

r3 environmental technology projects

Title			
WRAP Framework: Technical Advisors			
Activities			
Description			
Framework contract for providing organics advice to WRAP. WRAP have appointed a number of advisors to provide technical support services to WRAP and to businesses with which WRAP is involved. Areas of support include but are not limited to: advising on a strategy, providing recommendations on a specific technology, advising on supply chain management; collating and manipulating data; disseminating best practice; and acting as part of a project steering group.			
Start year	End year	Status	Web link (if available):
2008	2013	Current	

Title			
Crop Based Systems for Sustainable Risk Based Land Management for Economically Marginal Degraded Areas - Rejuvenate Phase 2			
Activities			
Copy Writing; Feasibility Studies; Information Dissemination; Information Review; Research ; Technical Authorship			
Description			
This project will apply a decision support tool designed by the Snowman 1 project Rejuvenate to three practical applications at realistic scales. Based on this test-work, the aims of this project are to i) validate and optimise the decision making framework, ii) provide detailed case studies for the re-use of contaminated land for biofuel crop production– in particular for secondary biofuels, iii) extend the scope of the decision support tool applying and validating it in three new jurisdictions (Belgium, Netherlands and Romania). R3's activities in this Phase 2 work are to:			
<ul style="list-style-type: none"> * Assist in handover of Phase 1 DST to new team * Peer review pilot study plans and SWOT analyses * Link workto European networks: NICOLE, Common Forum, SuRF's * Peer review reports, guide, papers * Initiate a refereed journal submission based on Phase 1 * Support liaison with US EPA * Peer review web pages (to be hosted by SGI) 			
Start year	End year	Status	Web link (if available):
2010	2012	Current	

Title			
EURODEMO+			
Activities			
Database Development; Web Site Development and Management			
Description			
r3 is maintaining an open access on line database for remediation demonstration projects across Europe, for EURODEMO+ (www.eurodemo.info), for the Austrian Environmental Protection Agency secretariat for the scheme. Tjis is linked to EUGRIS (www.eurodemo.eugris.info).			
Start year	End year	Status	Web link (if available):
2009	2010	Current	

Title			
NICOLE Web Site, meeting reports and newsletter			
Activities			
Copy Writing; Database Development; Information Dissemination; Information Review; Policy Review; Technical Authorship ; Web Site Development and Management			
Description			
NICOLE, the Network for Industrially Contaminated Land in Europe, is a concerted action of the EC Environment and Climate Research and Development Programme. r3 has been responsible for the network's newsletter, NICOLE News, which is available as hard copy and on-line. In 1997 NICOLE decided to establish its own web site, which has been developed and operated by r3. An initial web site operated from 1997 to 1999. This was fairly simple encompassing basic information about NICOLE, and information archive, announcements, back issues of NICOLE News and various forms, eg for membership. In 1999 a second phase of NICOLE began. Over 1999 the web site was comprehensively upgraded to reflect the developing role of NICOLE and new advances in software. New web applications have been developed by r3 in partnership with Cybersales Ltd to develop a more complex interactive site for the network. The web site continues to be maintained, developed and enhanced by r3 and Cybersales			
Start year	End year	Status	Web link (if available):
1997	2010	Current	www.nicole.org

Title			
National Grid Bioremediation Project Survey			
Activities			
Technical Advice / Consultancy; Training and Training Materials			
Description			
This project is an assessment of the full scale bioremediation projects carried out by National Grid and its fore-runners. Its aims are to identify lessons learned and provide a both a framework for determining when bioremediation is a feasible remedy for future site management, and for project reporting to facilitate the assessment of future bioremediation projects.			
Start year	End year	Status	Web link (if available):
2008	2010	Completed	

Title
AQUATERRA: Integrated modelling of the river-sediment-soil-groundwater system: advanced tools for the management of catchment areas and river basins in the context of global change
Activities
Information Dissemination; Network Management; Policy Review; Research

Description
<p>AquaTerra is a 20 million EURO integrated research project in the sixth Framework Programme (with 13 million EUROS support from the EC) The project has more than 40 partners from 21 European countries, and will last five years.</p> <p>AquaTerra sought to develop a comprehensive concept for integrated river basin management and a clear understanding of individual techniques and modelling approaches for collecting river basin management information.</p> <p>R3's research tasks in conjunction with other partners within this large project were connected with:</p> <ul style="list-style-type: none"> * Linkage of stakeholder requirements with how river basin legislation is implemented. * Assessing possible incoherence and inconsistencies policy frameworks between at EU and national levels, and seeking to promote a consensus between stakeholders * Linking fundamental research information in a scalable way that supports a science input into pragmatic decision making at a river basin scale <p>River basin management is a large and complicated undertaking but Aquaterra has provided research findings which support its improvement in the future. With others, r3 has contributed to Aquaterra's outputs by:</p> <ul style="list-style-type: none"> * Assessment of stakeholders' demands at different decision making scales with regards to the management of river basins and the implementation of legislation. This assessment was based on the participation in different working groups and processes, complemented by bilateral interviews with key stakeholders, decisions makers and experts. * Assessment of future river basin frameworks (EU, national) and identification of potential issues of concern was carried out using guided discussions with a number of European focus group exercises. * On the basis of this assessment we identified detailed scientific and technical research questions for the Aquaterra project overall to follow, to ensure a strong linkage between fundamental research work and policy relevant research questions, and to help identify an agenda for further research work beyond the end of the Aquaterra project. * We also investigated the development of an integrated conceptual model for river basin management planning. This element of work carried a high research risk as it was dependent on research teams across Aquaterra being able to link system models operating at a range of scales (from the microscopic to the river catchment scale). Ultimately this was not possible. No doubt this will be the subject of further research proposals in the future either from within Aquaterra, by other research groups or both. However, we were able to provide an on-line visualisation of AQUATERRA research outputs (in conjunction with EUGRIS technology) to provide research outputs linked to different stakeholder information demands. <p>For a full project description and outputs, see: http://www.eu-aquaterra.de/</p>

