Environmental Liability Transfer in Europe:
Divestment of Contaminated Land for Brownfield Regeneration

Report

NICOLE Brownfield Working Group
May 2011
Acknowledgements

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1. Introduction

1.1 Context and Importance for Industry

1.1.1 Site Closure/Sale and Liability ‘Bounce Back’

Closure or sale of industrial sites is an inevitable part of the cycle of land use. Organisations closing or selling facilities are sensitive to the possibility that, even with safeguards in place, it could be possible for a post-divestiture contamination problem to end up back with them. Unlike the sale of many assets there can be a continuing liability associated with the sale of land in line with the Polluter Pays Principle. Such liability can ‘bounce back’ to the original polluter (See Figure 1.1.1). The fear of bounce-back can in many cases result in conservative reactive approaches that focus on managing the liability rather than effectively transferring it and allowing the site to be remediated and resume a productive use.

![Diagram of Liability ‘Bounce Back’](image)

Figure 1.1.1: Illustration of Liability ‘Bounce Back’

1.1.2 What is Environmental Liability for Contaminated Land?

Environmental liability can be defined as a loss or a potential loss due to damage to either humans or an environmental receptor. The loss is typically monetary but can take other forms, for example reputation. An environmental liability can either arise from statutory requirements, out of contractual agreements, or from civil actions (torts) and can lead to criminal sanctions.

For contaminated land, the most obvious and apparent liabilities are immediate and actual costs, for example for remediation. Remediation costs (i.e. actual liabilities) are dependent on a wide range of factors such as the accuracy of the
site characterisation information, the approach of the regulator, the future use of the site, the approach that the remediation contractor takes and the terms of the contract. While some risk remains in remedial execution such liabilities are normally controllable through foresight and good management practices.

In addition to actual liabilities there are also potential future costs that may or may not materialise as a liability. For a large majority of sites, remediation will have been executed in such a way that future costs (i.e. potential liabilities) will not materialise and will be zero. However occasionally costs will materialise, and in isolated cases costs will be significant, even for large corporations. These may be due to factors such as inadequate site investigation, risk assessment or remediation; changes in scientific knowledge, changes in legislation or the insolvency of a company which had agreed to take on responsibility for the liability. These costs can be very difficult to predict and hence manage and are the main focus of this study.

1.1.3 Transfer of Liability and the Polluter Pays Principle

Initially it may appear that the transfer of liability is contrary to the Polluter Pays Principle, but a closer analysis shows that this is not the case. Where a new site owner accepts transfer of liability as part of a land transaction, this will often be in exchange for a transfer of assets of intended value equivalence to the anticipated cost of remediating the site to mitigate the liability. This is normally reflected in a reduction in the sale value of the site (e.g. deduction for remediation) from that which would have been realised if the site was not polluted, or alternatively can be in the form of an actual payment (“a dowry”). These mechanisms allow the Polluter Pays Principle to remain intact. How the ultimate division of liability falls may be complex and is dependent upon the specific nature of the transaction. A similar principle applies to a share transaction in which contamination liabilities of the target company pass with the shares in the company and may be reflected in a reduction of the value of its shares.

1.1.4 Links to Corporate Management

Corporate managers are responsible for the quantification of risks, assets and liabilities that affect the balance sheet. Environmental liabilities may have significant impact on balance sheet and therefore require accurate quantification, and management. In an environment where the scale of organisations’ liabilities is becoming less palatable, there is increased pressure to present clean balance sheets, and therefore transfer of environmental liability is an attractive proposition for corporate managers.

Furthermore brownfield redevelopment is typically not the core business of the contaminated land site holder, and the multiple skill set needed for brownfield development will probably not exist in most organisations. In order to secure best value for the asset it is normally necessary to work with a specialist development organisation, and hence liability transfer becomes a necessity.
Another driver for good corporate management is the risk of personal criminal liability which can apply to company directors / managers for environmental offences.

Organisations may also still own the liability for land historically divested. Some of the guidance in this report would be useful for organisations in this situation.

1.1.5 Importance to Society

Where there is a third party with an interest in regeneration of the site, the industrial land holder will have the choice whether to retain or divest the land. The transfer of environmental liability is a key consideration for organisations looking to divest industrially contaminated land. This can be a key element of the decision whether land remains neglected (with associated issues of blight, dereliction and management costs), or whether the ‘factory gates are opened’ and the site is regenerated into a new productive use, thereby facilitating sustainable land reuse and supporting local needs such as employment or housing provision.

Moreover the European Environment Agency (EEA 2010) have identified that developments in land-use patterns across Europe are generating considerable concern, particularly in relation to achievement of environmental goals. Land-use trends — such as urban sprawl and land abandonment are jeopardising the future for sustainable land use. There are additional pressures for brownfield to be turned over to low carbon infrastructure projects such as wind and solar power. Brownfield reuse and regeneration, facilitated by liability transfer, will help to ease these pressures.

1.1.6 Municipalities

While this report has been written with the industrial land holder in mind, the ideas and guidance within it will also have value for other types of organisation including public bodies who own industrially contaminated land.

1.2 Purpose of this Document

This Interim Report presents the work carried out to date (August 2010) in researching the Brownfield land market in Europe, and the approach to, and opportunities for, environmental liability transfer, from the perspective of problem holders seeking a positive outcome for land no longer required for their operations.

It is a document that will be used to brief NICOLE members and other stakeholders of the progress made so far. It is the intention to use this document to generate feedback to refine the final document scheduled for completion later in 2010.

1.3 Background to the Brownfield Working Group

In 2008 NICOLE launched its Brownfield Working Group to conduct research into environmental liability transfer from industrial land holders to brownfield users across Europe. Most work that has been conducted in relation to European Brownfields has been focussed on public and policy perspectives. Little work had been done from the
perspective of industrial land holders, or on environmental liability transfer. The NICOLE Brownfield Working Group research aimed to tackle this information gap.

The stated overall objective of the Working Group is ‘to develop a Framework Document for brownfield divestment in Europe, designed to inform industrial land holders of options to secure as clean an exit from liability as possible, and meet their liability management goals’.

1.4 Working Group Research and Deliverables

The NICOLE Brownfield Working Group has completed the following tasks:

- Review existing sources of information including available research data from brownfield networks (e.g. CABERNET, EUBRA, RESCUE, REVIT) and other sources including legislative reviews.

- Compile information from 33 questionnaire responses provided by NICOLE members for the 15 European countries/territories included in the review (see Box 1.4), plus relevant research work, into Country Specific Information Sheets.

- Development of a Road Map detailing how a framework for brownfield divestment in Europe could be structured and delivered.

- Development of an entry point document for environmental liability transfer based on a ‘Questions and Answers’ format.

The research scope included a review of:

- The definitions of ‘Brownfield’ and related terms, what status they have and how they are used in different European countries.

- Legislative, policy and market drivers for Brownfield regeneration in Europe, how they are used in different European countries/territories.

- Environmental liability transfer mechanisms in Europe, including statutory and contractual provisions, and insurance.

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This study has been conducted at the national level, and has not reviewed the regional level with the exception of Belgium (Flanders and Wallonia).

### 1.5 The Structure of this Report

This report is structured as follows:

**Section 1:** Provides background information to the report

**Section 2:** Gives the results of the desk based research

**Section 3:** Gives the results of the Questionnaire based research

**Section 4:** Presents the roadmap, checklists and tools

**Section 5:** Presents conclusions from the report

**Appendix A** describes the current state of knowledge on European brownfields based on the information sources available

**Appendix B** provides a pictorial representation of some of the key research findings

**Appendix C** reproduces the Country Specific Information Sheets for all the countries and territories reviewed.

**Appendix D** comprises the Road Map checklists and tools

### 1.6 Disclaimers

**Disclaimer:** This document does not necessarily reflect the opinion of all individual NICOLE members or member organization, or the opinion of those organizations who contributed to the report who are not NICOLE members

**Disclaimer:** This report describes some general principles in relation to environmental liability transfer for contaminated land and makes reference to some legal principles and reviews. However no reliance can be placed on the contents of this report and in all cases when considering liability transfer, appropriate legal advice must be sought.
2. Results of the Desk Based Research

2.1 Overview of Networks Outputs

A substantial body of research and guidance of relevance to Brownfield development has been assembled both at European and national level over the past decade (for example CABERNET and CLARINET). This work has been largely conducted through network-based study and research into the opportunities and challenges presented by Brownfield land. A review of the key pieces of work are given in Appendix A.

It is apparent that a substantial body of common themes from this body of work can be summarised as follows:

- The work has a strong academic component and is focussed on the public policy, public administrative, management and technical perspectives of Brownfield land.

- A high degree of consensus has developed around a pan-European definition of Brownfield land, as discussed below.

- An interventionist model tends to be assumed, with public authorities acting either as enablers or funders of Brownfield projects. There is an implicit assumption that the majority of Brownfield projects will not be viable without some degree of public sector intervention.

