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REVIEW

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- Risk management under REACH
- Key priorities of NGOs on REACH
- Definitions of waste, recycling and recovery
- The UK Government's Ship Recycling Strategy
- Legislating e-waste management
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Risk management under REACH

Requirements of technical and organisational guidance for producers, importers and downstream users

Martin Führ, Natalie Krieger

1 Introduction

The success of REACH will depend on whether or not the actors are willing and able to adopt the roles allocated to them under the new regime. Yet it would be naive to assume that the simple fact of enacting the Regulation will be sufficient to effect the necessary changes in the behaviour of the responsible parties.

REACH aims to fill the gaps in the current chemicals safety assessment system for (existing) substances and to improve risk management where necessary. Responsibility for risk assessment and for developing the adequate risk management measures will shift from the authorities to economic actors. Furthermore, the current distinction between the risk assessment process on *existing substances*¹ and the process of determining appropriate risk management measures based on this will also be removed. This new scheme presupposes that the rights and responsibilities of all parties in the value chain are clearly defined. All parties' legal positions must be distinct and defined in relation to one another. Only then will a suitable framework exist to help companies, acting on their own responsibility, work together and create an efficient product safety system for the entire value chain.

Within this context, a study on behalf of the German Federal Environmental Agency (Umweltbundesamt – UBA) was performed.² The study's initial hypothesis was that support - in the form of (technical and organisational) guidance specific to each type of economic actor - can help to push forward the necessary innovation and co-operation processes to implement REACH in the intended

way. Thus, transaction costs for each actor can be kept to a minimum and obstacles overcome. This also supports the central, structural objective of REACH to establish a "learning system", particularly with regard to the interaction occurring between the producers and users of industrial chemicals. To this end, sufficient regulatory (dis)incentives are essential. For this reason the question of possible amendments to the current draft of the Regulation was also addressed.

2 The starting point – motivational analysis

The paradigm shift in chemicals regulation caused by REACH brings with it a clear requirement for more self-responsibility on the part of economic actors.³ The authorities' monitoring and inspection strategies will need adjustments to this development – indeed, it is this which makes the new regulatory regime such a paradigm shift.

The chemicals authorities have limited options for action since they are moved to the 'second line' as regards chemicals safety assessment. They must put aside the notion that all existing substances will be processed individually, under their supervision. In this respect, their range of 'imperative remote control' is curtailed. However, other control mechanisms increase. Improved availability of information enables more precise monitoring. And there are improved options for action on particularly problematic substances, as intervention procedures (such as authorisation) become more efficient. In fact, REACH focuses 'imperative remote control' and thus makes it more effective.

Against this background, the central issue which emerges is the extent to which the various actors are willing to work together. Here, more than with any other regulatory scheme, the starting point for all efforts to bring about change is ensuring that the responsible parties addressed by the regulation are motivated – *motivation matters*. Another question must therefore also be asked: what incentives are there for the actors, and what obstacles lie in their way?

¹ Substances marketed within the EC before 1981, the date when new requirements for pre-marketing notification of substances entered into force. The *existing* substances presently make up more than 90% of all substances in the chemicals market.

² Führ, M./Heitmann, K./Koch, L./Ahrens, A., Krieger, N., (Society for Institutional Analysis – sofia – in co-operation with the Cologne Center for Public Economics, the Institute for Environmental Strategies Ökopol, Hamburg, and with Eckard Reh binder, Forschungsstelle für Umweltrecht, University Frankfurt/Main): Risk management under REACH - Requirements of technical and organisational guidance for producers, importers and downstream users (FKZ 204 67 462/04). The complete text of the study (in German) is available at: <http://www.umweltdaten.de/publikationen/fpdf-l/3010.pdf> or http://www.sofia-research.com/fileadmin/Dokumente/Studien/2006/Leitfaden_UBA-Texte-05-06.pdf.

³ Cf. M. Führ/U. Lahl, Self-responsibility as a regulatory concept – as illustrated by the REACH decision-making process, in: Th. Ormond/M. Führ/R. Barth: Environmental law and policy at the turn to the 21st century (Lexxion 2006), p. 209-220.

REACH primarily addresses companies. Therefore, the motivations of economic actors need to be analysed. Experience gained with REACH simulation exercises so far shows that information relevant for risk management is held in different places within companies, e.g. the sales department, the product development department or the HSE (health, safety and environment) department. Hence, communication and co-operation processes need to be organised *within* as well as *between* companies covered by REACH. The decisive factor in this is the individual perspective of the managers within each business area. Therefore, where motivation is concerned, it is that of the people within the company in their individual roles and not just the motivation of the company as a whole which needs to be addressed when drawing up requirements for technical guidance – *personal motivation matters*.