Start year	End year	Status	Web link (if available):
2004	2009	Completed	http://www.attempto-projects.de/aquaterra/

Title
CLAIRE Ex Situ Bioremediation Training Module
Activities
Training and Training Materials

Description
Assistance in the development and delivery of a CL:AIRE training module on ex situ bioremediation

Start year	End year	Status	Web link (if available):
2008	2009	Current	www.claire.co.uk

Title			
MBT Compost Like Output Nitrogen Availability Trials			
Activities			
Research			
Description			
<p>At present the knowledge of N release and plant uptake in soils amended with MBT-CLO is limited. In the UK, restrictions on the use of Compost-Like Outputs (CLO) on land make opportunities for field trials very limited, although some plot-scale trials have been undertaken by Cameron et al. (2008), who have also undertaken pot trials assessing the performance of willow crops, polar and eucalyptus in a range of CLO/coal spoil material as well as tests on nitrate leaching from CLO and a CLO-substrate mix. In this trial compares CLO materials with the following aims:</p> <ul style="list-style-type: none"> * <input type="checkbox"/> To compare the total N concentration in the CLO materials * <input type="checkbox"/> To compare the effects of different CLO types on N uptake by plants * <input type="checkbox"/> To assess the fate of N within CLO amended soils, ie., mineralisation, immobilization and leaching <p>The final aim is an important step as N behaviour in the soil must be considered in the round; the uptake of N by plants is only one route by which N might move through the soil matrix and the extent to which N is taken up by plants will be affected by both leaching and the turnover of soil organic N.</p>			
Start year	End year	Status	Web link (if available):
2008	2009	Completed	

Title			
Collation of Sustainability Indicator Sets for the UK Sustainable Remediation Forum			
Activities			
Research			
Description			
<p>r3 developed an online list of sustainability assessment indicator sets that are available in the open literature, including (a) some indication of their strengths and weaknesses (b) a "map" of what segments of sustainability appraisal they might cover: e.g. environmental, social and economic and also subcategories of the three elements (c) any strong policy linkages (d) some brief description, e.g. whether they are linked to "targets". These will be used to illustrate the types of indicators currently in use for sustainability appraisal in the final version of the SURF UK 2009 report. r3 will also summarise sustainability appraisal techniques and will map indicator suggestions received by SURF during the November SURF-UK meeting.</p>			
Start year	End year	Status	Web link (if available):
2009	2009	Completed	www.claire.co.uk/surfuk

Title			
Assessment of the impact of the Nitrates Directive and Water Framework Directive on the potential use of quality composts in agriculture			
Activities			
Information Review; Research			
Description			
<p>An investigation for WRAP that:</p> <ul style="list-style-type: none"> * Reviews the key requirements of the Nitrates and Water Framework Directives, with particular reference to target levels of nitrate and phosphate in soils and/or receiving waters * Reviews the published literature examining the prospects for source-segregated composts to mitigate or contribute to nitrogen and phosphorus release from agricultural systems * Discusses the potential impact of the Nitrates and Water Framework Directives on the use of source-segregated green and green/food composts in agriculture 			
Start year	End year	Status	Web link (if available):
2009	2009	Completed	

Title			
SURF-UK - Paper for Science of the Total Environment			
Activities			
Information Review; Policy Review; Technical Authorship			
Description			
r3 developed an online list of sustainability assessment indicator sets that are available in the open literature, including (a) some indication of their strengths and weaknesses (b) a "map" of what segments of sustainability appraisal they might cover: e.g. environmental, social and economic and also subcategories of the three elements (c) any strong policy linkages (d) some brief description, e.g. whether they are linked to "targets". These will be used to illustrate the types of indicators currently in use for sustainability appraisal in the final version of the SURF UK 2009 report. r3 will also summarise sustainability appraisal techniques and will map indicator suggestions received by SURF during the November SURF-UK meeting.			
Start year	End year	Status	Web link (if available):
2009	2009	Current	www.claire.co.uk/surfuk

Title			
Crop Based Systems for Sustainable Risk Based Land Management for Economically Marginal Degraded Areas			
Activities			
Information Review; Policy Review; Research			
Description			
<p>The aims of this project have been to:</p> <ol style="list-style-type: none"> 1) explore the feasibility of a range of possible approaches to combining risk based land management (RBLM) with non-food crop land-uses and organic matter re-use as appropriate, 2) identify a matrix of potential opportunities worthy of further development in the UK, Germany and Sweden and in a wider European context, and 3) <input type="checkbox"/> assess how verification of their performance might be carried out and identifying what requirements remain for future research, development and demonstration. <p>The project was led by r3, and includes partners and subcontractors from Germany (DECHEMA Gesellschaft fuer Chemische Technik und Biotechnologie e.V.); Sweden (Swedish Geotechnical Institute and FB Engineering); and the Netherlands (Bioclear). It is part of the EU Framework 6 Programme European Research Area project "Sustainable management of soil and groundwater under the pressure of soil pollution and soil contamination (SNOWMAN)". The UK funders are the Environment Agency and Defra.</p> <p>Rejuvenate has developed a decision support approach for determining optimum opportunities for combining RBLM with non-food production. This is now being rolled out to a three year demonstration scale research project in several European countries from 2010 to 2012</p>			
Start year	End year	Status	Web link (if available):
2008	2009	Fully paid -	