- There is a high degree of consensus that successful Brownfield development requires the integration of the interests of a wide range of stakeholders and the inputs of many technical disciplines, and that this presents challenges for project management.

- Much of the work associates Brownfield Regeneration with Sustainability. Earlier work starts from the premise that re-using Brownfield land is sustainable per se. More recent and ongoing work recognises that there are economic, environmental and social components to sustainability, and seeks to use a range of sustainability objectives and indicators to benchmark outputs from individual Brownfield projects.

From the NICOLE Brownfields Working Group perspective, the following observations can be made:

- Issues such as what constitutes Brownfield land, and the public policy, spatial planning and development market issues affecting Brownfield development, are well understood and a high degree of consensus has been developed.

- Less consideration has been given to the effect of the Polluter Pays Principle. This appears either to have been internalised within the consideration of project economics, or assumed to have been resolved (for example, by discounting land purchase price) before the start of the Brownfield project.

- Similarly, the issue of polluter pays liability, its transferability and the risk or fear of bounce-back, and its impact as a blocker to the supply of Brownfield land, has not been considered in detail. The NICOLE Brownfields Working Group can provide a distinctive contribution to understanding this issue.
2.2. Defining and Understanding Brownfields

2.2.1 Definition of Brownfields

Internationally, at the pan-European level, nationally and regionally, there are a number of alternative definitions of “Brownfield” land. Pan-European, national or regional definitions quoted herein date from 2005 and have been obtained from the CABERNET Network Report (and the preceding paper presented at the CABERNET 2005 conference: “The Scale and Nature of European Brownfields. Oliver et al, 2005”).

Figure 2.2.1, adapted from a diagram originally prepared by the UK Parliamentary Office for Science and Technology and reproduced as Figure 3.1 in the CABERNET Network Report, provides an illustration of Brownfield land typology:

![Diagram of Brownfield land typology](image)

These definitions can be grouped into the following categories:

- Contamination related: Brownfield and (known or suspected) Contaminated Land are defined as largely synonymous. A well known international example is the USEPA definition “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (although as discussed below, US Brownfields legislation and funding also covers classes of non-contaminated land). Examples of other definitions quoted by CABERNET within this category include:
  - Belgium – Flanders: “Abandoned or under used industrial sites with an active potential for redevelopment but where redevelopment or expansion is complicated by a real or perceived environmental contamination”
- Bulgaria: “Contaminated Sites - areas where previous activities have ceased but are still impacting on neighbouring areas”
- Denmark: “Land affected by contamination”
- Poland: “Degraded areas due to diffuse soil contamination – high density of landfill sites”
- Romania: “Polluted Lands”.

- Dereliction related: Brownfield land is largely synonymous with derelict or unused land, not necessarily affected by contamination. Examples of definitions quoted by CABERNET within this category include:
  - Ireland: “Derelict land: Land which detracts, or is likely to detract, to a material degree from the amenity, character or appearance of land in the neighbourhood of the land in question because of ruinous structures, neglected condition or presence of waste”
  - Slovenia: “Degraded/abandoned building land usually inside urban areas”
  - United Kingdom-Scotland: “Vacant or Derelict Land”.

- Previous use-related: Brownfield land is defined as land that has previously been in a built development use. This creates a wide definition that can include land within urban areas, such as, controversially, large domestic gardens and school playing fields, that are neither derelict nor contaminated. Examples of definitions quoted by CABERNET within this category include:
  - United Kingdom – England/Wales: “Previously Developed land – land which is or was occupied by a permanent structure (excluding agricultural or forestry buildings) and associated fixed surface infrastructure”
  - Belgium – Wallonia: “Sites previously dedicated to economic activities, and where the current situation is contrary to ‘efficient land use’”
  - Germany: “Inner city buildings not under use. Inner city areas for redevelopment and refurbishment”

- Requirement for intervention to bring back to beneficial use: a further definition distinguishes Brownfield land as requiring “intervention”: in other words, having some abnormal feature such as dereliction or contamination that makes it more difficult to redevelop than an equivalent Greenfield site. The CLARINET and later CABERNET definition is considered to fit in this category:
  - CABERNET: “Brownfields are sites that: have been affected by the former uses of the site and surrounding land; are derelict and underused; may have real or perceived contamination problems; are mainly in developed urban areas; and require intervention to bring them back to beneficial use”
  - France: “Space previously developed that are temporarily or definitively abandoned following the cessation of activity and need to be reclaimed for future use. Can be partially occupied, derelict or contaminated”
Definitions derived from the CABERNET definition are applied in a number of other European countries, e.g., Austria, Czech Republic, Latvia.

These definitions can be illustrated diagrammatically by Figure 2.2.1a to d (adapted from Figure 2.2.1):

**Figure 2.21a Contamination-Related Definitions**

**Figure 2.21b Dereliction-Related Definitions**
At pan-European level there appears to be a general move towards acceptance of the CABERNET definition as defining Brownfield land:
“Brownfields are sites that:

- have been affected by the former uses of the site and surrounding land;
- are derelict and underused;
- may have real or perceived contamination problems;
- are mainly in developed urban areas; and
- require intervention to bring them back to beneficial use.”

It is interesting to compare this with the USEPA definition:

“With certain legal exclusions and additions, the term ‘brownfield site’ means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”

Whilst the USEPA definition appears to be exclusively based on contamination, the “legal exclusions and additions” referred to bring in other categories of land such as “scarred mine lands” and “railfields”. These are not automatically synonymous with contamination and bring the practical coverage of the USEPA Brownfields definition much closer to that of the CABERNET definition. (USEPA also excludes contaminated land over which liability enforcement actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) are underway, from the Brownfields definition.)

2.2.2 Scale and Nature of Brownfield Land

The CABERNET Network Report identified particular difficulties in identifying comparative data on the scale and nature of Brownfield land in Europe, due to lack of national datasets and the differences in definition outlined above. For those nations where national datasets are available the total area of Brownfield land identified in the report varies markedly, from 11,000 Ha in the Netherlands to 128,000 Ha in Germany, 800,000 Ha in Poland and 900,000 Ha in Romania.

Brownfield density (Brownfield land as % of total land area) shows more consistency, with generally between 0.25% - 0.5% being identified as Brownfield, although Sweden and France have particularly low densities (less than 0.05%) and Poland and Romania particularly high densities (2.5-3.8%).

Reported numbers of Brownfield sites, and sizes of sites, also are subject to limited information and wide variations in results. French Environment Ministry figures quoted indicate that there are 222,000 Brownfield sites covering 20,000 Ha, an average of 0.09 Ha/site. By contrast, the Polish average is reported at 248 Ha/site.

The discrepancies identified above are too great to be explained merely by the differing industrial histories of these countries and clearly are affected by issues of definition and interpretation at the national level.

In attempting to identify a pan-European pattern, CABERNET quotes Oliver et al (2005), who examine the relationship between “Competitiveness” (defined by Organisation for Economic Cooperation and Development (OECD) as the ratio between national competitiveness and USA competitiveness) and population density (persons per square km) for European countries, as the basis for characterising national approaches to the “Brownfield” issue (refer to Figure 2.2.2 below)
Figure 2.2.2 Population Density and Competitiveness Plot
(Oliver et al, 2005; CABERNET Network Report, 2006)
Three categories of countries are identified:

1. Scandinavia and Ireland: high competitiveness and low population density, Brownfield focus on dealing with contamination.

2. Western Europe (UK, Germany, Belgium, Netherlands): high population density, lack of available Greenfield land, Brownfield redevelopment a key priority.

3. Medium population densities, lower competitiveness, these countries have much to gain from Brownfield redevelopment.

Four countries, Denmark, Austria, France and Spain, do not fit into any of these categories.

This model is probably of limited value in attempting to group countries with similar Brownfield issues and outlooks. The parameters chosen are surrogates – “Competitiveness” for redevelopment demand and population density for constraint on Greenfield land supply – and are likely to vary considerably within countries – for example between Dublin and western Ireland. – and even at different points on the economic cycle. The effects of industrial history, political outlook, and property market laws, practices and dynamics, are not represented.

What is evident is that in the absence of a generally accepted European definition and process for collecting data on occurrence, scale and nature of Brownfield land, it is extremely difficult to form a pan-European view on these issues, or to benchmark individual country’s approaches against Europe as a whole.

2.2.3 CABERNET A-B-C Model

In this model CABERNET disaggregates Brownfield sites into three categories. The reference to “reclamation” rather than “remediation” reflects the fact that issues unrelated to contamination can also require intervention and be significant cost drivers:

A: Land value after reclamation significantly greater than reclamation costs. “A” sites are described as highly economically viable and redevelopment projects will be private sector developer-led.

B: Land value after reclamation close to (slightly greater than/less than) reclamation costs. “B” sites are on the borderline of profitability and are likely to be developed by public-private co-operation or partnerships, or possibly via mechanisms such as “Gap Funding”.

