas with groundwater and contaminated land skills and is well placed to help the development of future Agency practice through sound technical expertise.

There are three main groups:

1. The provisions of Part IIA of the Environmental Protection Act 1990 and Section 161A Works Notices will be introduced in 1999. The Centre will be heavily involved in advising on remediation techniques and strategies for both soils and groundwater. However, there is much preparative work to be done in raising the skill base within the Agency. This will involve preparation of policy and guidance and undertaking training with operational staff. The scale and timing of these initiatives are still uncertain, as are the numbers of individual sites that will be dealt with.
2. New groundwater regulations will be introduced early in April 1999 which will fully transpose

the EC Groundwater Directive into UK law. Any activity which has the potential for a listed substance to enter groundwater will be caught and the Agency's role and focus on those issues, which need more immediate control as well as those for which Codes of Practice will suffice, must be defined and prioritised. This is a potentially huge extra task that will require an overhaul of the Agency's Policy and Practice for the Protection of Groundwater as well as the preparation and dissemination of more specific guidance. Experiences with both these regimes will identify deficiencies in understanding, guidance and technical skills. Some of these will need to be addressed within the timescale of this plan and additional centralised resources made available to support Agency operational staff in accordance with the aims expressed in items 1 and 2 above.

3. The EU Water Framework Directive will provide the legislative underpinning for all the Agency's work in managing and regulating the water environment. On the groundwater resource management issues the Centre has already taken a technical lead and significantly influenced the structure of the Directive in its formative stages in 1998 during the UK Presidency. The timing of the Directive's introduction is uncertain but much of the Centre's agenda and work programme will flow from the structural requirements of the Directive. A long lead-time is required because of the relative lack of focus in this area hitherto. Of particular importance is the development of better understanding of river/groundwater interactions and the assessment of recharge. These are difficult areas where there will be the need to invest considerable resources over the next 5 years to achieve the answers. A further important and under-resourced area involves groundwater monitoring where the current networks are inadequate and considerable investment is needed in order to comply with the demands of the Directive. Most of this work cannot wait for the Directive to be implemented since they are fundamental issues that require resolution before policy can be developed.

**Annex A**

Itemised project and deliverables listing by customer

Land quality

**Programme at nominal funding level**

Generic activity	National Centre Task	Key deliverable or action
Plan, organise and control of services	Supplementary Credit Approval & Capital Project sites	Capital bid selection and appraisal
	Supplementary Credit Approval & Capital Project sites	Site specific advice to Regions on 12 sites
	Advice on Landfill tax	Policy advice to Head Office and site specific advice to Region and Area staff
	Management of LQ R&D topic and projects	Complete individual projects to time and cost. Lead LQ Remediation Topic & develop future programme
Incident attendance and response	Site specific advice to Regions on land and groundwater remediation	On-call and in-house advice
Promote, influence and educate	NGWCLC web-site NGWCLC internal publication Develop Centre information holding capacity	Centre module on Agency site Underground bimonthly circular - 6 issues Centre datasets catalogue and information holdings
	Produce Centre educational materials	Technical booklets on major issues - 5 issues
Formulate policy	Participate in NATO/CCMS study Risk assessment methods	Report on NATO proceedings Revised guidance document on contaminated land based on pollution of controlled waters
	Supplementary Credit Approval & Capital Project sites	Guidance document on selection and prioritisation of Capital projects
	Develop contaminated site report and database	Database format report or incorporation into other GIS
	Develop contaminated site GIS	Collaborative GIS guidance document for Agency and L.A.s
Promote, influence and educate	Internal & external (LA) training for Part IIA Local authority liaison	Training programme and materials for Local Authorities and EP staff Manage Agency:LA interface on land contamination issues
Improvement works	Supplementary Credit Approval & Capital Project sites Ancillary & support Training Midlands recharge	Assessment of DETR programme sites - recommended DETR actions
		Land Quality
Anticipated New allocation	Support to Part IIA implementation project	To be discussed with PM - Sue Herbert some suggestions below

