

Public environmental information: Access or excess?

Amongst the mass of academic papers and policy reports it is easy to forget that scientists and regulators are not the only ones concerned about the environment. The public has an interest too. Aided by modern technology and increasing legal rights, the man in the street has access to environmental information as never before. In this article we review recent developments in public access and what these mean for 'the experts'.

When UK pressure group Friends of the Earth (FOE) launched a website cataloguing industrial pollution data earlier this year, it caught the attention of business and the public alike. The site, called Factory Watch, allows people to examine pollution emissions within their area based on official emissions data, and to compile local maps and league tables (see Box 1).

Of course, much of this information has been in the public domain for a long time. But who except the ardent campaigner would go to the trouble of requesting data from a regulator? Putting the information on-line is a different matter: with modern technology a company's environmental record can be put on show for all to see—as those highlighted by FOE as 'filthy factories' soon found out. Companies suddenly began to realise how easy it can be for people to get environmental data in the age of the Net.

Factory Watch is just one example of an increasing array of initiatives that provide individuals and communities

with access to environmental data. Against a backdrop of an evolving legal framework and rapid developments in technology, citizens have opportunities to access environmental information with an ease and speed never seen before. But what exactly do we mean by 'access', and why is it important? Does the public really need all this data?

A right to know

Over recent years definitions of 'environmental information' have broadened as the environmental debate itself has grown.¹ At the most basic level, the term refers to information arising from environmental legislation and other policy measures and which is held by public authorities. However, much important environmental data is also held by private companies. With the growth of ideas of sustainability, environmental information has come to mean all information relevant to decision-making on the environment, embracing financial, social and economic data as well as environmental data.

So what *is* this information exactly? While some topics and types of data are requested more frequently, diversity is a key characteristic of the public's information needs. Surveys show people's interests in accessing data include:²

- Links between environmental conditions and human health, especially within local communities;

- The condition, location and trends of natural systems such as lakes, rivers, animal and plant populations;
- Effects of human activities on the environment, such as industry, agriculture, transport and economic development;
- Costs and results of public initiatives to protect or remediate the environment;
- Learning and education on environmental issues and policies;
- Opportunities and conditions for recreations such as hunting, fishing, camping etc.

A distinction can be made between rights to 'active' information, which public authorities or private companies are legally obliged to provide, and 'passive' information, which the public has a right to obtain on request.¹ Much of the public access debate focuses on making environmental information more transparent, so that citizens have *at least* a passive right to all relevant data.

Access is not to be confused with the issue of public participation in environmental decision-making, although clearly the two are closely linked. Specifically, there is assumed to be a causal link between access to information, stakeholder awareness, and improved environmental conditions: citizens must be informed about policy-making so as to make reasoned decisions about it. Easy access to environmental information, it is argued,

Box 1: Factory Watch

Factory Watch (www.foe.co.uk/factorywatch) was launched by Friends of the Earth in February this year. Using official data on pollution emissions collected by the Environment Agency, the site provides online access to information on industrial chemicals releases for the first time. Users can compile league tables of polluting factories and make local maps showing the location of, for example, releases of cancer-causing chemicals. Most information relates to 1996, the most recent year for which full emission inventories are available, but with some data for 1998.

While the site marks a great step forward it also highlights major shortcomings in access to environmental information in the UK. For example,

- The data only cover England and Wales: equivalent information for Scotland and Northern Ireland is not even collected;
- Data on smaller factories or other pollution sources, such as transport, is not readily available;
- Basic toxicity data needed to assess health impacts is lacking;
- Omissions in the reporting requirements and inconsistencies in the categories used;
- Inadequate checks on data quality and reliability.

should enable citizens to get more involved and give individuals and communities better tools for local action.

Issues relating to *public* access are generally distinct from those of access by professionals or experts, such as scientists, government agencies and businesses. Key issues for this market include factors such as technical standards, which are not discussed here. However, it is important to note that professional private and public data users are a critical link in meeting the public's information needs. Many environmental questions are too complex for most citizens to understand on their own and they look to professional users for help in assessment and interpretation.