C: Land value after reclamation significantly less than reclamation costs. “C” sites cannot be profitably regenerated and their regeneration is therefore dependent on public sector funding or incentivisation.
The A-B-C model is useful from a public policy and development standpoint in differentiating between classes of site that require, or do not require, public sector financial support. However there is no consideration of the effect of polluter-pays liability on the balance between reclamation cost and value. The effect of “polluter-pays” liability on the model will be complicated and will be different for each of the three classes of sites.

Further development of this model to take into account the effect of polluter-pays liability is illustrated in Figure 2.2.3b below. This version of the model presents polluter-pays liability as a contribution to reclamation costs (recognising that remediation liability will in most cases only be a proportion of total reclamation costs, the remainder of these costs being expended to make possible the redevelopment). This contribution may be in the form of a cash transfer (“Dowry”) or a reduction in the land sale price equivalent to the cost of the remediation. This developed model helps to illustrate the complexity of a typical Brownfield transaction.
2.2.4 CABERNET Stakeholder Model

As noted above there is a high degree of consensus that successful Brownfield development requires the integration of the interests of a wide range of stakeholders and the inputs of many technical disciplines, and that this presents challenges for project management. CABERNET presents the interlocking roles of the stakeholders as a series of interlocking gear wheels driving Brownfield redevelopment.

![CABERNET Stakeholder Model Diagram](image)

Figure 2.2.4a CABERNET Stakeholder Model
(CABERNET Network Report, 2006)

As presented in Figure 2.2.4a above, it can be stated with some certainty that no mechanical engineer was involved in its drafting: the mechanism is locked tight – perhaps an inadvertent illustration of how difficult it is to drive a process with so many stakeholders!

Again, this model does not illustrate the effect of polluter pays liability on the dynamic of the process, which will tend to place a gulf between the owners of existing land, as liability holders, and the remainder of the process, unless satisfactory and robust liability transfer mechanisms are available. Figure 2.2.4a below is an alternative presentation of the Stakeholder Model, illustrating the effect of perceived inability to transfer liability, on landowner willingness to engage in the process of Brownfield development.

The liability gap presented in Figure 2.2.4b is a representation of a range of factors related to environmental liability that obstruct or restrain the ability or willingness of liability holders to engage in the Brownfield redevelopment process: these factors, discussed further below, can be described as “blockers”. However there are also factors that can encourage the engagement of liability holders in the Brownfield development process – “drivers” - and these can be illustrated as bridging the liability gap, as in Figure 2.2.4c below. Maximising the effectiveness of these drivers is a key to unlocking the potential for Brownfield development.
Figure 2.2.4b Amended CABERNET Stakeholder Model (Developed by NICOLE Brownfields Working Group from CABERNET Network Report, 2006)

Figure 2.2.4c Bridging the Liability Gap (Developed by NICOLE Brownfields Working Group from CABERNET Network Report, 2006)
2.3. Drivers and Blockers for Brownfield Regeneration

Consideration of the “Drivers” and “Blockers” affecting regeneration of Brownfield is relevant both in comparing differences between the situations in different European nations, and in identifying appropriate mechanisms to encourage Brownfield redevelopment.

What is in one circumstance a Driver can in others be a Blocker: for example, a high development land value will act as a driver whilst a low development land value may act as a blocker. Whilst European research networks such as CLARINET and CABERNET do not report on issues as Drivers or Blockers their reports provide background information on issues that can act in either way. A particular reference, which contributed to the list below, is the CABERNET network report, Chapter 5 Regenerating Brownfields: The Current Agenda.

Drivers and blockers can be considered under the following headings:

**Government**
- Legislation
- Regulation – Land Use
- Regulation – Environmental
- Policy – Land Use
- Policy – Urban Regeneration
- Policy - Environmental
- Incentives – Tax
- Incentives – Grants and Loans
- Direct Intervention

**Economic/Market**
- Development Land Value
- Maturity of property market
- Marketability of Brownfield land
- Availability of Greenfield land
- Availability/competitiveness of service providers
- Availability of Brownfield skills

**Social**
- Public interest/participation in spatial planning/land use decisions
- Acceptability of re-using Brownfield land
- Desire to address social cohesion issues
- Desire to improve local environments
- Desire to provide employment opportunities

**Liability**
- Financial reporting of liability (e.g. Sarbanes-Oxley (US), FRS12 (UK))
• Polluter pays liability
• Effectiveness of transfer mechanisms
• Long term robustness of transfer mechanisms

Previous European network outputs have not used Drivers/Blockers to research or benchmark the Brownfield market in individual countries or as a direct input into selecting appropriate Brownfield development mechanisms, although CLARINET, CABERNET and RESCUE identify these as issues to be taken into account in promoting Brownfield development practice.

2.4. Environmental Liability and Risk Transfer in Brownfield Transactions

This issue is covered the least in the work of the previous European networks. As observed above they have not focussed on the effect of the Polluter Pays Principle. This appears either to have been internalised within the consideration of project economics, or assumed to have been resolved (for example, by discounting land purchase price) before the start of the Brownfield project.

As a result it has tended to be assumed at the commencement of a Brownfield project that the land is available, either owned by a project stakeholder or obtainable through a simple purchase transaction, and issues of environmental liability and risk transfer have therefore not been reported on in detail in the network outputs.

Some papers presented at the CABERNET 2007 Stuttgart conference did however address these issues:

• Wernstedt et al, 2007: Liability and the Long Term: Effects on Sustainable Urban Regeneration in the UK and USA. This paper compares liability structures and related factors on brownfield redevelopment in the UK and the USA, focussing on cases where the site is remediated to be “suitable for use” with contamination left on site. The paper presents non-quantified functional relationships linking public and private body behaviour to a range of economic variables, although the authors recognise that the effect of uncertainty, and cultural and social factors, will have a greater effect on the outcome.

• Holstenkamp, 2007: developing a Model of Financing for Brownfield Development: How to Integrate Contamination Risks and Legal and Political Risks? This paper presents an approach to project economic assessment using Monte Carlo simulation, but the authors accept that whilst applicable to contamination risks, this approach may not be convincing if applied to legal and political risks.

• Besemer (2007): A revolving Fund for Brownfield development. This paper examines a Dutch initiative to provide revolving funding for Brownfield investment, with finance and insurance components, similar to the USEPA Brownfields Revolving Loan Fund. It also identifies other possible financial mechanisms for risk coverage such as guarantee funds and insurance programmes.

• Johnson and Shaw, 2007: Environmental Exposure, Liability and Risk Transfer in Brownfield Transactions. This paper presents key environmental issues in Brownfield and contaminated land transactions and identifies a common objective of sellers of Brownfield land as achieving a “clean exit”. Mechanisms to quantify financial exposure to environmental liabilities are examined to enable
commercial judgements on risk retention, discounting and environmental insurance to be made. Case studies are presented. A range of risk transfer techniques are presented with the lower down the bullet list, the more secure (for the liability holder):

- Sold as seen with no information;
- Sold with information but without specifically identified discount from unimpaired valuation;
- Sold with information provided by seller to knowledgeable buyer who carries out own investigation; unimpaired value discounted;
- Sold with information provided by seller to knowledgeable buyer who carries out own investigation; unimpaired value discounted;
- As above with full developer indemnity but no insurance;
- As above, full buyer indemnity, matching insurance, seller co-insured on policy;
- As above with highly credit backed indemnity, duration/amounts limited, credit enhanced by matching insurance and/or capital security or bond;
- As above with secure credit backed legal indemnity with limited duration or amount, credit enhanced by matching insurance and/or capital security or bond;
- As above with secure credit backed legal indemnity – no limit on duration or amount, credit enhanced by matching insurance and/or capital security or bond (although these by necessity will be limited).

None of the papers examined address comprehensively the potential for liability bounce back in the event, for example, of successive sales and changes of use of a site, or non-survival (for example, as a result of bankruptcy) of a land buyer, developer, funder or insurance company.
2.5 Legal Background

Clearly any consideration of environmental liability requires an understanding of the legal regimes in place. A very brief overview of some key aspects of law in Europe is given below.

2.5.1 Polluter Pays Principle

The Polluter Pays Principle has been enshrined in the European Commission’s environmental action plans since 1973 and the EC Treaty since 1987 (currently article 191(2) of the Treaty of the Functioning of the European Union, as recently amended by the Lisbon Treaty), and hence is a cornerstone of EU environmental policy. It is based on the principle that a polluting party should pay for damage caused to the environment by its activities, and is usefully defined by the OECD as:

*the principle according to which the polluter should bear the cost of measures to reduce pollution according to the extent of either the damage done to society or the exceeding of an acceptable level (standard) of pollution.*

2.5.2 Environmental Liability Directive

The Environmental Liability Directive (Directive 2004/35/CE on environmental liability with regard to the prevention and remediying of environmental damage) is the first specific polluter pays law enacted by the European Union. The Directive imposes liability on an operator who causes an imminent threat of, or actual, environmental damage to natural resources for the cost of measures to prevent or remedy such damage. The term ‘natural resources’ is defined as land, water (inland surface waters, transitional waters, coastal waters, and groundwater) and protected species and natural habitats. Land damage is only included in the liability of operators of listed high risk activities. For other operators, the only type of damage they can be liable for under this regime is damage to protected species and habitats.