Title			
Sednet Meeting Report 2009			
Activities			
Database Development; Information Dissemination; Information Review; Technical Authorship			
Description			
Sednet is a European network supporting sediment research. Decision making and policy. R3 will monitor and report on their roundtable meeting in September 2009 to provide a downloadable meeting report			
Start year	End year	Status	Web link (if available):
2009	2009	Completed	www.nicole.org

Title			
RISKBASE / EUGRIS Interface for DECHEMA Gesellschaft für Chemische Technik und Biotechnologie e.V.			
Activities			
Database Development; Information Dissemination; Information Review; Web Site Development and Management			
Description			
<p>RISKBASE is an EC funded Framework 6 Programme project. The objective of RISKBASE is to review and synthesise the outcome of EC FP4-FP6 projects, and other major initiatives, related to integrated risk assessment-based management of the water/sediment/soil system at the river-basin scale. This synthesis will support the development of integrated risk assessment-based management approaches enabling the prevention and/or reduction of the negative impacts caused by human activities on that system.</p> <p>R3 environmental technology ltd, r3 (with Cybersales Ltd) have been commissioned to develop an interfacing approach that enables the existing RISKBASE web site to work with the EUGRIS system. This will provide RISKBASE with (a) a large library of information already compiled from relevant FP4-6 projects, (b) a working and well trafficked information dissemination route which can be closely co-ordinated with the RISKBASE final report (c) a route for collating information from currently active projects (d) a means of developing functions for RISKBASE team members and (e) directory services for organisations and individuals.</p>			
Start year	End year	Status	Web link (if available):
2007	2009	Current	www.riskbase.eugris.info

Title			
Market development of composts derived from different organic waste streams			
Activities			
Research ; Research Management ; Think Tank			
Description			
<p>The project, funded by Grantscape, investigates the potential uses of composts derived from mixed organic waste streams to facilitate their use in key soil and land-based applications. Its specific objectives are to evaluate the influence of non-PAS 100 compost with respect to:</p> <ol style="list-style-type: none"> 1. soil water balance and hydrology. 2. plant establishment and development across a range of real-life scenarios. 3. changes in pH, redox and pH buffering in treated soil and extrapolating their impacts on contaminants, and habitat maintenance in acidic soils. 4. amelioration of contaminated soils or run-off either directly (e.g. via cation exchange) or indirectly via vegetation growth. 5. appraising the risks involved in utilising such materials in both publicly accessible and non-accessible land and its potential contribution to sustainable development. 6. estimate potential volumes / pricing to enable markets to develop, with special reference to: <ul style="list-style-type: none"> * Land remediation * Bio-fuels and other non-food crops * Habitat establishment * Forestry * Soil stabilisation and manufacture 			
Start year	End year	Status	Web link (if available):
2005	2008	Completed	

Title			
MOKKA: Innovative Decision Support Tools for Risk Based Environmental Management			
Activities			
Database Development; Web Site Development and Management			
Description			
Mokka is a major Hungarian project developing risk assessment and risk management tools being carried out with the Technical University of Budapest, Vituki Consult, TNO and other Hungarian partners. (http://mokka.agt.bme.hu/mokka/index.php?lang=eng&body=mokka). Part of the project includes an on-line decision support tool and database. R3 is supporting the linkage of this system to EUGRIS.			
Start year	End year	Status	Web link (if available):
2006	2008	Completed	www.magyar.eugris.info

Title			
Organics Specialist Advisors to WRAP			
Activities			
Description			
The aim of this work is to support the delivery of the Organics Team objectives through the provision of a range of high quality advisory services across its wide range of activities, which include: large scale capital investment in new or upgraded composting facilities; technical product trials; research and development exercises; product marketing; as well as trailblazer projects on brownfield sites. R3 is main contractor, with the University of Reading, Cybersales Ltd and Ecological Risk Assessment.			
Start year	End year	Status	Web link (if available):
2007	2008	Current	

Title			
New Earth Solutions Bioenergy Crop Trials - Phase 1			
Activities			
Research ; Technical Advice / Consultancy			
Description			
Technical and research support for trials being carried out by New Earth Solutions Ltd into the potential benefits of using compost produced from source segregated organics for supporting bio-energy crops (wheat and barley)			
Start year	End year	Status	Web link (if available):
2007	2008	Completed	

Title			
Forest Research Market Consultancy			
Activities			
Business Brokerage; Market Consultancy			
Description			
Support for development of business plan for modified charcoals for a spin out company: C-Cure			
Start year	End year	Status	Web link (if available):
2008	2008	Completed	