The international framework

Many countries have enacted laws guaranteeing the public right of access to information on environmental issues. One of the first international commitments in this area was the European Union Directive 90/313/EEC on Freedom of Access to Environmental Information passed in 1990, which established, for the first time, a set of minimum standards within the EU.¹ The Directive contains a general rule of access for any person without the need to show an interest in the information requested, but also allows for a number of exemptions and sets limits on response times, appeals and costs. All EU member states have implemented the Directive within national law,

although substantial variations still exist in rights and procedures between countries.³

Revisions to the Directive are likely following an international agreement signed by 35 European governments in June 1998.^{3,4} Negotiated under the UN Economic Commission for Europe (UNECE), the so-called Aarhus Convention commits the parties to legally binding rights for citizens in access to information and involvement in environmental decision-making. The convention defines minimum rights of access for citizens and NGOs, enabling them to apply for information and take part in local or national decision-making processes. While welcoming the convention, NGOs say that the mechanisms for enabling access to private sector information and for non-compliance are still too weak.⁵

Agenda 21 contains many references to information and public participation, and Principle 10 of the Rio Declaration on Environment and Development stressed that 'environmental issues are best handled with the participation of all concerned citizens at the relevant level'. One outcome of Agenda 21 has been the strengthening of INFOTERRA, a network of information centres operated by the UN Environment Programme.⁶ Now spanning 176 countries, INFOTERRA is one of the main actors in improving environmental information capacity in developing countries. Another important UN mechanism is GRID, a network of 14 data centres providing geo-referenced data and information to support assessments,

reporting and policy formulation. This too is being strengthened as a result of the Agenda 21 process.

Two cultures

The United States was amongst the first countries to enact national information laws. The main legislation currently comprises the Emergency Planning and Community Right-to-Know Act (EPCRA) 1986, the Superfund legislation on contaminated sites, and most recently the Chemical Right-to-Know Initiative 1996.

EPCRA was introduced in response to the Bhopal disaster in India in 1984 and a similar release at a sister plant in West Virginia. Its main purpose is to inform communities and citizens of chemical hazards in their areas. Sections 311 and 312 of EPCRA require businesses to report the locations and quantities of chemicals stored on-site to state and local governments, and section 313 requires manufacturers to report environmental releases of more than 600 designated toxic chemicals. EPA compiles this information into a publicly accessible on-line database, the Toxics Release Inventory (TRI).⁷ All information is published and is freely available on the Internet—the dataset for the whole US accounts for around 200 MB of computer disk space.

This vast new source of data is proving a powerful force for environmental improvement. By encouraging dialogue between individuals and local companies, TRI has resulted in changes in operating

Box 2: Making an EMPACT

EMPACT—Environmental Monitoring for Public Access and Community Tracking—is an EPA programme to provide people with up-to-date environmental information they can understand and use every day. The Agency claims EMPACT represents a new approach to the delivery of accurate, timely and useful environmental and public health information directly to communities and individuals.

The initiative aims to apply the latest measurement, information management and communications technologies in tracking environmental conditions. Information should not only be accurate but useful and should be presented in plain language directly to the communities concerned.

All EMPACT projects are required to maintain a website and to adopt best practice in communicating their results to the public.¹¹ Communication channels used include Internet, CDs, television, radio, newspapers, fliers, billboards, local meetings, community organisations and 'environmental teller machines' (similar to those used in banks).

Focusing on the largest metropolitan areas, EPA has initiated a series of pilot projects that include:

- Tracking of toxic air pollutants in the San Francisco and Cleveland areas;
- Real-time information on water quality at Los Angeles beaches;
- Monitoring of children's lead exposure in the Boston area;
- Tracking of water quality in Long Island Sound and selected urban areas.

Grants are available for similar projects that show innovative and effective ways to track and deliver environmental information, with an emphasis on community partnerships.

Further information at www.epa.gov/empact

practices and improvements in environmental standards. Public interest groups use TRI to bring public pressure to bear on facilities and public officials. For trade unions, it provides important information on workplace hazards. And there are commercial benefits, too. Manufacturers have used TRI to cut costs and improve operations through reduced use of chemicals, and to identify new business opportunities through cleaner, safer or more cost-effective alternatives. Law firms, real estate companies and banks use TRI to identify liability issues. Most significantly, the publicity arising from TRI data has caused many companies to volunteer pledges to reduce toxic chemical releases.