Land damage is ‘any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or microorganisms’. Land damage is remedied by carrying out necessary measures to remove, control, contain or diminish the relevant contaminants so that they no longer pose a significant risk of adversely affecting human health. The current or approved future use of the contaminated land must be taken into account in the remediation.

The Directive, which had to be transposed into national law by, and enforced by Member States from, 30 April 2007, supplements the national environmental liability legislation of Member States; it does not replace it. It also only applies to damage arising after it came into force, so does not really address the historic contamination affecting brownfield land.

2.5.3 National Law

The proposed European Union Soil Framework Directive has stalled due to a blocking minority in the Council, hence national contaminated land legislation,
as supplemented by the Environmental Liability Directive, continues to have a key role in determining whether there is environmental liability. National legislation had grown up independently to meet the needs and the conditions prevalent in individual countries. This has resulted in a high degree of variability and complexity. For this study much reliance was placed on legislative reviews published by the international law firm Baker and McKenzie (Baker and McKenzie, 2009). Reports prepared by Baker and McKenzie personnel within their own jurisdictions were available for the majority of the countries reviewed and these reports included an examination of:

- Contaminated land statutes and remediation laws
- Primary responsibility and liability apportionment
- Clean up standards, decision making, the water environment
- Offences, penalties, enforcement, damages, third party claims
- Acquisition, investigations for sale, liability transfer under statute and contract

Baker and McKenzie information indicates that in different countries statutes often focus on specific types of potentially responsible person, namely: the polluter (and its legal successors); the current owner and the current occupier (lessee). The competent authority may upon its discretion pick the most solvent and/or likely effective address for any clean-up, not necessarily corresponding to pollution or ownership history. Both new and old owners are, therefore, exposed to environmental liability risks associated with brownfield transactions.

Baker and McKenzie mainly focussed on statutory clean up rather than development control, details of contract law, or tort laws (including the law relating to nuisance or negligence). For the purposes of liability transfer, it is often necessary to make sharp distinctions between private (civil) and public (statutory) law.

Some national statutory regimes in place enabled a degree of liability transfer from the polluter/owner to the land purchaser through contract (see below). At first glance this may seem in contradiction to the Polluter Pays Principle. However in practice the two can work well together. In general the polluter remains responsible unless he has followed the requirements for statutory transfer.

### 2.5.4 Contract Law

Contract law is also important for liability transfer. A contract can be considered as ‘a promise or set of promises which the law will enforce’. Contracts between parties for the transfer of land may include warranties and indemnities, the setting up of escrow accounts and defining liability limitations. Whilst statutory requirements take precedence over contract law (in many countries potentially making the contract irrelevant), contracts can still be critical vehicles for liability transfer as between the parties.
3.0 Questionnaire Responses and Analysis

3.1 Research Proposal Process

Questionnaires were sent out across the NICOLE network. The responses received (see Table 3.1) were predominantly from industrial land holders and consultants, although responses were also received from a remediation contractor, a brownfield developer and a regulator.

Questionnaires requested information regarding:

- the person completing the questionnaire and their organisation
- the definition of brownfield land in their country
- the brownfield market in their country
- environmental liability management and transfer in their country
- optional site case study

Information from questionnaires and case studies for each country or territory reviewed have been combined with background research into Country Specific Information Sheets (CSIS). These are included in Appendix A.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Questionnaires Received</th>
<th>Number of Case Studies Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium (Flanders)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Belgium (Wallonia)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Finland</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Ireland</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sweden</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>33</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>
3.2 Research Findings

3.2.1 Contaminated Land and Brownfield Definitions

Definitions of contaminated land and brownfield were reviewed. There were risk based definitions of contaminated land in all but four of the countries assessed. Brownfield definitions varied considerably (see Figure B.1 in Appendix B) and included:

- Definitions synonymous with contaminated land (e.g. Italy, Spain)
- Previously developed land (e.g. England, Germany)
- Derelict, underused or vacant land (e.g. Scotland, Ireland, the Netherlands)
- Land where intervention is needed (e.g. France)

Two countries (Finland and the Czech Republic) had adopted the definition given in the CABERNET final report (see CABERNET Brownfield definition on page 9 of this report).

In almost every country reviewed, policy and regulation around contaminated land were considered prior to the emergence of policy and regulations around brownfield and regeneration, indicating a natural hierarchy of priorities for land management.

Data was collected on the size of contaminated land and brownfield land in the countries reviewed. However because of the variable definitions for brownfield and the variable data collection methodologies for both data sets, these data are not readily comparable between countries/territories.

3.2.2 Brownfield Market Activity and Brownfield Incentives

The transfer of interests in land provides an excellent opportunity to transfer liability at the same time. Therefore a qualitative scoring of brownfield market activity was made in each country assessed. This indicated that throughout much of Europe the transfer of brownfield sites is ‘minimal’, and most new developments are strongly focussed on greenfield sites. In a few countries there was an indication that transactions involving brownfield sites are at a ‘moderate’ level (including France, the Netherlands and Spain). In one country (the UK) the brownfield market was generally considered to be ‘dynamic’ with a large proportion of total development focussed on brownfield land (also see Figure B.2 in Appendix B).

The strength of incentives and disincentives for brownfield regeneration was examined (see Box 3.2.2), and a view was reached on the relative degree of incentives in each country.

Most countries did not prioritise the development of brownfield land, and the incentives were either poor or there were disincentives to land reuse. In a few countries incentives were believed to be ‘moderate’ (including France, Italy, Belgium and Romania). In the UK there was a consensus that incentives were
strong and included targets for brownfield development for housing and tax breaks for remediation. This is due to a policy regime that strongly dis-incentivises building on greenfield land.

The development value of brownfield land is the main incentive which drives its reuse and the availability of greenfield land is a key controlling factor as to whether brownfield land is developed. Whilst legislation was seen as a major driver, regulation (both development control and environmental) was seen a major disincentive. Polluter pays liability was seen as both an important incentive and a disincentive in different contexts. Public intervention was seen as a significant incentive, whilst long term robustness of liability transfer and marketability of brownfield land were seen as significant disincentives.

Incentives may vary regionally within jurisdictions depending on the perceived need for regeneration. This study did not include a review at the regional level (with the exception of Flanders and Wallonia).

There was a weak relationship between the level of incentives and the strength of the brownfield market in different countries. This indicates that while intervention can assist brownfield markets, there are other factors at play (for example intensity of industrial history, and/or population density might be important).

### Box 3.2.2: Brownfield Incentives Reviewed

<table>
<thead>
<tr>
<th>Incentive Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Policy on Land Use and Regeneration</td>
</tr>
<tr>
<td>Government Environmental Policy</td>
</tr>
<tr>
<td>Legislation</td>
</tr>
<tr>
<td>Regulation – Land Use (Development Control)</td>
</tr>
<tr>
<td>Regulation – Environmental</td>
</tr>
<tr>
<td>Financial Incentives: Tax</td>
</tr>
<tr>
<td>Financial Incentives: Grants and Loans</td>
</tr>
<tr>
<td>Direct Public Intervention</td>
</tr>
<tr>
<td>Development Land Value</td>
</tr>
<tr>
<td>Marketability of brownfield land</td>
</tr>
<tr>
<td>Availability of greenfield land</td>
</tr>
<tr>
<td>Availability and competitiveness of Brownfield service providers</td>
</tr>
<tr>
<td>Improvements in building communities and improving local environments</td>
</tr>
<tr>
<td>Providing local employment opportunities</td>
</tr>
<tr>
<td>Financial reporting of liability</td>
</tr>
<tr>
<td>Polluter pays liability</td>
</tr>
<tr>
<td>Effectiveness of transfer mechanisms</td>
</tr>
<tr>
<td>Long term robustness of transfer mechanisms</td>
</tr>
</tbody>
</table>
3.2.3 Legal Findings

All the countries reviewed are Member States of the European Union. Therefore, the Polluter Pays Principle applies, among other things, to the remediation of contaminated land in all of them.

Five of the countries reviewed had no specific national legislation, other than legislation transposing the Environmental Liability Directive, for remediating contaminated land in some circumstances. These relied on waste or more general environmental legislation to manage contaminated land. In some north-west European countries the national regimes are mature, whereas in most other parts of Europe they were established more recently.

All countries had the capability of transferring liability by contract, subject to statutory requirements. Only four of the national statutory regimes in place enabled a degree of statutory liability transfer from the polluter/owner to the land purchaser. Of those that do not allow this a much greater reliance on the contractual route is needed. In France the legislation specifically identifies the polluter as the responsible party (also see Figure B.3 in Appendix B).