The behaviour of a company and its employees is determined by a variety of factors. These can generally be divided into three distinct categories:

- *Willingness or motivation*
The company's motivation is to sell goods and services and thus make a profit.
- *Opportunity*
From the company's point of view, opportunities exist externally, e.g. in the form of market conditions or aspects of competition. They are also created by regulations and other institutional frameworks.
- *Capacity*
Capacity can be equated with those human and material resources available within a company that enable it to recognise and grasp opportunities which are in line with its motivation.

Factors from these three categories may be combined to predict the behaviour of the responsible parties in a regulatory context.

Traditional, normative legislative approaches have aimed at restricting the options available by means of requirements imposed by the authorities. They have also attempted to motivate addressees by threatening to impose penalties. In contrast, approaches based on self-responsibility must be centred on actors' own motivation, while also ensuring that they expand actors' capacity to achieve the objectives of the relevant legislation. However, such approaches also naturally have to keep in view the legal framework which enables regulators to limit the options available to companies to act in an undesirable way (regulatory (dis)incentives).

3 The analytical approach

Building upon this behavioural approach, two key areas are to be analysed:

1. Are the conditions (which in turn affect the opportunities open to companies) such that actors in the value chain are willing to adopt the new roles and responsibilities?
2. What conditions must be in place to allow actors within companies to fulfil these responsibilities (capacity)?

In the course of answering these questions, reference points will emerge which are relevant to producing technical guidance in support of implementing REACH. At the same time, the roles to be played during the risk reduction process are characterised in more detail.

The methodology applied is a 'delta analysis' based on the institutional behaviour model (using *homo oeconomicus institutionalis*).⁴ The delta analysis aims to identify the deficits and barriers facing the various actors – issues which the technical guidance must address.

The responsible parties of REACH are primarily manufacturers and importers of substances, i.e. those who 'place these substances on the market' and hence bear 'primary responsibility' for the substances. These actors are at the top of the supply chain and bear the main weight of responsibility for assessing the safety of substances. The users of substances bear 'secondary responsibility', whether they use substances as such or substances in preparations. The draft REACH Regulation refers to such actors as 'downstream users'. Risks may also arise during the service life or disposal of articles. Although neither consumers nor retailers or waste management companies are addressed directly by REACH, substance manufacturers and importers must nevertheless consider in their safety assessments the risks which apply to these life cycle stages.

According to the REACH mechanisms, each actor must make specific contributions at particular points in time in order to spur the 'learning system' into action. It would not, therefore, be helpful to lump all actors together and consider 'the' incentives for companies. Instead, the aim must be to ask practical questions about which motivating factors will prevail when actors are in a given situation. The individual 'stages of risk reduction' required for REACH to work can be defined as follows:

⁴ Cf. Führ, M./Bizer, K., REACH as a paradigm shift in chemical policy - responsive regulation and behavioural models, forthcoming in: *Journal of Cleaner Production* (JCLP), Elsevier, Exeter (UK).

Figure 1: Stages of risk management under REACH

S0	Introductory phase (Preparation for REACH)
S1	Identify the uses of chemicals and the operational conditions of use, as well as the existing and potential risk management measures (Preparation for registration)
S2	Ascertain conditions and measures for safe application by users in an exposure scenario; conduct and document safety assessment (Registration [Art. 5 subseq. REACH ⁵] alternatively Chemical Safety Report [Art. 36(4) REACH])
S3	Apply management measures (to area(s) for which the respective actor is responsible)
S4	Communicate risk management measures to downstream users (DU/F)
S5	Communicate risk management measures to traders/consumers/those responsible for disposal

Delta analysis involves investigating the incentives and barriers within each of the above stages.

- What behaviour does REACH expect of the various actors in the value chain at each stage of the process?
What form of co-operation is required?
- What incentives are there for actors to behave in the desired way?
(What are the limitations or obstacles? What are the business benefits? What is the available capacity?)
- Is there a discrepancy (or 'delta') between a) and b)?
- How can technical guidance contribute to reducing this motivational deficit?
- What motivational deficit persists even if technical guidance is used?

The answers to these questions were partly obtained from interviews with representatives of companies and associations. The findings from initiatives to prepare for REACH implementation (e.g. RIPS⁶, SPORT⁷) were also used.

In order to identify starting points for technical guidance, the principal possibilities for and limitations of technical guidance must first be established.