In Europe the picture is more fragmented. Despite the 1990 directive, significant variations in requirements and procedures still exist between countries, and in general citizens have fewer rights of access than in the US. In the UK, for example, none of the pollution registers are available on-line and much of the emission data is protected by commercial confidentiality. The Environment Agency only set up on-line access to an emissions database earlier this year, based on the same data that FoE uses in Factory Watch.⁸ Daily air quality reports are available online but only at a highly aggregated (regional) level.⁹

As well as differences in legal rights, the situation in Europe has been complicated by variations in definitions and collection methodologies between countries. EIONET—the European Environment Information and Observation Network—is a European Environment Agency initiative to standardise data collection and reporting procedures across Europe. EIONET links more than two hundred organisations in EEA member countries and Central and Eastern Europe, many of which are already linked by computer networks. From this autumn, the public will have access to this substantial information base through a single web-based gateway called E²RC—the European Environmental Reference Centre.¹⁰

The key difference between the US and Europe is one of culture. In the US there is a culture of disclosure, whereas in Europe there is a culture of non-disclosure no matter what the spirit of the legislation. This climate of secrecy is deeply engrained in European governments, institutions and companies

and will take a long time to overturn. Such attitudes are not confined to environmental information but it is often the environmental field where they are in sharpest relief.

With these cultural, legal and methodological differences, it is likely to be a long time before Europeans enjoy the same rights to environmental information as US citizens have already.

Acting locally

Even in the US, reliable information on *local* environmental quality and associated risks has been lacking. Two recent programmes aim to help fill these gaps.

EMPACT focuses on real-time information that communities and individuals can use on a day-to-day basis (see Box 2).¹¹ Projects employ the latest in measurement technology and disseminate the data through channels such as the Internet, newspapers, broadcasting and community meetings.

Chemical Right-to-Know (ChemRTK) is addressing the need for publicly available toxicity data for high production volume (HPV) commercial chemicals.¹² EPA studies have shown, even for relatively common chemicals, a lack of basic hazard information needed for risk assessment. The ChemRTK Initiative is an ambitious effort to tackle the problem by rapidly testing chemicals and making this important data available to scientists, policy-makers, industry and the public. Earlier this year chemical manufacturers and importers were invited to participate in a voluntary challenge programme to provide basic toxicity data on the HPV chemicals they produce (see *JEM*, 1999, 1(3), 42N). Chemicals not adopted will be tested separately by EPA, and those of particular concern to children's health are being singled out for more detailed and extensive testing.

The most recent measure takes the whole approach to public communication a stage further—into the proactive delivery of information rather than waiting for active or passive enquiry. Under the measure, EPA is mandating all municipal water authorities in the US to mail out 'consumer confidence reports' to every home and business connected to public water supplies. The reports, to be distributed by October this year, list the concentrations of every substance present in the water supply, and in some cases include additional information

such as number of miles of water main, number and location of hydrants and local contact numbers. Utility officials are having to engage in an elaborate communication exercise to reassure consumers they need not be alarmed by what to many may seem an alarmingly long list of contaminants.

Trends and best practice

What conclusions can we draw about the public's information requirements and how, as scientists and regulators, can we aim to address these?

Studies in Europe and the US show a strong correlation between pollution emissions, poverty and human health. In its analysis of UK emission data for 1998, Friends of the Earth found 75% of the top 25 factories were located in areas of below average household income.¹³ In democratic societies, public agencies have a responsibility to provide people with information to enable them to make informed decisions on their health and welfare. This means designing information programmes that speak to the person in the street: addressing the questions they ask and answering them in a way they understand.

This has implications for both the design and implementation of public access policies.

In terms of policy design, key factors to be considered include:²

- **People want information not data.** Raw data is of little value on its own. It must be presented in a way that enables users to understand the significance of data values, i.e. with suitable context and qualification. Hence public access becomes an exercise in risk communication.
- **People are often looking to answer specific questions**, such as 'Is my drinking water safe?', 'What is the air quality in this neighbourhood today?', or 'How much has the government spent on local clean-up?'. Agencies need to understand these concerns and address them directly.
- **Information requests are often personal and local in nature.** For example, people want to know about water quality or transport emission in their area, or opportunities for personal recreation such as fishing. Data collection programmes need to be sufficiently diverse and disaggregated – with obvious cost implications.
- **Maps are a favoured format in many information requests**, emphasising

that people find spatial representations a convenient way to summarise information on the environment and natural resources.