3.2.4 Liability Transfer

**Frequency of Liability Transfer**

Only in the Netherlands and Belgium is environmental liability transfer considered routinely as part of transactions involving contaminated land. In the majority of the countries reviewed liability transfer is either sometimes important for land transfer or rarely (or never) considered (also see Figure B.4 in Appendix B).

**Categories of Environmental Liability Transfer**

Regarding the categories of environmental liability that may be transferred, only in Belgium was there a consistent view that all of the liability types listed in Box 3.2.4A are routinely transferred. In the Netherlands, France, the UK and Romania there was a consensus that most of these liability types are often transferred. In the other countries it was considered that few (Italy and Spain) or none (remainder) of the liability types listed are transferred.

<table>
<thead>
<tr>
<th>Box 3.2.4A: Categories of Environmental Liability that may be Transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Site Contamination – Soil</td>
</tr>
<tr>
<td>On Site Contamination – Groundwater</td>
</tr>
<tr>
<td>Historic Off Site Contamination – Soil</td>
</tr>
<tr>
<td>Historic Off Site Contamination – Groundwater</td>
</tr>
<tr>
<td>Future Off Site Contamination – Soil</td>
</tr>
<tr>
<td>Future Off Site Contamination – Groundwater</td>
</tr>
<tr>
<td>Future changes in legislation</td>
</tr>
</tbody>
</table>
The liability types most frequently transferred are on-site soil and groundwater, followed by historic off-site soil and groundwater. The liability types most frequently never transferred are liability for future off-site soil and groundwater contamination, that is, from contaminants present at the site on the date of its transfer.

**Environmental Liability Transfer and Management Mechanisms**

Only in the UK and in the Netherlands was there a consistent opinion that most liability transfer mechanisms given in Box 3.2.4B are used. In the Czech Republic and in Hungary the consensus was that these liability transfer mechanisms are never used. In all other countries views were divided as to the frequency of use of these mechanisms.

The three most commonly used mechanisms are contract (e.g. warranties and indemnities), assessment of site purchaser and corporate restructuring. The three mechanisms least used are transfer to a specialist liability management organisation, monitoring of greater frequency and duration than required by the regulator, and environmental insurance.

<table>
<thead>
<tr>
<th>Box 3.2.4B: Environmental Liability Transfer and Management Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate restructuring</td>
</tr>
<tr>
<td>Detailed assessment of site purchaser</td>
</tr>
<tr>
<td>Contract (e.g. warranties and indemnities)</td>
</tr>
<tr>
<td>Remediation to higher standards than those set by the regulator</td>
</tr>
<tr>
<td>Monitoring of greater frequency and duration than required by the regulator</td>
</tr>
<tr>
<td>Legal restrictions on future land uses</td>
</tr>
<tr>
<td>Environmental insurance</td>
</tr>
<tr>
<td>Other Financial mechanisms (Bonds, escrow accounts etc)</td>
</tr>
<tr>
<td>Transfer to a specialist liability management organisation</td>
</tr>
</tbody>
</table>

**3.2.5 Land Transaction**

The way in which the land is purchased is often critical for environmental liability transfer. Based on an adaptation of the work of Johnson and Shaw (Ref ), seven approaches to land transaction looking at different levels of information and guarantee were reviewed as indicated in Table 3.2.5A below. These have been further divided into four risk indication categories.

The most frequently used mechanism for land transactions in the EU is ‘Sold with Information’ with a specifically identified discount for contamination based on site investigation by a knowledgeable buyer – either with or without an indemnity from buyer to seller. Unlimited parent company guarantees and environmental insurance are very rarely used. Sold as seen with no information (buyer beware) is still used surprisingly frequently, but is strongly avoided by many countries.
### TABLE 3.2.5A: Types of Land Transaction and Corresponding Risk Categories

<table>
<thead>
<tr>
<th>Type of Land Transaction</th>
<th>Risk Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold as seen with no information (buyer beware)</td>
<td>‘HIGH RISK’ TRANSACTION</td>
</tr>
<tr>
<td>Sold with information but without a specifically identified discount for contamination</td>
<td>‘CONTROLLED’ TRANSACTION</td>
</tr>
<tr>
<td>Sold with information but with a specifically identified discount for contamination based on site investigation by a knowledgeable buyer</td>
<td>‘SECURED’ TRANSACTION</td>
</tr>
<tr>
<td>As above but with an indemnity given by the buyer to the seller</td>
<td>‘SAFE’ TRANSACTION</td>
</tr>
<tr>
<td>As above but an environmental insurance policy</td>
<td></td>
</tr>
<tr>
<td>As above but with a limited parent company guarantee</td>
<td></td>
</tr>
<tr>
<td>As above but with an unlimited parent company guarantee</td>
<td></td>
</tr>
</tbody>
</table>

The risk indication categories have been plotted against country in Table 3.2.5B below. In general there appears to be less risky approaches to land transaction in north western and northern Europe.

### TABLE 3.2.5B: Indicative Risks for Land Transactions Identified by NICOLE Research

<table>
<thead>
<tr>
<th>Country</th>
<th>‘HIGH RISK’</th>
<th>‘CONTROLLED’</th>
<th>‘SECURE’</th>
<th>‘SAFE’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flanders</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wallonia</td>
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<td></td>
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<tr>
<td>Germany</td>
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<tr>
<td>Finland</td>
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<td>France</td>
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<td>Netherlands</td>
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<tr>
<td>UK</td>
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<tr>
<td>Romania</td>
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<tr>
<td>Sweden</td>
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<tr>
<td>Italy</td>
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<tr>
<td>Spain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
<td></td>
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<tr>
<td>Hungary</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Ireland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insufficient Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2.6 Summary of Findings from the Questionnaire Data Analysis

Drawing together the research work conducted, the following results emerge:

- There were risk based definitions of contaminated land in all but four of the countries assessed. However brownfield definitions varied widely across Europe.

- In almost every country reviewed, policy and regulation emerged around contaminated land prior to its emergence around brownfield land regeneration, indicating a natural hierarchy for land management.

- The UK stands out as the country with the strongest brownfield market and the strongest incentives. While there was moderate activity in a small number of other countries, across most of Europe there were weak brownfield markets. There appeared to be some variability in the relationship between markets and incentives.

- Liability transferable by statute is important for safe divestment of land but appeared to be in force in only four of the countries reviewed.

- The approach to liability transfer is highly variable; it being routine in some countries and rare in others. Contamination responsibility is rarely comprehensively transferred; non or partial transfer is much more normal. There are many liability transfer mechanisms available but only a few are frequently used. Belgium (and specifically Flanders) appears to have the most controlled approach, whereas in some southern and eastern European countries it is often given little consideration. These factors indicate that brownfield environmental liability transfer is an area which would benefit from further consideration and development.

- The most frequently used mechanism for land transactions in the EU is ‘Sold with Information’. ‘Sold as Seen’ with no information (buyer beware) is still used surprisingly frequently, but is strongly avoided in many countries.
4 The Liability Transfer Roadmap

4.1 Introduction

The challenge for the NICOLE WG Brownfields is to identify a common framework for liability transfer in Europe, applicable throughout the patchwork of national brownfield markets and approaches to liability transfer, and provide guidance that will be applicable Europe-wide. Given the differences between national jurisdictions within Europe one of the challenges faced has been to develop a “Roadmap” that can be applied on a Europe-wide basis. This challenge is being addressed by focussing on the processes of liability management, and developing a toolkit that can be used in different national jurisdictions.

To provide this guidance NICOLE WG Brownfields has developed a European “Roadmap” and “Toolkit” for liability transfer. It is primarily structured to assist the organisation seeking to exit from liability by transfer, but should be useful to other parties at a variety of levels:

• Parties in a land transfer seeking to identify and apportion liabilities
• Regulators seeking to satisfy themselves that the transfer will lead to liabilities being addressed; and
• Policy-makers, to inform the development and transposition of European environmental policies.

The Roadmap is part of a framework rather than a single linear process. It seeks to describe the space within which the liability transfer is bounded, and identify ways to move around it. Each liability transfer case will be different and will therefore require emphasis on different processes within the overall framework described by the Roadmap.

The framework is made up of the following elements:

• The “Roadmap”, presented as a series of five “Areas”, each area involving separate but linked processes;
• Resources that can be used to inform the processes, typically presented as “Checklists”;
• A series of tools (the “Toolkit”) that can be used in the processes.

These elements are outlined in more detail in the following sections.

4.2 The Roadmap

Figure 4.2 illustrates diagrammatically the “Roadmap” as conceptualised by NICOLE WG Brownfields. The Roadmap is presented as a series of five “Areas”, each area representing the activities that are carried out at a particular stage of the liability transfer process. Linkages between these areas comprise primary linkages based on an assumed linear progression through the liability transfer process, together with return linkages for circumstances where earlier decisions
need to be revisited or processes re-engaged, and exit linkages, for where the decision is made to abandon the liability transfer process.