⁵ REACH-Proposal, Common position adopted by the Council, June 12, 2006 (Doc. 7524/06); cf. <http://ecb.jrc.it/REACH/>.

⁶ REACH Implementation Projects; cf. <http://ecb.jrc.it/REACH/>.

⁷ Strategic Partnership on REACH Testing; <http://www.sport-project.info/>.

Technical guidance on risk reduction should enable companies to identify and implement adequate risk management measures. However, technical guidance can neither increase the resources available for companies nor compensate significantly for a lack of motivation within a company. Another limitation is that technical guidance always goes hand in hand with standardisation and therefore fails to take into account the unique context within each individual company. Nevertheless, technical guidance can be used to deploy available resources effectively and efficiently, using the motivation existing within a company, to achieve the required behaviour.

The role of technical guidance can lie purely in the realm of disseminating information to support the evaluation, planning and monitoring involved in risk management. However, it should also improve communications within and between companies by standardising terms, concepts and procedures. This last point will be particularly important for the implementation of REACH. Technical guidance in support of communication processes has so far been very thin on the ground, so this is an area where considerable advances are needed. Furthermore, other forms of communication should be investigated besides the conventional type of written guidance documents.

4 Results of the analysis of incentives and barriers

In summarising the results of this analysis, an initial distinction needs to be made between incentives arising from the market (market incentives) and those arising from the legal framework (regulatory and administrative incentives).

In respect of the factors motivating companies to apply the REACH mechanisms, the analysis shows that:

- In many cases, given the current setting, the market incentives for actors to actively identify substance-related risks and take preventative risk reduction measures exert little influence. Where such incentives exist (in consumer-near markets), even motivated actors fall at the hurdles of patchy information availability and high transaction costs. This is precisely why the EC legislator decided to take action.
- The determining motivating factor is therefore a regulatory one. The strength of this factor in terms of motivation depends on actors' perceived likelihood of being inspected by the authorities and on the penalties they would have to face in the case of non-compliance.

- The improvements REACH will bring to the availability of information will allow the authorities to intervene in a more targeted way when actors fail to sufficiently control the risk. This will in turn impact on the incentives for those responsible for production and use of substances, who will then attempt to prevent this type of intervention.
- Readiness to engage in the risk identification and reduction process will increase when actors recognise that the REACH mechanisms benefit them – such as by dint of increased legal certainty and information-based measures – not just with regard to chemicals legislation but also in other areas where actors have to meet legal requirements. Such benefits, which stem from regulation but result in an improved competitive position on the market, can be expected in the following areas of law:
 - Product safety law and product liability law,
 - Occupational health and safety law, and
 - The various areas of sectoral environmental law (notably water, pollution prevention and control in industrial facilities and waste management).

The key benefit which actors on the market can derive from the REACH mechanisms in this context flows from their investment in information procurement. Such investment will yield clearly defined risk reduction measures, using standardised data on the hazards of substances and exposure assessments gathered and conducted in a structured process. Thus, it will become possible to document the company's handling of the unwanted side-effects of substances in a way which is commensurate with risk and appropriate in view of the company's legal and societal responsibilities. This applies to communication within a company and in its dealings with customers, the authorities and other stakeholder groups (such as employees, local residents, shareholders and the general public). This documentation can be expected to contribute to an increased acceptance of the measures taken. The same could apply to legal disputes, for example in the context of (both civil and criminal) product liability cases or the authorisation of industrial facilities.

- It should also be possible to counteract scandals being caused by certain substances contained in consumer products (such as textiles, nappies and vehicle upholstery) and thus prevent the drop in sales and negative publicity which often result.
- The REACH mechanisms may also contribute to a tangible increase in demand for products which are inherently safe to use, by reducing

chemicals users' transaction costs when obtaining information on substance risks. This may be the case for production of construction materials, furniture or textiles (including vehicle upholstery), but could equally apply to the manufacture of all types of household chemicals. A reduction in transaction costs can also be predicted for supply-side actors in the chemicals market (e.g. in the course of standardised evaluation and communication procedures). The supply of products with inherently safe product design is likely to increase.

- The clear identification and evaluation of risks will also provide a new basis for setting limits on emissions, which have to date mainly been based on available techniques, e.g. in issuing permits for industrial facilities. By adopting a more risk-based perspective, it will be possible to move towards determining emission limits from the predicted environmental impacts while retaining a precautionary approach. Thus, targeting the regulatory burden on companies can be increased.
- Another similar advantage is that companies will have, in the results of the REACH mechanisms, a solid basis from which to defend their products from (excessive) legislative proposals aimed at restricting substance use or regulating products.