Title			
European platform for demonstration of efficient soil and groundwater remediation			
Activities			
Database Development; Web Site Development and Management			
Description			
EURODEMO is an EC funded Coordination Action for contaminated land management demonstration projects across the EU. Key elements of this initiative are to involve all relevant stakeholders from policy, research, service providers, industry, and existing networks to develop commonly accepted protocols to certify novel technologies and to evaluate their efficiency. The basis for this process will be existing cases from European demonstration sites. A common format for operating windows for remediation techniques will be generated by the project. Specific dissemination of structured information will take place through the EUGRIS information platform and through specific workshops and training initiatives will ensure that sustainable land management in Europe is boosted. R3's role in this project is the development of systems for web linked databases to store the EURODEMO information, and link it to EUGRIS (which is described below)			
Start year	End year	Status	Web link (if available):
2005	2007	Completed	www.eurodemo.info

Title			
Technical Support Essex CC			
Activities			
Information Review; Technical Advice / Consultancy			
Description			
Essex CC (alongwith Cambridge CC) are using r3 for technical support in drafting their response to the "The Source Segregation Requirement in Paragraph 7A of Schedule 3 to the Waste Management Licensing Regulations 1994: A Consultation Document".			
Start year	End year	Status	Web link (if available):
2006	2006	Completed	

Title			
Common Forum Information Bank			
Activities			
Database Development; Information Dissemination; Web Site Development and Management			
Description			
This small project will create a customised "information bank" linked to the Common Forum web site to allow Common Forum members to post links to key national documentation and projects (and also perhaps archive key reports). It will also provide customised access for Common Forum members to the wider EUGRIS library. All postings will be included in the wider EUGRIS system, and so disseminated widely.			
Start year	End year	Status	Web link (if available):
2006	2006	Completed	www.commonforum.eugris.info

Title			
EUGRIS European Contaminated Land and Groundwater Information Service, a web based portal - FP5 Project			
Activities			
Copy Writing; Information Dissemination; Information Review; Policy Review; Technical Authorship ; Web Site Development and Management; Database Development			
Description			
<p>EUGRIS provides a "one stop shop" for information provided by research projects, legislation, standards, best practice and other technical guidance and policy/regulatory publications from the EC, participating Member and Accession States and from various international networks dealing with groundwater and land management issues. EUGRIS was originally a research project, funded by the European Commission and (for r3) by UK organisations until November 2005. Since November 2005 EUGRIS research and development has been funded individually by partners with no grant support. The project team consisted of 11 partners including national ministries and authorities, research organisations, SMEs and Consultants from Denmark, France, Germany, Hungary, Italy and United Kingdom.</p> <p>By November 2005 EUGRIS had developed version 1 of an online portal for contaminated land and groundwater information, in particular to support the dissemination and use of research outputs. There are two dimensions to the EUGRIS research: firstly EUGRIS is a novel system (see below), secondly the information content of EUGRIS is of research information.</p> <p>A pan European soil and groundwater information system had not been attempted before. R3's input to the project was principally the system development and a contribution to the research information content.</p> <p>Outcome to November 2005: The research work led to a bespoke information management system design and starting content of information. An outline business plan was produced by the Hungarian partner for the consortium as a whole, but a lack of follow-on funding meant that the original business plan could not be implemented. A further complication was that the large range of international stakeholders (industry, regulators etc had differing aspirations and requirements of the system.</p> <p>Developments from December 2005: The consortium has since been dissolved and r3 has been developing the system on a self funded basis, although at a reduced level of effort. This led to the launch of a version 2 system by 2006/7 and a doubling of information content. R3 has been working closely since December 2005 with Cybersales Limited in a joint venture to develop EUGRIS further.</p> <p>We are pleased to say that EUGRIS has been identified by European business and regulator networks as worthy of onward development (published December 2009, link: http://www.commonforum.eu/publications_positionpapers.asp). This is potentially a major opportunity for us to take EUGRIS to a commercial service. We hope that this will now become manifest in new financial backing and 201</p>			
Start year	End year	Status	Web link (if available):
2003	2005	Current	www.eugris.info

Title			
Collation of Existing Information on the Composting and Analysis of Feedstocks and Products of Mechanically Separated Fractions of Municipal Solid Waste			
Activities			
Database Development; Information Dissemination; Information Review; Research ; Technical Authorship ; Web Site Development and Management			
Description			
In this project, supported by Sita Environmental Trust, a large amount of information has been collected about the performance of composting, sampling and separation systems for mixed waste composting (now being applied in "MBT" approaches. This information has been critically reviewed and databased in an on-line web linked database (www.compostinfo.info) in a form that is easily accessible to the UK waste management industry, environmental consultants and researchers.			
Start year	End year	Status	Web link (if available):
2002	2005	Completed	www.compostinfo.info

Title			
Advice to ABB Engineering			
Activities			
Market Consultancy			
Description			
Assisting ABB in finding partners for petrol station remediation in continental Europe			
Start year	End year	Status	Web link (if available):
2005	2005	Completed	

Title			
Technical Support for the Markham Willows composting/SRC/land reclamation project 03/04			
Activities			
Database Development; Research ; Research Management ; Technical Advice / Consultancy; Web Site Development and Management			
Description			
r3 worked as part of a team for exSite Research Limited providing technical support for the Markham Willows Project. The aim of this project were to establish in detail the site-specific technical and financial information necessary to plan a combined organic matter recycling and woodland regeneration scheme for the reclamation of a former colliery in Derbyshire. r3's specific roles include support for proposal development by R&D performers, development of specifications for composts (or digestates) to be used on site, web site and information management software (data management system), assistance in preparing of proposals for EC funding.			
Start year	End year	Status	Web link (if available):
2004	2004	Completed	