Figure 4.2 The Liability Transfer Roadmap

The five areas are summarised as follows:

**Area 1: Entrance and Orientation.** The process is entered and the “boundaries” to the process are established, typically by consideration of corporate objectives of the transferring company, by consideration of the legal and stakeholder context and by high level preliminary data, pollutant linkage, liability and cost reviews.
Area 2: Liability Scoping and Analysis. In this area the evidence base, and the pollutant and liability linkages are examined in a more detailed and critical manner. The evidence base is subjected to a process of gap analysis and where the requirement is identified, further technical and legal data is obtained, for example, by site investigation, or legal analysis of title documents. Once the evidence base is adjudged satisfactory, a process of review of pollutant linkages, risk assessment and definition of mitigation measures can be carried out.

The review of pollutant linkages follows the established Conceptual Site Model approach, and an innovative approach is proposed for assessment of potential liabilities. This key innovation is the concept of “Liability linkages”, analogous to the established “Pollutant linkages” of source, pathway and receptor, and is outlined in more detail in Section 4.2.1 below. As with pollutant linkages, the liability linkages can be aggregated into a Conceptual Liability Model for the site (Figure 4.2.1).

Area 3: Definition of Corporate Position. Armed with a robust understanding of the liability position from the preceding liability scooping and analysis stage, the process moves on to establishing the corporate position for the selling organisation to negotiate the land transfer. The corporate objectives related to the transfer of the specific site are defined and a review of other stakeholders’ objectives carried out. Options for carrying out the transfer are identified and reviewed, and a preferred option selected and developed as a strategy.

Pre transfer interventions, such as remediation of particular linkages, are considered at this stage. This may be relevant, for example, if the selling organisation regards transfer of a particular linkage to carry an unacceptable reputational risk, or if a commercial judgement is made that the purchaser will be unwilling, or demand too great a discount, to take on the risk. An example might be removal of a leaking underground storage tank acting as a continuous source. It will be necessary to revisit Area 2 to update the outputs, for example, if pre-transfer remediation is carried out.

Area 4: Liability Transfer Negotiations. With the corporate position defined and a strategy adopted, the negotiation stage is entered into. Liability transfer will be one consideration amongst the many issues requiring negotiation for the transfer of the site. If liability is to be transferred, due diligence of the purchaser, to ensure that the organisation has sufficient standing and resources to be able to address the liabilities, is a prudent early step. Meanwhile, sales contract terms will be defined, and any requirement for additional protection layers, such as site specific environmental insurance, and institutional controls, such as covenants limiting future site uses, will be identified.

The activities in this area are going to be dictated by the process of negotiation with another party, with its own objectives and constraints. It is therefore likely that during this process, decisions taken and analysis carried out earlier in the process will need to be revised or sensitivity tested. This may necessitate a return (feedback loop) to an earlier point in the framework. Particular liability linkages may need to be mitigated before sale terms can be agreed, or it may even be necessary to abort the process altogether.
Area 5: Transfer and Exit. If sale/liability transfer terms can be agreed, the transfer moves into the final phase. Completion of the sale, and transfer of the liability is not the end of the process, however, even if the agreed sales terms allow for an immediate liability transfer. For the selling organisation, two key actions remain. Corporate financial provisions for environmental liabilities, need to be reviewed and adjusted in accordance with accounting standards and to provide evidence that the “Polluter Pays” principle has been observed. Relevant records, including those generated by the process described in the paper, as well as data on liability assessment and records of the transaction itself, need to be retained in a secure archive in the event of future questions and disputes. Such records should be retained even in the event that the transfer is abandoned prior to completion.

The “Roadmap” framework presented here is supplemented by resources in the form of checklists used to inform the processes, and Tools to be used in following the processes and to provide a record of the process. These are described in the following sections.

4.2.1 Pollutant Linkages and Liability Linkages

Pollutant Linkage

The pollutant linkage is a fundamental concept for risk based land management. In order for there to be a risk present, three elements need to be in place:

A **source**: chemical or other contamination present in, on or under land;

A **receptor**: something that can be adversely affected by the contamination, such as people, an ecological system, property or a water body; and

A **pathway**: a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently; they create a risk only when they are linked together such that a particular contaminant affects a particular receptor through a particular pathway. This combination of contaminant-pathway-receptor is known as a ‘pollutant linkage’. A Conceptual Site Model can be considered as the collection of pollutant linkages for the site.

Liability Linkage

The Liability Linkage is a new concept for liability management for contaminated land which has been developed by the NICOLE Brownfield Working Group. For there to be a liability linkage there must first be a pollutant linkage. Thereafter three elements need to be in place for the formation of a liability linkage. These are:

A **claimant**: For the purpose of liability linkages the receptor will be either the party that suffered from the impact of the contamination (a company, an individual etc) or a regulator with responsibility for protection of the natural environment;
A claim in law: the laws of the particular member state or region must be such that the pollutant linkage results or has the potential to result in an environmental liability, and there must be a party in a position to make that claim; and

A liable party: an individual or an organisation who would ultimately be responsible for the environmental liability.

Therefore in order for there to be a risk of environmental liability, there must be the potential for a claim in law for the pollutant linkage(s) and a party who would bear the liability still in existence.

Claim in Law

The term ‘Claim in Law’ covers a wide range of potential legal actions. It could originate directly or indirectly from European Union Directives transposed into national legislation (for example the Water Framework Directive, Waste Framework Directive, or Environmental Liability Directive). It could arise from national or regional laws related for example to contaminated land, waste or nuisance. It could result from law other than environmental legislation, for example contract law and tort law. It will normally relate to either claims for impacts to human health, environmental damage, or business or property damage.

Liable Party

The liable party might be the original polluter or successor in title to the land polluted by the original polluter. Alternatively it could be another party to whom liability has been transferred, and could potentially include consultants, contractors, insurance companies or a specialist liability vehicle. The liable party or potential combination of liable parties will be different in each and every situation.

Just as the Conceptual Site Model can be considered as the collection of pollutant linkages for the site, the Conceptual Liability Model can be considered as the collection of liability linkages for the site, as illustrated in the example in Figure 4.2.1.
Where the liability being considered is reputational rather than economic, it may not be necessary for the liability linkage to be complete for there to be a loss, and stakeholder communication can become critical to mitigate any adverse consequences. This is not addressed further in this report.

### 4.3 Checklists

The main function of the checklists will be to provide or reference resources that will assist those engaged in following the Roadmap process. They are intended to be useful in a multidisciplinary team environment where those engaged may have varying degrees of familiarity with the issues. As such they do not purport to offer detailed technical guidance, rather they are intended to act as aides-memoire, to identify issues, resources and options.

The following checklists, related to the five areas of the Roadmap, have been developed. Copies of the Checklists may be found in Appendix D.

**Area 1:** Checklist 1: Examples of Project Specific Objectives

Checklist 2: Stakeholders

**Area 2:** Checklist 3: Sources and Reliability of Information

Checklist 4: Country Specific Information Sheets List

**Area 3:** Checklist 5: Liability Management and Strategy Options

**Area 4:** Checklist 6: Sale Contract Options

**Area 5:** Checklist 7: Records for Retention
4.4 Tools

Tools are provided to assist in carrying through the processes, and to provide a means whereby a comprehensive record and audit trail of the inputs, operations and outcomes of the processes can be maintained. They are not intended to supplant other generic tools such as computer spreadsheets, specialised risk assessment programmes, reports prepared by specialists and the like. However they are intended to provide a means of summarising and digesting the processes and outcomes as an aid both to clarity in the process and to record keeping. The following tools have been provided, copies of which can be found in Appendix D:

Area 1: Tool 1. Corporate and Project Specific Objectives
         Tool 2: Record of High Level Review
         Tool 3: Pollutant Linkages

Area 2: Tool 4: Liability Linkages
         Tool 5: Mitigation Measures

Area 3: Tool 6: Options Review Record
         Tool 7: Liability Management Strategy
         Tool 8: Pre Transfer Interventions Scope

Area 4: Tool 9: Review of Strategy following Sale Contract Negotiation


4.5 Liability Transfer Framework Summary

Table 4.5 summarises the attributes of each area of the roadmap, the inputs, processes and outputs associated with each area and the checklists and tools that will be available.

The framework is not intended to be prescriptive. Dependent on the circumstances of the specific transfer, some of the processes described may not need to be carried out, but others may need to be iterated or expanded, and even additional processes included. For this reason, NICOLE WG Brownfields made the decision not to represent the Roadmap as a process flowchart, due to concerns that it would present a comparatively inflexible and prescriptive process. However construction of a process flowchart related to the circumstances of an individual transfer may be a prudent action on the part of those managing the liability transfer.

It is important to note that the framework and the roadmap are in no way intended to act as a substitute for appropriate technical, professional and legal
Of advice, whether provided from an organisation’s internal resources or from external service providers. It will be apparent to users of the Roadmap that satisfactory completion of the stages of the process, and the exercise of due diligence, will necessitate interaction and engagement with, and advice and analysis from, a range of technical, professional and legal disciplines. One of the benefits of use of the roadmap is to enable the need for such input to be identified, and for appropriate briefings to be provided to internal or external resources.