Where companies recognise the above advantages, they will be motivated to comply with the processes laid down in REACH and to translate these into risk reduction measures. These processes require staff to implement them. If a company does not yet possess the required information on the substances' inherent properties, costs will be incurred in obtaining these. Reduction measures can, of course, also incur costs, certainly where adaptation of processes or product design is involved. The extent to which these cost factors may be influenced by technical guidance is discussed in chapter 6 below.

First of all, here is a summary of the barriers identified during our analysis. At company level, the following barriers were identified:

- Ignorance of and uncertainty about the actual requirements and roles under REACH;
- A fundamentally negative attitude towards the Commission's draft Regulation;
- A lack of awareness that proactive behaviour brings advantages;
- Problems are also expected regarding

- communication between departments in the same company in terms of data collection as well as
- the drafting of the chemical safety report and the expanded safety data sheet (due to a lack of tools).

Communication within and between companies is a key prerequisite for fulfilling REACH responsibilities throughout the value chain (vertical communication). Motivational issues with, and barriers to, this type of communication have been identified in the following areas:

- High start-up costs for communication structures;
- The lack of a common 'language' for discussing application of substances, operational conditions of use and risk management measures throughout the value chain;
- Concerns about the potential for breaking commercial confidentiality;
- A lack of incentives for downstream users to be proactive in approaching manufacturers;
- The first downstream user in the chain, normally a formulator, occupies a key position in the risk reduction process: As the first downstream user he receives the information from the manufacturer and also has a considerable knowledge of the conditions under which the substances are applied further downstream. In contrast, the manufacturer and the user of a preparation do not normally do business or communicate directly with one another. However, it is not clear to what extent the formulator will (want to) perform this bridging function in the REACH system;
- A lack of incentives for the manufacturer to identify and communicate adequate risk reduction measures for downstream users;
- Small companies may be overburdened by the requirements for communication and evaluation.

5 Managing self-responsibility: Recognising opportunity and building capacity

The results underline once again that, from the company's perspective, regulation concepts based on self-responsibility necessitate complex, challenging management strategies. Viewed through the lens of *regulatory choice*, this is therefore an approach which requires that many pre-requisites be fulfilled if successful control is to be achieved.

For economic actors (actors in the market), REACH provides a greater degree of flexibility. Thus, the orientation provided by behavioural requirements or threshold values set by the authorities will become less significant. The gain in flexibility, however, is

also associated with the burden of communication and co-operation described above.

Since a thorough investigation of the factors that determine risk is neither possible nor realistic, REACH asks companies to perform a difficult balancing act. In each case, they must choose between a wide-ranging, broad-brush risk screening (scoping) approach and the requirement to undertake detailed risk analysis periodically. In business implementation, as in regulation, companies are required to *walk a tightrope* between standardised processes and case-by-case flexibility. REACH must both be user-friendly and elicit convincing results if it is to truly achieve the desired benefits for companies (and society). Technical guidance should therefore make both aspects clearly visible, so that actors are able to find the right balance for their own situations.

Self-responsibility does not mean regulating every last detail. Companies do not need detailed instructions. What they need are simple tools and the freedom to make *reasonable decisions* on how best to walk the tightrope.

The technical guidance should therefore contain a 'run-through' of the system, in the form of a straightforward (but fictitious) worked example which demonstrates the basic mechanisms, and allows simulation exercises such as gaming experiments. This run-through should be offered to selected customers and suppliers, a variety of departments in the relevant companies, associations/chambers of commerce and representatives from the authorities. This will give all these actors the opportunity to try out their new roles. Under the new requirement for 'self-responsibility', it will no longer be sufficient to organise compliance within a company. The challenge will be to (pro-)actively shape the processes.

6 Starting points for technical guidance

With regard to factors affecting companies' motivation (including the opportunity, willingness and capacity of both the company and its employees), the following starting points can be identified:

A. There is a need to support companies when it comes to their *capacity* (technical and procedural knowledge and skills).

1. In this context, the technical guidance would act as an aid, helping actors within companies to understand:

- Their roles and responsibilities within the REACH framework (implementing legal requirements correctly in their individual circumstances and gaining an overview of the REACH system);

- The specific nature of corporate behaviour in the context of self-responsibility;
- The need for action in the various stages of risk reduction;
- The necessary internal and external communication and co-operation processes (workflows relating to the internal flow of information and comprehensive planning processes for risk reduction measures).

