Concerted Actions of the EC Environment and Climate Research and Development Programme

Network for Industrially Contaminated Land in Europe

Joint Statement - October 1998

Better Decision Making Now

The use of Risk Assessment and Risk Management for tackling the problems of contaminated land

In their Joint Statement, "Towards a Better Future", October 1997, on the role of Risk Assessment and Risk Management, CARACAS and NICOLE focused on research needs. In this Joint Statement CLARINET and NICOLE present the common view that risk based approaches are vital to allow governments and industry to deal with contaminated land. The current state-of-the-art provides an effective set of tools for better decision making ***now*****.** It is therefore important to disseminate the state-of-the-art and encourage widespread use of Risk Assessment and Risk Management tools.

As experience with managing contaminated land has grown, the perception of the problem has changed. In the early 1980s contaminated sites caught politicians and the general public by surprise. They were perceived as (a few) very severe incidents with poorly known but possibly disastrous consequences for human health and the environment. The perceived risks led to policies aimed at maximum risk control: pollution should be removed or contained completely.

Today the contaminated land problem is no longer perceived as being restricted to a few severe incidents but as a widespread infrastructural problem of varying intensity and significance. Governments and industry are recognising that drastic risk control is usually unnecessary when taking into account the potential adverse effects of contamination for current and intended land uses and the environment. Moreover cleaning up all sites to background levels suitable for the most sensitive possible land use (the concept of "multifunctionality"), is not technically and financially feasible. For example, in the Netherlands in 1981 the number of sites thought to be contaminated and possibly needing clean up was 350 with an estimated clean up cost of about 500 million ECU. By 1995 the number had grown to 300,000 sites with an estimated cost of about 13 billion ECU. Realities such as these have led to widespread recognition that, depending on land use (for instance heavy industry *versus* residential) different levels of contamination are acceptable for the activity to be safely pursued on the land (the concept of fitness-for-use). It is also recognised that policies that protect soil and groundwater quality are important to prevent or minimise further pollution.

To pursue contaminated land policies based on fitness-for-use, methods are needed to establish whether contaminant levels are acceptable for the intended site use. The methodologies which make this possible are Risk Assessment and Risk Management. While we strive to improve these methods by strengthening the research base (as described in the CARACAS/NICOLE Joint Statement) they are already sufficiently well developed to provide the tools for effective contaminated land management now.

Inside

Risk Assessment and Risk Management: Their Roles in Contaminated Land Management

Risk Assessment and Risk Management are separate but intimately related elements that form the basis for a fitness-for-use approach to contaminated land. Simply stated, Risk Assessment is an objective, scientific evaluation of the likelihood of unacceptable impacts to human health and the environment. Risk Management is used to support policy decisions on risk acceptability for specified land uses. At a more technical level, it is the process of making informed decisions on the acceptability of risks posed by contaminants at a site, either before or after treatment, and how any needed risk reduction can be achieved efficiently and cost effectively.

Risk Assessment for contaminated land is based on the classical source/pathway/receptor paradigm. There must be a ***source*** of potentially harmful material in sufficient concentrations to pose a significant potential risk to people or the environment. There must also be a ***pathway*** linking the harmful material with the ***receptors*** at risk (e.g. humans, livestock, and important resources such as clean soil and groundwater). If any of these elements (source, pathway or receptor) are absent or removed the site poses no risk. This philosophy provides the basis for various risk management options such as source removal, elimination of an exposure pathway by capping a site, or changing the use of a site.

The fitness-for-use principle implies that different land uses require different soil qualities just as different performance cars require different qualities of motor oil. The data and tools now available for applying Risk Assessment and Risk Management on a site specific basis allow decision makers to allocate scarce resources for environmental risk reduction in a proportionate and equitable way.