Title			
Feasibility study for civic amenity waste recycling for Stockton on Tees Borough Council (2002)			
Activities			
Information Review; Research ; Technical Advice / Consultancy			
Description			
<p>The Borough of Stockton on Tees wishes to establish a landmark composting facility, linked to existing waste management and recycling facilities in the area and a local educational and visitor centre. In order to ensure a high quality proposal, a short feasibility study is being carried out for SBC by r3 Environmental Technology Limited and AEA Technology PLC, which will consist of the following stages:</p> <ol style="list-style-type: none"> 1. □ Review and audit of available data and information for strategy development 2. □ Options appraisal to identify and rank alternatives that might feature in a composting strategy for SBC and MB 3. □ Preparation of a draft business plan as a basis for a proposal for funding 			
Start year	End year	Status	Web link (if available):
2002	2004	Completed	

Title			
Book: Reclamation of Contaminated Land, Paul Nathanail and Paul Bardos, Wiley (London) 2004			
Activities			
Technical Authorship			
Description			
<p>Land contamination is of global concern with many of the world's industries potentially harming the environment and human health. Along with rapidly changing policy and technological developments, this is an interdisciplinary area in which successful contaminated land management depends on the expertise of and interaction between a number of scientific and engineering disciplines. Reclamation of Contaminated Land takes into account the different groups involved in contaminated land management and offers a flexible learning approach based on practical experience and research. It presents an overview of the general skills and knowledge required, encompassing both general management and regulatory practice and specific land contamination issues. Divided into two parts, Part I discusses site characterisation and the design of site investigations, and the central role of conceptual models and risk assessment in decision-making. Part II discusses how risks from contaminated land are managed and the role of different remediation approaches to achieving this. Reclamation of Contaminated Land is suitable for 2nd, 3rd and 4th year undergraduates and MSc students in Environmental Science, Environmental Technology, Environmental Management, Geography, Geology, Estate and Land Management. It is also key reading for undergraduates and MSc students in Chemical Engineering, Civil & Environmental Engineering and Environmental Chemistry, as well as professional planners and developers, and local authorities.</p>			
Start year	End year	Status	Web link (if available):
1997	2004	Completed	http://www.wileyeurope.com/WileyCDA/WileyTitle/productCd-

Title			
Common Forum, January 2004 UK meeting			
Activities			
Copy Writing; Information Dissemination; Information Review; Meeting and Conference Organisation; Policy Review; Technical Authorship			
Description			
<p>The Common Forum is an invitation only meeting of European and EC regulators involved in contaminated land and groundwater management. R3 is supporting the meeting (agenda) development, and also producing the meeting report.</p>			
Start year	End year	Status	Web link (if available):
2004	2004	Completed	www.commonforum.eu

Title			
Detailed planning for the Markham Willows composting/SRC/land reclamation project			
Activities			
Information Review; Research ; Technical Advice / Consultancy			
Description			
r3 worked as part of a team for exSite Research Limited on the "Markham Willows Master-Planning Project", supported by a number of Private and Public sector funders. The aim of this project has been to establish in detail the site-specific technical and financial information necessary to plan a combined organic matter recycling and woodland regeneration scheme for the reclamation of a former colliery in Derbyshire. r3's specific roles included planning for green waste composting, contaminated land risk management approaches, R&D strategy development, planning and developing proof of concept studies.			
Start year	End year	Status	Web link (if available):
2002	2003	Completed	

Title			
Non-biological case studies for CIRIA			
Activities			
Information Review; Research			
Description			
R3 worked as a subcontractor to WSP Environmental on a CIRIA project reviewing case studies of the application of non biological techniques for the remediation and assessment of contaminated land, including land contaminated with radionuclides. This work will focus on UK case studies and will include a detailed review of existing information, and extensive consultancy with current technology providers. Order the report from www.ciria.org.uk			
Start year	End year	Status	Web link (if available):
2001	2003	Completed	http://www.eugris.info/displayresource.asp?Cat=document&Res

Title			
Oxygen Release Compound® and Hydrogen Release Compound®: Technologies for In Situ Remediation			
Activities			
Business Brokerage; Market Consultancy ; Technical Advice / Consultancy			
Description			
r3 has assisted the entry of Oxygen and Hydrogen Release compounds (ORC & HRC) into the UK. ORC and HRC promote in situ bioremediation and are manufactured by Regenesys in California. Detailed technical information is available on their web site: http://www.regenesys.com . R3 represented Regenesys in the UK and Ireland. So far ORC and HRC have been widely used.			
Start year	End year	Status	Web link (if available):
1998	2003	Completed	www.regenesys.com

Title			
Technical support to a major insurer on a compost fire claim			
Activities			
Technical Advice / Consultancy			
Description			
Start year	End year	Status	Web link (if available):
2002	2003	Completed	

Title			
Technical support for WRC PLC study on compost standards carried out for WRAP			
Activities			
Information Review; Research			
Description			
R3 worked as a subcontractor to WRC PLC on a WRAP project. The purpose of the research was to provide an analysis of the market potential for lower grade composted materials in the UK, taking into account the risks associated with their use in different applications. The research was also to assess the viability of introducing a standard/standards for such products. Download the report from www.wrap.org.uk			
Start year	End year	Status	Web link (if available):
2002	2002	Completed	