It should be noted that while the Road Map has been produced in conjunction with practitioners experienced in liability transfer, it has not yet been used in a real situation.

### Area 1: Entrance and Orientation

<table>
<thead>
<tr>
<th><strong>Input</strong></th>
<th><strong>Operation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate objectives (liability goals, reputation, financial etc)</td>
<td>High level preliminary data review</td>
</tr>
<tr>
<td>Desired outcomes from project (preliminary project specific objectives)</td>
<td>High level preliminary liability/cost assessment</td>
</tr>
<tr>
<td>Available site summary information (e.g. executive summaries from site</td>
<td>Stakeholder analysis</td>
</tr>
<tr>
<td>investigation, risk assessment, remediation, regulatory correspondence etc)</td>
<td></td>
</tr>
<tr>
<td>Preliminary country specific information (initial intelligence on markets,</td>
<td></td>
</tr>
<tr>
<td>legislation, available transfer mechanisms etc)</td>
<td></td>
</tr>
<tr>
<td>Social and Environmental Context</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Output</strong></th>
<th><strong>Checklists</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Conceptual Site Model (if sufficient data)</td>
<td>Chkl 1: Examples of Project Specific Objectives</td>
</tr>
<tr>
<td>Completed high level review</td>
<td>Chkl 2: Stakeholders</td>
</tr>
<tr>
<td>Project specific objectives</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Tools</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool 1. Corporate and Project Specific Objectives</td>
</tr>
<tr>
<td>Tool 2: Record of High Level Review</td>
</tr>
<tr>
<td>Tool 3: Pollutant Linkages</td>
</tr>
</tbody>
</table>

### Area 2: Liability Scoping and Analysis

<table>
<thead>
<tr>
<th><strong>Input</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed Evidence Review: Environmental Audit, Site Investigation, Risk Assessment, social and economic aspects</td>
</tr>
<tr>
<td>Legal information</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Detailed Country Specific Information</td>
</tr>
<tr>
<td>Technical, legal and sustainability guidance</td>
</tr>
<tr>
<td>Regulatory input (if required at this stage)</td>
</tr>
<tr>
<td>Operation</td>
</tr>
<tr>
<td>Output</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Checklists</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Tools</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Area 3: Definition of Corporate Position**

<table>
<thead>
<tr>
<th>Input</th>
<th>Conceptual site model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conceptual liability model</td>
</tr>
<tr>
<td></td>
<td>Mitigation measures</td>
</tr>
<tr>
<td>Operation</td>
<td>Confirm site specific liability objectives</td>
</tr>
<tr>
<td></td>
<td>Identify stakeholder interests and objectives and sustainability indicators</td>
</tr>
<tr>
<td></td>
<td>Develop options for liability transfer</td>
</tr>
<tr>
<td></td>
<td>Consider pre transfer interventions (e.g. remediation)</td>
</tr>
<tr>
<td></td>
<td>Identify preferred options/strategy</td>
</tr>
<tr>
<td>Output</td>
<td>Liability Transfer Options Selection and Strategy; or</td>
</tr>
<tr>
<td></td>
<td>Revisit Scoping and Analysis</td>
</tr>
<tr>
<td>Checklists</td>
<td>Chkl 5: Liability Management and Strategy Options</td>
</tr>
</tbody>
</table>
### Area 4: Liability Transfer Negotiation

| Input | Liability Transfer Options Selection and Strategy  
Potential purchaser(s) objectives |
|---|---|
| Operation | Carry out purchaser due diligence  
Develop site sale contract terms  
Consider and incorporate additional protection layers  
Consider and establish institutional controls  
Negotiate sale contract terms |
| Output | Draft sale contract conditions agreed in principle; or  
Review objectives and strategy and continue negotiating; or  
Mitigate liabilities prior to renegotiating sale |
| Checklists | Chkl 6: Sale Contract Options |
| Tools | Tool 9: Review of Strategy following Sale Contract Negotiation |

### Area 5: Transfer and Exit

<table>
<thead>
<tr>
<th>Input</th>
<th>Draft sale contract conditions agreed in principle</th>
</tr>
</thead>
</table>
| Operation | Complete land sale and liability transfer  
Retain relevant records including data on liability, records of transaction (including records of use of this roadmap/toolkit) in secure archive  
Review corporate financial provisions for liability |
| Output | Process completed |
| Checklists | Chkl 7: Records for Retention |

**Table 4.5 Summary of Liability Transfer Framework**
5 Conclusions

This project presents a unique focus on brownfield environmental liability transfer from the land holders’ perspective. It has identified a patchwork of approaches in the different countries and territories reviewed. This has revealed a greater maturity in approach to both brownfield and contaminated land liability transfer in North Western Europe. The research demonstrated that there is significant opportunity to improve approaches to liability transfer across Europe. A more robust decision framework for liability transfer will enable land holders to better decide on divestment approaches, and therefore whether land remains un-reclaimed or is bought back into a new productive use.

Given the variances between national jurisdictions within the EU, both in terms of the level of development of the market for Brownfield land and the approach to liability transfer, the development of a liability transfer framework that is applicable throughout the EU has proved challenging. NICOLE WG Brownfields has attempted to provide such a framework by focussing on providing a “Roadmap” of the processes of liability transfer, recognising that the individual land transaction process needs to be contextualised within the national jurisdiction of the transfer.

The work of NICOLE WG Brownfields has demonstrated the importance of liability transfer to the redevelopment of Brownfield land, and therefore to sustainable land-use, and shown that the transfer of liability does not necessarily need to conflict with the principle of Polluter-Pays.

It is hoped that in addition, the work of the NICOLE WG Brownfields will help remove policy and perceptual blockers hindering liability transfer and brownfield development, encourage innovative liability transfer mechanisms to help facilitate this process, and hence stimulate support and improve the process for Brownfield development across Europe.
References


CLARINET

http://www.umweltbundesamt.at/en/umweltschutz/altlasten/projekte1/international1/clarinet/clarinet_results/


CABERNET


RESCUE

http://www.rescue-europe.com/html/project.html


RESCUE (2005) Development of an Analytical Sustainability Framework for the Context of Brownfield Regeneration in France, Germany, Poland and the UK (Work Package 1)

RESCUE (2005) Best Practice Guidance for Sustainable Brownfield Regeneration

REVIT

http://www.revit-nweurope.org/

REVIT (2007) Stakeholder Engagement – A Toolkit


REVIT (2007) The REVIT Booklet

EUGRIS

http://www.eugris.info/

SUBR:IM

http://www.subrim.org.uk/

REFINA

http://www.refina-info.de/en/index.phtml
Appendix A

Current State of Knowledge on European Brownfields
Information Sources on the Current State of Knowledge on European Brownfields

A substantial body of research and guidance of relevance to Brownfield development has been assembled both at European and national level over the past decade. This review concentrates on the pan-European body of work specifically relevant to Brownfield development although occasional reference is made to work carried out at national level. This review does not focus on purely technical research and guidance relating to soil and groundwater contamination.

Users of this document requiring a more detailed understanding of the work and outputs of these networks are advised to refer directly to their websites, and the publications accessible through the weblinks reproduced herein.

Pan-European Networks

The pan-European body of work reviewed includes studies and outputs from the following pan-European networks:

CLARINET

Contaminated Land Rehabilitation Network for Environmental Technologies

Website: http://www.umweltbundesamt.at/en/umweltschutz/altlasten/projekte1/international1/clarinet/clarinet_results/

The Concerted Action CLARINET – Contaminated Land Rehabilitation Network for Environmental Technologies – was active between 1998 and 2001. It brought together problem holders and solution providers to tackle the problems of contaminated land in Europe. It utilised the combined knowledge and expertise from various stakeholders such as policy experts and industrial land owners, researchers and scientists, research programme planners and technology developers from 20 European Countries.

The overall objective of CLARINET was to identify the means, by which management of contaminated land can be applied effectively in a sustainable manner

- to ensure the safe re-use of these lands
- to abate water pollution
- to maintain the functionality of soil and water ecosystems.

In order to meet this objective, CLARINET analysed current approaches on scientific, environmental and socio-economic topics related to contaminated land management in European countries. It identified priority research needs in this area and stimulated further co-ordinated R&D activities, both on a European and a national level.

CLARINET included a working group on Brownfield Redevelopment, and produced a report, “Brownfields and Redevelopment of Urban Areas” (Ferber and Grimski, 2002). This report summarised the then current definition and scale of the problem, reviewed international and national policies and procedures on the Brownfield issue, and presented a “gap analysis” of research deficits and needs that it considered to be necessary. CLARINET presented a definition of Brownfield land that with minor amendments was adopted by its successor network CABERNET and is discussed below.
CABERNET

Concerted Action on Brownfield and Economic Regeneration Network


CABERNET (Concerted Action on Brownfield and Economic Regeneration Network) was established in 2002 through support from EC DG Research (2002-2005), as the self-funded independent European multi-stakeholder Network that focused on the complex issues raised by brownfield regeneration. The Network was a forum that allowed a diverse group of stakeholders to share experiences from across Europe, allowing practitioners to discuss and exchange practices, experiences and aspirations. It provided new management strategies, innovative tools, and a framework for coordinated research activities.