Some Current Applications of Risk Based Site Management

Risk Assessment and Risk Management are currently used by policy makers, regulators, industrial site owners, buyers and sellers of land, lenders, insurers and others to provide a rational and systematic basis for deciding on the suitability of land for its intended use. Examples include:

- ***Prioritising Sites for Regulatory Attention.*** Given limited resources, authorities and/or property owners can estimate the relative risks posed by suspected contaminated sites and hence focus attention on those posing the greatest risk.

- ***Setting Risk Based Screening Levels.*** (RBSLs) are contaminant concentrations calculated to ensure protection for specified receptors at typical/generic sites. Risk Assessment techniques allow authorities to establish RBSLs that are sufficiently conservative to provide confidence in the suitability of most sites for their intended use. However, care must be taken to ensure that the assumptions used to set the RBSLs are valid for specific sites. How restrictive to set RBSLs is a policy question that needs to be determined within each country's contaminated land policies. However, for results to be meaningful, RBSLs must be set so that they screen out sites from further action where risks are low enough to be acceptable for the actual or intended land use.

- ***Determining Appropriate Site Specific Measures and Remedial Objectives***. Since RBSLs are set conservatively to ensure that potential risks are not missed at typical sites, they may fail to screen out sites that, given the specific site circumstances, do not pose a significant risk. For this reason Risk Assessment is most often used in a tiered approach where the level of conservatism in an assessment decreases as the level of knowledge about a site increases through data collection. Site specific action thresholds and/or remedial objectives can then be derived for the conditions and intended use of the particular site. These can help authorities, owners and other interested parties to decide on the acceptability of existing site conditions, and the level of control or treatment that may be needed to allow a site to be safely employed for its intended use.

- ***Assessing Potential Liabilities Associated with Acquisitions and Divestments***. Land owners, purchasers, insurers and others can apply the results of Risk Assessment in helping to determine the value of land, and the risks associated with its purchase, relative to the range of potential land uses.

Research and Development Needs in Risk Assessment and Risk Management

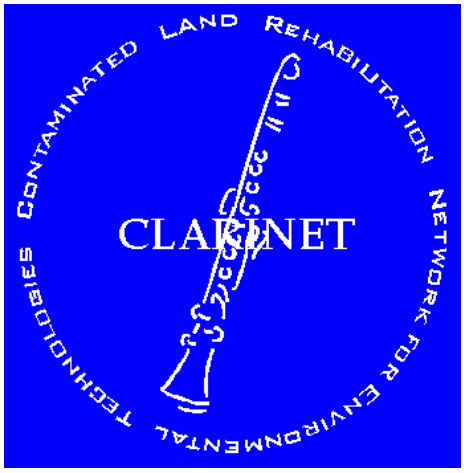
The science of Risk Assessment and Risk Management is sufficiently developed and demonstrated to allow those responsible for contaminated land management to use it with confidence to ensure the safety of man and the environment. However, as in any science-based endeavour, there are numerous areas where additional research and technology development would improve and advance the use of Risk Assessment and Risk Management. An important role for the CLARINET and NICOLE Concerted Actions is to encourage and promote relevant research on contaminated land Risk Assessment and Risk Management. In this context they have recently contributed their views to the EU Framework V developers in the areas of "The City of the Future" and "Sustainable Management and Quality of Water".

CLARINET and NICOLE

The Concerted Action Programmes NICOLE and CLARINET were established in 1996 and 1998, respectively, as part of the Environment and Climate RTD Programme of the European Commission to tackle scientific and technical aspects of the problem of contaminated land. CLARINET is a follow-up Concerted Action to CARACAS which completed its work in October 1998.

Together, the two current networks combine the knowledge of academics, government experts, consultants, industrial land owners and technology developers. The two Concerted Actions approach the problem from different perspectives: NICOLE's focus is primarily on the management of industrial sites still in use or owned by industry; CLARINET has the broader perspective of governments which have to make rational decisions within a national contaminated land policy and planning framework.

For further information on this joint statement, please contact either CLARINET or NICOLE via their secretariats, at the addresses given overleaf.