Title			
Peer review of remedial options appraisal for a site in Israel for a major UK consultancy / contractor.			
Activities			
Technical Advice / Consultancy			
Description			
Start year	End year	Status	Web link (if available):
2002	2002	Completed	

Title			
Compost production advice for a local authority			
Activities			
Information Review; Technical Advice / Consultancy			
Description			
This small confidential project was carried out in collaboration with other leading experts in the field, and focused on reviewing existing technical reports about an operating composting and sorting plant, and suggesting means of improvement.			
Start year	End year	Status	Web link (if available):
2001	2002	Completed	

Title			
Bioremediation case studies for CIRIA			
Activities			
Information Review; Research			
Description			
R3 worked as a subcontractor to WSP Environmental on a CIRIA project reviewing case studies of the application of biological processes to contaminated land remediation and risk assessment. This work focused on UK case studies and included detailed review of existing information, and extensive consultancy with current technology providers. Order the report from www.ciria.org.uk .			
This work won a trade award for transparency of technical report for CIRIA.			
Start year	End year	Status	Web link (if available):
2000	2002	Completed	http://www.eugris.info/displayresource.asp?ResourceID=5062&

Title			
Advice on composting for Municipal Recycling Facilities in the UK and France for a UK company			
Activities			
Technical Advice / Consultancy			
Description			
Start year	End year	Status	Web link (if available):
1997	2002	Completed	

Title			
Participation in Evaluation of EC R&D Proposals			
Activities			
Research Management			
Description			
Review of research proposals for the Environment and Climate programme for DGXII of the European Commission			
Start year	End year	Status	Web link (if available):
2001	2002	Completed	

Title			
Study of the Benefits and Participation in a Selection of Non-military NATO/CCMS Pilot Studies and Ad Hoc Projects			
Activities			
Information Review; Network Management; Policy Review; Think Tank			
Description			
NATO's Committee on the Challenges of Modern Society (CCMS) decided in 1999 to carry out an evaluation of its non-military related work as part of an internal assessment of its role as an international organisation. In this respect, in February 2000 they awarded Professor Paul Bardos of r3 Environmental Technology Ltd a CCMS Fellow Fellowship (976833) to assess the benefit of a range of non-military Pilot and other studies to NATO and Partner countries. The study also reported on the range of topics and issues tackled by the Pilot Studies and their participation.			
Start year	End year	Status	Web link (if available):
2000	2001	Completed	
http://www.nato.int/sps/publication/bardos/bardos-intro.html			

Title			
Burden Mitigation On Small And Medium Enterprises Or Small Sites In European Countries			
Activities			
Information Review; Policy Review; Technical Advice / Consultancy			
Description			
Assistance with a technical review of contaminated land impacts on sme's in Europe for a Japanese client			
Start year	End year	Status	Web link (if available):
2001	2001	Completed	

Title			
MTBE Issues Review			
Activities			
Information Review; Network Management; Research Management			
Description			
Development of approaches to consensus building between stakeholders in the European debate about MTBE issues for groundwater for two industry associations			
Start year	End year	Status	Web link (if available):
2000	2001	Completed	

Title			
Blue Circle Special Cements			
Activities			
Business Brokerage; Market Consultancy ; Research ; Technical Advice / Consultancy			
Description			
Technical support to Blue Circle (now Lafarge) Special Cements on stabilisation / solidification technology development			
Start year	End year	Status	Web link (if available):
1999	2001	Completed	

Title			
ExSite Marginal Land Restoration: Information Review and Scoping Study			
Activities			
Feasibility Studies; Information Review; Network Management; Research			
Description			
<p>exSite Research Limited commissioned r3 to carry out a scoping study on marginal land restoration in collaboration with Forest Research, the R&D arm of the Forestry Commission. The principal aims of this study reflect two of the key themes of exSite: securing the re-use of land and demonstrating the commercial potential of land re-use techniques for post industrial land, where there is no current economic driver for re-use (ie marginal land). This study examined the feasibility of setting up a demonstration project to combine</p> <ul style="list-style-type: none"> * Phyto-stabilisation (i.e. the long term potential for risk management of contaminated sites using plants to take up or otherwise stabilise potential pollutants), * <input type="checkbox"/> Biomass production for energy, and * Stimulating the recycling of organic matter to land as an alternative to landfill disposal of wastes. <p>The final report was published by Land Quality Press in April 2001.</p>			
Start year	End year	Status	Web link (if available):
1999	2001	Completed	

Title			
CLARINET: Contaminated Land Rehabilitation Network For Environmental Technologies			
Activities			
Information Dissemination; Information Review; Network Management; Policy Review; Research ; Technical Authorship ; Web Site Development and Management			
Description			
CLARINET: Contaminated Land Rehabilitation Network For Environmental Technologies (completed 2002) CLARINET's primary aim is to develop technical recommendations for sound decision making on the rehabilitation of contaminated sites in Europe. CLARINET is a concerted action within the Environment & Climate Programme of the European Commission DG XII, co-ordinated by the Austrian Environment Agency. It integrates and combines the knowledge of academics, government experts, consultants, industrial landowners and technology developers from 16 European countries. The project started on July 1st 1998 and its final reports were issued in 2002. r3 provided part of the UK technical input to CLARINET focusing on decision support tools and risk management. It also generally supported the UK participation in the network. R3 input was largely funded by Defra and its fore-runners with some support from the EC for travel and subsistence.			
Start year	End year	Status	Web link (if available):
1999	2001	Completed	http://www.umweltbundesamt.at/en/clarinet