Anticipated

New allocation

**Annex A**

Itemised project and deliverables listing by customer

Land quality

**Additional suggested projects**

LQ

Generic activity	National Centre Task	Key deliverable or action
Promote, influence and educate	Internal & external (LA) training for Part IIA Further develop contaminated site GIS	Training programme and materials for EP operational staff Collaborative GIS guidance document for Agency and L.A.s
Plan, organise and control of services	Develop contaminated site GIS	Land quality GIS structure report and implemented system at National Groundwater and Contaminated Land Centre
	Analytical methods for contaminated land and groundwater	Guidance on applicability of methods
	Analytical methods for contaminated land and groundwater	Confirmatory testing and estimation of laboratory competence
Formulate policy	Preparation of Part IIA Process Handbook	Support for preparation of Process handbook
	Preparation of Part IIA Technical Guidance Manuals <i>These projects are liable to revision in that they pre-suppose outcomes of the New Burdens project yet to be formed</i>	Revise manual for best practical technique Produce remedial technique manual Revise test for reasonableness manual Prepare guidance on whole site solutions Revise manual for treatment validation Produce guidance on sampling strategy for soil to protect groundwater Produce guidance on sampling strategy for groundwater on sites - plume characterisation Prepare manual on site inspections
	Preparation of Part IIA Technical Guidance Manuals Risk assessment methods	Revise Technical Manual on Human Health Risk Assessment
	Risk assessment methods	Prepare on-going updates for RA models

**Annex A**

**Itemised project and deliverables listing by customer**

Water quality

**Programme at nominal funding level**

WQ

Generic activity	National Centre Task	Key deliverable or action
Assess compliance of regulated activities	Site specific advice to Regions on landfill interactions with groundwater	On-call advice
Plan, organise and control of services	Management of WQ R&D topic and projects	Complete individual projects to time and cost. Lead Topic & develop future programme
	Software support and development - Consum	Methodology for use & user support
	Groundwater quality monitoring	Produce monitoring strategy document and supporting tools
	Groundwater quality monitoring	Guidance document on sampling analysis & land use information
	Groundwater protection zone mapping	Source protection zone maps for England and Wales
	Groundwater protection zone mapping	QA/QC protocol and statement on produced maps
	Groundwater protection zone mapping	Decision system and GIS to support incident response
	Groundwater vulnerability mapping	Validation report for vulnerability map series
	Groundwater vulnerability mapping	Scoping study development of contaminant class specific vulnerabilities - phase 2 mapping
	Develop Groundwater Protection Policy	Revised Policy to comply with new legislation
Formulate policy	Cost benefit methods	Guidance document for groundwater remediation schemes
	Remedial methods	Evaluate and report on groundwater software packages
Promote, influence and educate	Develop Groundwater Protection Policy	Internal GPP training package and delivery to Ops staff
	NGWCLC web-site	Centre module on Agency site
	NGWCLC internal publication	Underground bimonthly circular - 6 issues
	Develop Centre information holding capacity	Centre datasets catalogue and information holdings
	Produce Centre educational materials	Technical booklets on major issues - 6 issues
	Groundwater Protection Conference 2000	Major international conference showing Agency lead in this area
	Groundwater FESTIVAL 99	Deliver education event
	Groundwater quality advice to external organisations and monitoring sites	Response to external queries etc
	Site specific contaminant transport modelling	Expert support and strategy development
	Assess and forecast the environment	River groundwater interaction study
River groundwater interaction study		Reprot on MTBE pollution
Microbial contaminants in groundwater		Develop methodology for monitoring and assessing microbial contamination - e.g. Crypto
Permit	Assistance and advice to Regulation 15	On-call advice
Report environment	Groundwater quality monitoring Ancillary & support Training Midlands recharge	Advice to ESD
Expected New allocation	Formulate policy	Groundwater Regulations policy development
	Promote, influence and educate	Develop Groundwater Regulations training
		Develop guidance for Agency staff Internal GW Regs package

Water Quality

Expected New allocation

**Annex A**

**Itemised project and deliverables listing by customer**

Water quality

**Additional suggested projects**

WQ

Generic activity	National Centre Task	Key deliverable or action
Plan, organise and control of services	Groundwater quality monitoring	Develop WQOs for groundwater bodies
	Remedial methods	Prepare guidance on groundwater remediation methods
Formulate policy	Risk assessment methods	Revise guidance on contaminated land based on pollution of controlled waters
	Works notices policy development	Prepare Process Handbook for s161
	Groundwater Regulations policy development	Develop guidance for Agency staff
	Advice on Water Re-use	Advice to Head Office
	Advice on Nitrate Directive	Advice to Agency Head Office and HMG
Assess compliance of regulated activities	Specific advice on Groundwater Regulations	Advice to Regions and Areas
	Requeste surveillance	Advice to Regions and Areas
Report environment	Assess mswater impact of groundwater	Monitor state and develop guidance for Agency staff