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CLARINET

Working Group Co-ordinators

Dr P Bardos, r^3 Environmental Technology Ltd, UK
Dr Lennart Dock, Karlinska Institute, Sweden
Dr K Freier, Umweltbundesamt, Germany
Dr J Grima Olmedo, ITGME, Spain
Dipl-Ing M. Schamann, Umweltbundesamt, Austria
J H van Veen, TNO, The Netherlands
Dr J J Vegter, TCB, The Netherlands
Dr E A Vik, Aquateam, Norway

CLARINET participating organisations

ADEME (France), ANPA (Italy), Aquateam (Norway), Aquater (Italy), BMG Engineering AG (Switzerland), BMUJF (Austria), BRGM (France), BUWAL (Switzerland), Bundesministerium für Umwelt (Germany), Danish-EPA (Denmark), Department of the Environment and Local Government (Ireland), DPR /SEI (France), DETR (United Kingdom), Environmental Protection Agency (Ireland), ETH Zürich (Switzerland), Federal Environment Agency (Germany), Finnish Environment Agency (Finland), Generalitat de Catalunya (Spain), IFA (Austria), IGME (Greece), Instituto dos Residuos (Portugal), ISSeP (Belgium), ITGME (Spain), Jordforsk (Norway), Karolinska Institutet (Sweden), LNEC (Portugal), Lund University (Sweden), Ministerio de Medio Ambiente (Spain), Ministry of Environment, Physical Planning and Public Works (Greece), Ministry of the Environment (Finland), Ministry of the Environment (Spain), National Technical University of Athens (Greece), National Environment Research Institute (Denmark), OVAM (Belgium), Provincia di Milano (Italy), R3 Environmental Technology Ltd (United Kingdom), RIVM (The Netherlands), SFT (Norway), Technical Soil Protection Committee (The Netherlands), TU Hamburg (Germany), Swedish EPA (Sweden), University of Nottingham (United Kingdom), Umweltbundesamt (Austria), Universidade de Aveiro (Portugal), VITO (Belgium), VKI (Denmark), VROM/DGM (The Netherlands)

Representatives from 16 European Countries

Austria	**Belgium**	**Denmark**	**Finland**
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Italy	**Netherlands**	**Norway**	**Portugal**
Spain	**Sweden**	**Switzerland**	**United Kingdom**

For further information please contact:

Harald Kasamas, CLARINET Office, Vienna
Fax: **+43 1 804 93 194**
E-mail: **kasamas@caracas.at**
Web site: **http://www.caracas.at**

NICOLE

Steering Group

Professor B J Alloway
University of Reading, UK
Mr P Andreucetti
ENEL, Italy
Dr R P Bardos
r^3 Environmental Technology Ltd, UK
Mr M J Bell (Chairman)
ICI Chemicals & Polymers Ltd, Runcorn, UK
Mrs P de Bruycker
Solvay SA Technique, Belgium
Dr Jürgen Büsing
Commission of the EC DGXII, Belgium
Mr P van Eijk
Rotterdam Municipal Port Management, The Netherlands
Mr W R Hafker
Esso Engineering (Europe), UK
Dr D A Laidler (NICOLE Co-ordinator)
ICI Research & Technology Centre, Runcorn, UK
Professor J M Lebeault
Universite de Technologie de Compiegne, France
Dr A Sinke
TNO-MEP, The Netherlands
Mr J P Okx
Tauw Milieu bv, The Netherlands
Dr Phillipe Quevauviller
Commission of the EC DGXII, Belgium
Dr H J van Veen
TNO-MEP, The Netherlands

For further information please contact:

Marjan Euser, NICOLE Secretariat, TNO-MEP
Fax: **+31 55 5493 410**
E-mail: **m.euser@mep.tno.nl**
Web site: **http://www.nicole.org**

Printed on paper made from re-used sugar cane pulp