Title			
Assistance With a Cost Model for an Integrated Approach to Biomass Production , Composting and Remediation			
Activities			
Feasibility Studies; Research ; Think Tank			
Description			
The exSite Marginal Land Restoration: Information Review and Scoping Study - outlined below - has led to the development of large scale project proposals, involving the following team: r3, exSite, Groundwork, AEA Technology, VHE Technology and Forest Research. As part of this proposal development an exiting biomass cost model produced by AEA Technology was expanded to include organic matter composting and re-use costs. r3 provided information on waste composting for the development of the enhanced model by AEA.			
Start year	End year	Status	Web link (if available):
2000	2000	Completed	

Title			
Web site for exSite Research Limited			
Activities			
Copy Writing; Information Dissemination; Information Review; Policy Review; Technical Authorship ; Web Site Development and Management			
Description			
exSite, outlined below, commissioned r3 to produce its initial web site. The web site has been handed over to exSite.			
Start year	End year	Status	Web link (if available):
2000	2000	Completed	

Title			
Site Questionnaire And Information Management System For CLAIRE			
Activities			
Database Development; Information Review; Research			
Description			
CLAIRE (http://www.claire.co.uk) is the Contaminated Land Applications in Real Environments programme in the UK. This confidential study is being carried out in conjunction with JBJ Environment the Environment Body: Research for Sustainability.			
Start year	End year	Status	Web link (if available):
1999	2000	Completed	

Title			
exSite Research Limited Technical Support			
Activities			
Business Brokerage; Feasibility Studies; Information Dissemination; Information Review; Policy Review; Research Management			
Description			
<p>ExSite is an Environmental body formed in 1997 and backed by many of the UK's major players in land remediation, from public, private and academic sectors. ExSite funds projects to develop and trial land remediation technologies on a field scale to help secure the practical re-use of post-industrial land. exSite is a funding organisation to develop and trial, on a field scale, land remediation technologies to help secure more efficient routes to secure the practical re-use of post-industrialised land. Its projects have specific aims for supporting the re-use of land :</p> <ul style="list-style-type: none"> • <input type="checkbox"/> through re-use of reclaimed materials, • <input type="checkbox"/> securing the productive and commercial reuse of land as part of the reclamation process, and • <input type="checkbox"/> demonstrating the commercial potential of post-industrial land re-use techniques. <p>r3 assisted the development of its technical programme. continues to act as a technical advisor if requested. ExSite's technical programme comprises three main areas</p> <p>r3 is also involved with two new exSite projects: a scoping study: Feasibility of and Approach to Establishing a Demonstration of "Marginal" Land Restoration, Combining Remediation, Waste Utilisation and Alternative Productive Land Use, and an investigation of the use of category analyses for assessing the performance of soil washing plant, analogous to the size category analyses used in waste management process assessment.</p>			
Start year	End year	Status	Web link (if available):
1997	2000	Completed	

Title			
Environment Agency R&D Project No P5-023, Sustainable Remediation / Environmental Merit			
Activities			
Information Review; Policy Review; Research			
Description			
<p>This study was carried out for the Environment Agency in association with TNO and LQM Limited. The Agency requires a review of the current information on assessing the environmental merit of remediation techniques for land contamination, and to identify criteria for its practical measurement that can be integrated with good practice procedures for selecting different remedial options and for considering the costs and benefits of different approaches.</p>			
Start year	End year	Status	Web link (if available):
1999	2000	Completed	http://www.eugris.info/displayresource.asp?ResourceID=3653&

Title			
Assistance with the International Ad Hoc Working Group on Contaminated Land			
Activities			
Information Review; Network Management; Policy Review; Technical Authorship			
Description			
The Ad Hoc International Working Group on Contaminated Land is an informal forum for international collaboration and exchanges between international experts working for governments in the field of contaminated land policy. R3 has been involved in the databasing, review and interpretation of policy information gathered from the government organisations involved in the Ad Hoc Group. Previous publications from Ad Hoc Group activities are available, click here for details. For this project r3 has been working for the Dutch consultancy, TAUW Infra Consult, and the Centre for Research into the Built Environment, now Land Quality Management Ltd. The project was carried out for the Dutch Ministry of Housing Spatial Planning and the Environment (VROM).			
Start year	End year	Status	Web link (if available):
1997	1999	Completed	http://www.eugris.info/displayresource.asp?ResourceID=357&C

Title			
Technical support on composting for the Eden Project, a Millennium Project in Cornwall			
Activities			
Technical Advice / Consultancy			
Description			
Start year	End year	Status	Web link (if available):
1999	1999	Completed	

Title			
Environment Agency R&D Project No P5-14, Demonstration of Remedial Action Technologies for Contaminated Land (NATO/CCMS Pilot Study)			
Activities			
Information Dissemination; Information Review; Network Management			
Description			
The Environment Agency has appointed Dr Paul Bardos as UK Pilot Study Manager for the NATO/CCMS Pilot Study on "Evaluation of Demonstrated and Emerging Technologies for the Treatment of Contaminated Land and Groundwater - Phase III. His responsibilities include UK Pilot Study liaison; reporting on the Pilot Study's progress; acting as a UK focal point for the Pilot Study; provision of conference and journal papers on the Pilot Study for a UK audience; assisting with links to other international initiatives, in particular the Contaminated Land Rehabilitation Network For Environmental Technologies (CLARINET) and the Network for Industrially Contaminated Land in Europe (NICOLE).			
Start year	End year	Status	Web link (if available):
1997	1999	Completed	http://www.eugris.info/DisplayResource.asp?ResourceID=3663