**Annex A**

Itemised project and deliverables listing by customer

Programme at nominal funding level			
Generic activity	National Centre Task	Key deliverable or action	
WR	Develop Groundwater Protection Policy	Revised Policy to comply with new legislation	
	Ground and surface water abstraction interface	Develop guidance for Agency staff	
Formulate policy	Ground and surface water abstraction interface	Technical methodology and tools	
	Nitrate Directive advice to HMG	Advice to DETR	
Promote, influence and educate	Develop Groundwater Protection Policy	Internal GPP training	
	Groundwater quality advice to external organisations and monitoring sites	Response to external queries etc	
	Groundwater Protection Conference 2000	Management and organisation	
	Groundwater FESTIVAL 99	Management and organisation	
	NGWCLC web-site	Maintain and develop site	
	NGWCLC internal publication	Underground circular	
	Develop Centre information holding capacity	Catalogue Centre datasets and information holdings	
	Produce Centre educational materials	Produce 6 major leaflets	
	Groundwater resource training	Targetted training to Regions and Area operations staff	
	Wetland monitoring advice	Advice to external voluntary bodies	
	Management of WR R&D topic and projects	Complete individual projects to time and cost. Lead Topic & develop future programme	
	Plan, organise and control of services	Groundwater protection zone mapping	Complete source protection zone maps for England and Wales
		Groundwater protection zone mapping	QA/QC of produced maps
		Groundwater protection zone mapping	Generic contract for update and maintenance of maps
		Groundwater resource advice	Advice to Region and Area staff
Groundwater protection zone mapping		Decision system and GIS to support incident response	
Borehole construction manual		Best practice manual for Area staff	
Mineral application guidance		Guidance for Area staff on proposed mineral workings	
Sustainability		Advice to feed into SWALP	
GW modelling support		Advice and support to Region models	
		Produce best practice manual	
		External modelling advisor	
		Expert support and strategy development	
Assess and forecast the environment		Site specific contaminant transport modelling	
		Produce water level maps	Collate national map series
			Provide guidance on and develop digital maps (workshop)
Monitor environment	Identification of groundwater bodies	Guideline for drawing groundwater bodies	
	Identification of groundwater bodies	Assessment of regional impact of moving to gw bodies	
	Groundwater monitoring	Assemble national dataset	
	Groundwater monitoring	Report on national dataset by aquifer block	
	Groundwater and Station Manager (Hydrolog)	Manage process and deliver package into Ops use	
	Recharge methodology	Acquire soil moisture data	
	Ancillary & support		
	Training		
	Midlands recharge		
		Water Resources	

**Annex A**

Itemised project and deliverables listing by customer

Additional suggested projects		
Generic activity	National Centre Task	Key deliverable or action
WR	Nitrate Directive advice to HMG	Additional advice to DETR
	Identification of groundwater bodies	Assistance to Regions and Areas drawing their gw bodies
Assess and forecast the environment	Recharge estimation	Develop new recharge methodology
Promote, influence and educate	Develop Groundwater Regulations training	Internal GW Regs package
Plan, organise and control of services	Groundwater protection zone mapping	Update and maintenance digitisation, collation and publication

**Annex A**      Itemised project and deliverables listing by customer

Programme at nominal funding level		
Generic activity	National Centre Task	Key deliverable or action
<b>WA</b>	Incident attendance and response	Site specific advice to Regions on land and groundwater remediation On-call and in-house advice
		Ancillary & support Midlands recharge Waste
<b>RSR</b>	Incident attendance and response	Site specific advice to Regions on land and groundwater remediation On-call and in-house advice
		Ancillary and support Midlands recharge RSR

**Annex A**      Itemised project and deliverables listing by customer

Additional suggested projects		
Generic activity	National Centre Task	Key deliverable or action
<b>WAS</b>	Plan, organise and control of services	Software support and development - Landsim Methodology for use & user support