CABERNET’s work programme focussed on creating multi-stakeholder awareness, creating conceptual models of the Brownfield redevelopment process and issues, supporting co-ordinated research and distilling and disseminating best practice. In addition to printed/web based publications it supported a series of conferences (Belfast, 2005; Stuttgart, 2007).

Of particular significance is the final report Sustainable Brownfield Regeneration: CABERNET Network Report (Ferber, Grimski, Millar and Nathanail, 2006). This report presents a detailed overview of the current state of European practice, including the scale and definition of the European Brownfields issue, and is a primary source of information for the following review.


The aim of these state of the art country profiles was to provide an accessible and comparable, but not necessarily definitive reference. Although the focus has been to identify directly relevant information to the issues of redevelopment of brownfields, some of the information is more indirectly related (in particular information on policies dealing with contamination or on prevention of dereliction or contamination). The information is presented, where available, in the following structure:

1. Context
2. Background
3. Instruments
4. Other Initiatives
5. Technical Approaches and Tools
6. Obstacles and Gaps
7. Comments on Effectiveness of Current Policy
CABERNET country profiles were provided for the following Member States:

<table>
<thead>
<tr>
<th>Member State 1</th>
<th>Member State 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Ireland</td>
</tr>
<tr>
<td>Belgium-Flanders</td>
<td>Italy</td>
</tr>
<tr>
<td>Belgium-Wallonia</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Poland</td>
</tr>
<tr>
<td>Denmark</td>
<td>Portugal</td>
</tr>
<tr>
<td>Finland</td>
<td>Spain</td>
</tr>
<tr>
<td>France</td>
<td>Sweden</td>
</tr>
<tr>
<td>Germany</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Greece</td>
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</table>

**RESCUE**

Regeneration of European Sites in Cities and Urban Environments


Started in March 2002, RESCUE was a 36-month research project integrating the concept of sustainability into brownfield regeneration. Based on the analysis and evaluation of current practice in industrial core regions in France (Nord-Pas de Calais), United Kingdom (Derbyshire, North-East of England), Poland (Silesia) and Germany (Ruhr Area, Southern District of Leipzig), RESCUE distilled best practice approaches at reduced costs and integrated its results into a holistic system approach containing new methodologies, procedures and instruments for a sustainable regeneration of European industrial brownfield sites.

RESCUE aimed to improve the quality of derelict land recycling in terms of the sustainability of the build environment and the quality of urban life by developing tools for the practical work of real estate owners, planners, architects, engineers and public authorities involved in the complex processes of brownfield regeneration projects. By reducing the costs of land rehabilitation, RESCUE aimed to overcome the current obstacles in such projects, contribute to reducing the demand for greenfield development and therefore save natural resources.

Key outputs from the RESCUE network included the following:

- **Administrative Tools and Incentives for Sustainable Brownfield Regeneration** (RESCUE, August 2004). This report presented a Sustainability Assessment Tool for brownfield regeneration, targeted primarily at EU funding authorities.

- **Development of an Analytical Sustainability Framework for the Context of Brownfield Regeneration in France, Germany, Poland and the UK** (Work Package 1) (RESCUE, January 2005). This report presented a detailed description and comparative analysis of the Brownfield context in France, Germany, Poland and the UK, and described the development of sustainability objectives and indicators.
• Best Practice Guidance for Sustainable Brownfield Regeneration (RESCUE, May 2005). This document presents guidance on sustainable approaches to Brownfield regeneration targeted on specific stakeholder groups in the Brownfield development process.

While working in parallel with CABERNET and to some extent duplicating its outputs, RESCUE was more specifically focused on the sustainability aspects of Brownfield regeneration. Like CABERNET, it took a multi-stakeholder, public policy-focused approach.

REVIT

Revitalising Industrial Sites

http://www.revit-nweurope.org/

Between 2003–2007 six North West European partners (Stuttgart, Germany, Nantes, France, Tilburg and Hengelo, the Netherlands, and Medway and Torfaen, United Kingdom) came together to improve regenerating their brownfield sites by sharing experience and developing new concepts and innovative approaches.

REVIT Objectives were to develop best practice examples and toolkits in connection with three issues:

• Formal and informal brownfield regeneration instruments and methods that stimulate participation and community involvement.

• New financing techniques, public-private partnership models and re-use marketing concepts in the context of brownfield regeneration.

• Preservation and intelligent re-use of industrial heritage potentials and elimination of environmental damages as well as protection of natural assets.

Outputs included:

• Stakeholder Engagement – A Toolkit (REVIT, 2007)

• New Financing Techniques, Public Private Partnership Models And Marketing Concepts For Redeveloped Brownfield Sites (REVIT, 2007) This output examined the phenomenon of Brownfield market failure from a developer/public promoter perspective.

• The REVIT Booklet (REVIT, 2007) presenting the findings of the co-operation.

REVIT also co-sponsored the CABERNET 2007 Stuttgart conference.

EUGRIS

European Groundwater and Contaminated Land Remediation Information System

http://www.eugris.info/

EUGRIS is a web portal offering information and services on topics related to soil and water in a centralised, electronic library. EUGRIS operates as a community of collaborating projects, people and organisations who co-operate to supply information for the benefit of everyone and also to promote themselves and disseminate their work.
EUGRIS began as a project supported by the European Commission under the Fifth Framework Programme and other supporters.

EUGRIS helps quickly find information using simple search tools and or structured access to information, based on topic country or type of information. EUGRIS also helps disseminate user generated information to a wide audience. Registered users are able to add information, use the directories and access a wider range of EUGRIS tools including a free e-news service.

**EUBRA**

EUBRA is a platform for European Brownfield Revitalisation. Its main objective is to identify priorities, topics and activities to be considered in future national and international programmes. The EUBRA agenda aims to streamline future activities and to avoid duplication of work.

There are many examples of good practice that have produced positive results from brownfield site project redevelopment across Europe. Much of this information is a result of individual EU funded projects but these have not necessarily been brought together to build up a body of collective experience. EUBRA aims to bring together best practices and the various tools that have been developed to create the best opportunities for an integrated approach for the future redevelopment of brownfield sites, particularly for those that need solutions for complex and difficult problems. It also aims to support policy makers and developers through describing best practice, provision of collated information, and access to a network of specialists with practical experience in the field.

EUBRA was initiated by the INTERREG IIIB funded projects REVIT and PROSIDE and received additional funding by the German Federal Ministry of Transport.

**2.1.2 National Networks (Examples)**

Two examples of nationally-based networks and initiatives reviewed in the preparation of this report follow.

**SUBR:IM**

Sustainable Brownfield Regeneration: Integrated Management


Finding Solutions to the problems of developing brownfield land was the goal of SUBR:IM (Sustainable Urban Brownfield Regeneration: Integrated Management), which ran from July 2003 until July 2007. Funded by the UK Environment and Physical Sciences Research Council (EPSRC) under its Sustainable Urban Environments initiative and the UK Environment Agency, it drew together ten major academic and research institutions in a programme designed to improve the quality of urban environments.

The Consortium aimed to develop technical solutions and tools for restoring brownfield land in urban areas, whilst at the same time increasing the knowledge base of all stakeholders involved in such development. This included investors, developers, planning bodies and local authorities, but also the general public and engineers who work with such problems. The consortium included members from both technical and social science backgrounds with the objective of developing an integrated perspective.
SUBR:IM produced a range of research outputs including discussion documents, papers, conference presentations and “End-User Guides” on aspects of brownfield regeneration and sustainability in the UK context

REFINA

Research for the Reduction of Land Consumption and for Sustainable Land Management

http://www.refina-info.de/en/index.phtml

The programme “Research for the Reduction of Land Consumption and for Sustainable Land Management” funded by the Federal Ministry of Education and Research (BMBF) is part of the German National Strategy for Sustainable Development. The German federal government has set the goal of reducing land consumption for new settlement and transport-related areas from currently 115 to 30 hectares per day by 2020. This provides an interesting comparison with the UK government target of 60% of new development being on previously developed land. From 2006 to 2010, innovative concepts for reducing land take and promoting sustainable land management are to be developed and implemented
Appendix B

Pictorial European Brownfield Research Findings
Figure B.1 Contaminated Land and Brownfield Definitions

Figure B.2 Level of Brownfield Market Activity
Figure B.3: Basic Legal Position

Figure B.4: Frequency of Environmental Liability Transfer across Europe

Major types of liability transferred:
- Routinely
- Sometimes
- Rarely
Appendix C

Country Specific Information Sheets
Appendix D

Road Map Checklists and Tools