- **Real-time data presents quality control problems.** Raw data that is collected and updated in real-time or near real-time can be prone to errors. Yet introduction of thorough screening and quality control can delay the release of data and so undermine its value. Management procedures need to provide appropriate safeguards and users should be warned of the potential for anomalies and errors.
- **Information requirements cut across agencies and programmes.** The public has no respect for administrative boundaries. To be successful, therefore, information programmes require a high degree of inter-agency co-operation and data-sharing between agencies and across different levels of government.

Turning to the medium, rather than the message, there are three main trends:

- (1) **The Internet is a key enabling technology:** In this sphere, as elsewhere, the Internet is bringing fundamental change. With a modest PC, modem and browser software any user can now access environmental information in a way that was unimaginable even five years ago. These datasets include not only historical information on local emissions, such as those accessible through Factory Watch and TRI, but increasingly real-time data on local environmental conditions, such as those developed under EMPACT. Highly localised online datasets will become an increasingly important information resource.
- (2) **Mass media as a complement to on-line channels:** Despite its

phenomenal growth, many people do not yet have Net access especially within the socially disadvantaged groups that may benefit most from local information. Hence, it is important that other tools besides the World Wide Web are used to convey environmental information to the public.

Mass media such as television, radio and newspapers are still able to reach much larger audiences than the Web but have their own limitations. Television, radio, and to a lesser extent, newspapers are not well suited to delivering complex information, whereas web pages allow a more detailed presentation. Secondly, mass media are not yet interactive and so do not allow users to tailor information to their own preferences or provide feedback. Thirdly, mass media are not able to provide real-time data as readily as a website. In the longer term, the Net itself will be accessible through these mass media, through developments such as interactive TV and third generation mobile phones.

- (3) **Innovative uses of existing technologies:** Existing technologies also offer opportunities to access environmental information in new ways.¹⁰ In Sacramento, for example, residents are alerted about hazardous ozone concentrations by e-mail and telephone. A speech recognition system developed by MIT allows users to call in for weather information from over 500 locations. Under an EMPACT project called NEWNET 'environmental teller machines', similar to bank teller machines, use interactive computer screens to display information on radiation exposure. Other mature technologies that are being applied

in the environmental field include electronic displays and information signs alerting drivers to changing traffic conditions.

Notes

- 1 *Public Access to Environmental Information*, Ralph E. Hallo, European Environment Agency, Experts Corner Number 1, 1997. Available at: www.eea.eu.int
- 2 *Information Needs Assessment: Summary of Survey Results*, Foundation Project, Minnesota Planning, St Paul, Minnesota, April 1998.
- 3 For a review of national policies and trends in the EU see *Doors to Democracy: Current Trends and Practices in Public Participation in Environmental Decision-making in Western Europe*, Regional Environmental Centre, Budapest, June 1998. Available at: www.rec.org
- 4 *Towards an ECE Convention on Access to Environmental Information and Public Participation in Environmental Decision-making*, Jeremy Wates, European Environmental Bureau, Brussels.
- 5 ENDS Daily, 25th June 1998. See: www.ends.co.uk
- 6 For information on INFOTERRA, Agenda 21 and UNEP programmes see <http://unep.hq.unep.org>
- 7 TRI data is available online at: www.epa.gov/opptintr/tri
- 8 For Environment Agency database see: www.environment-agency.gov.uk and Factory Watch see: www.foe.co.uk/factorywatch
- 9 The UK National Air Quality Information Archive: www.aeat.co.uk/netcen/airqual/
- 10 No date available for launch of E²RC at time of going to press. For latest news see EEA website at: www.eea.eu.int
- 11 *EMPACT Information Management Handbook*, Environmental Protection Agency, 1998. Available at: www.epa.gov/empact/
- 12 For details of ChemRTK see: www.epa.gov/opptintr/chemrtk
- 13 Friends of the Earth Press Release 30th May 1999. Available at: www.foe.co.uk

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