Title			
Development of commercial / financial service products for recycling / land / waste management for a UK concern			
Activities			
Technical Advice / Consultancy			
Description			
Member of expert panel for the development of technical protocols for a financial service product to facilitate the re-use of organic materials			
Start year	End year	Status	Web link (if available):
1998	1999	Completed	

Title			
Assistance with contaminated land and waste management service development for LGC (Teddington) Ltd			
Activities			
Business Brokerage; Market Consultancy			
Description			
Start year	End year	Status	Web link (if available):
1998	1999	Completed	

Title			
CLAIRE (Contaminated Land in Real Environments) Feasibility Study			
Activities			
Business Brokerage; Feasibility Studies; Information Dissemination; Information Review; Network Management; Policy Review; Research Management			
Description			
<p>This study examined the overall scope for, and feasibility of, field scale test sites in researching, developing and demonstrating techniques and technologies for the remediation of contaminated land. The study identified the relevant interested parties, consulting with and involving them, as appropriate, in the development of CONCEPT (= Contaminated Sites for the Evaluation of Potential Technologies). The study determined the requirements for CONCEPT sites and presented a framework for their development and use drawing on the comments, guidance and advice from interested parties. Strategies for funding and organisation were discussed and an initial costing for the initiative made. Strategies were suggested for research and development activities, demonstration and verification and information dissemination.</p> <p>The project was carried out in association with Parkman Environment and A&S Associates, and developed from an original idea arising from discussions between industry and academe. The project was supported financially by English Partnerships, the Environment Agency & the Department of the Environment, Industry and the Welsh Development Agency. Industry support was co-ordinated by the Soil and Groundwater Technology Association. These organisations and many others also made substantial intellectual contributions to the project.</p> <p>R3 continued to advise on CONCEPT via a consultancy with English Partnerships over 1997/98.</p> <p>In 1998 the initiative was rebadged as CLAIRE and launched as a Private-Public Sector partnership by the Deputy Prime Minister, Mr John Prescott. Operations began in 1999. Web link: www.claire.co.uk</p>			
Start year	End year	Status	Web link (if available):
1997	1998	Completed	

Title			
UK remediation market advice for a leading Dutch research organisation			
Activities			
Business Brokerage; Market Consultancy			
Description			
Start year	End year	Status	Web link (if available):
1997	1998	Completed	

Title			
Composting Trials for a UK Consumer Group			
Activities			
Research			
Description			
r3 carried out various home composting trials for a leading UK consumer group to evaluate the effectiveness of a range of approaches and products for accelerating the composting of garden and kitchen wastes.			
Start year	End year	Status	Web link (if available):
1997	1997	Completed	

Title			
Review and Management of Research on Remediation Technologies			
Activities			
Information Review; Network Management; Policy Review; Research ; Research Management			
Description			
This project was carried out for the Department of the Environment and the Environment Agency through the Centre for Research into the Built Environment and SRK (UK) Ltd. One of the main outputs of the project was a review of the international state of the art in contaminated land treatment technology research with a framework for treatment process technology research in the UK. The project also included technical review of Dept Environment / Environment Agency remediation technology R&D projects, and international liaison, in particular management of the UK contribution to the NATO/CCMS Pilot Study on Remedial Action Technologies (Phase II).			
Start year	End year	Status	Web link (if available):
1997	1997	Completed	

Title			
Soil Washing Verification Review - Basford			
Activities			
Research ; Technical Advice / Consultancy			
Description			
Advice on contaminated land remediation technology verification for a leading UK plc, peer review of procedures suggested by Parkman Environment			
Start year	End year	Status	Web link (if available):
1997	1997	Completed	

Title			
Advice on waste management for the Millennium Exhibition to a UK consultancy			
Activities			
Technical Advice / Consultancy			
Description			
Start year	End year	Status	Web link (if available):
1997	1997	Completed	

Title			
Contaminated Land Management Handbook Paul Nathanail and Paul Bardos			
Activities			
Information Review; Technical Authorship			
Description			
<p>The Editors were invited to submit a book proposal on contaminated land by Thomas Telford. The proposal stems from and draws heavily on work prepared for and delivered on the MSc in Contaminated Land Management at the University of Nottingham.</p> <p>The Contaminated Land Management Handbook™ is envisaged to be a multi-author volume containing condensed reviews of technical aspects of the investigation, assessment, remediation and regulation of land affected by contamination. The Work is the middle of a trilogy comprising an Introduction to Contaminated Land Management being written by the Authors for John Wiley and a Contaminated Land Aide Memoire™ being compiled by the Authors for EPP and Land Quality Press.</p>			
Start year	End year	Status	Web link (if available):
2000	0	Completed	

Title			
Assistance with the MSc on Contaminated Land Mangement at Nottingham University			
Activities			
Training and Training Materials			
Description			
Remediation module development, maintenance and lecturing input			
Start year	End year	Status	Web link (if available):
1997	0	Completed	