For example, information-based tools such as 'conventional' guidelines based on knowledge transfer, but also training provision and online help can all contribute to building this capacity.

2. The importance of *communication processes* for the success of REACH cannot be overstated. The technical guidance should therefore focus on these processes in particular. It should aim to plot a course towards setting up and structuring internal and external processes. Again, this will not only be a question of merely disseminating information, but also of kick-starting (shared) learning processes in which actors can harness their *creative potential*.

Approaches which reduce actors' transaction costs provide the main starting points for technical guidance in this realm:

- Methods for gaining openness to seeing things from the perspective of other economic and administrative actors;
- Opportunities to identify and overcome barriers to communication;
- Approaches to identifying common interests;
- Methods for finding a common 'language' (to communicate uses, conditions of use and risk management measures by using standard phrases), and
- The development of suitable organisational frameworks for the co-operation processes required.

Targeted, guided learning experiences in 'protected environments' should play a particularly important part in the process. These could include experimental gaming exercises, which would not only allow actors to apply their factual, orientative and methodological knowledge in a practical scenario, but could also bring about changes to habitual behaviours and restrictive perceptual patterns. It would therefore be possible for actors to gain a new perception and open up to new ways of thinking.

The technical guidance should also describe models of communication processes, and should in particular make provision for training activities which provide personal learning experiences.

Due to resource requirements, it would be a good idea to employ the 'snowball effect', beginning a multi-stage process by offering initial, intensive training to skilled and knowledgeable multipliers.

This would also provide a good opportunity to establish standard phrases, concepts and methods, using existing chemicals industry standards as a basis in the first instance.

3. Actors need practical aids to draw up a chemical safety report (CSR), create a registration dossier and develop a safety data sheet (SDS).

Standardised formats (pick-lists containing standard wording, e.g. for types of application, conditions of application, risk management measures), technical guidance and other tools, including tools for evaluation, are all required. These could range from printed or electronic guidance documents to interactive tools. The development of this technical guidance is already extensively covered by the REACH Implementation Projects (RIPs).

4. In view of the fact that the various actors each have their own interests and that even the contributions required by REACH can vary greatly, it is recommended that all the tools outlined above be tailored to a particular target audience. It follows that, besides a 'general section', such tools should also contain 'specific components', designed to help individual actors identify their own information requirements and options. Such components could relate to

- the relevance of the REACH mechanisms to the actor's own portfolio of substances;
- the relevance of an actor's own products (substances, preparations and articles) to consumers and the environment;
- the question of which other actors to communicate with and on which issues;
- ways to analyse where customers' interests lie, and
- ways to assess the market value of REACH measures.

Guidance for analysing substance portfolios should therefore be included in the

technical guidance, as well as communication aids for 'questioning' downstream users and customers. Illustrating best practice and worst-case scenarios by means of examples is particularly important.

B. There is also a requirement to support actors in companies in respect of their willingness and readiness to play an active part in REACh. This type of support could include help to understand the following points:

- The significance of having to obtain information on the properties and effects of substances;
- The market potential REACh will generate (improved customer relations, potential new applications, and an understanding of actors' own weight through their own demand on the market);
- The relevance of REACh mechanisms for the civil and criminal liability borne by company representatives;
- How to avoid negative publicity for actors' own companies and products;
- The relevance of the REACh mechanisms in terms of building a more robust foundation for action in other fields of law beyond chemicals legislation (such as product safety law, occupational safety or site related environmental law), and
- The development and furtherance of companies' strategies for safe product design.

These various facets of the draft Regulation may all be of benefit. This clearly illustrates the advantages actors in companies can gain from proactive engagement with REACh, even if their work does not hinge on the implementation of chemicals regulations.

The approaches listed under A.1 and A.2 come into play in addressing these motivational factors which have scarcely been part of the RIPs up to now.

C. The role of authorities was examined only insofar as it affects the willingness of REACh addressees to participate. The authorities' role mostly comprises:

- Helping companies to provide adequate documentation and to implement risk assessment and management (for example by providing implementation tools harmonised at European level, or providing help desks);
- Uncovering and penalising any 'free riders' by means of compliance checks and enforcing sector-specific environmental legislation using the additional information obtained under REACh;

- Managing and evaluating information and, where appropriate, making this available to selected actors or the public (for example through the Substance Information Exchange Forum SIEF, or substance classification databases); and
- Making decisions about regulatory measures in relation to substances or uses for which market actors are unable to sufficiently limit the risks (authorisation, restriction).

D. Sector associations and chambers of commerce have a particular role to play in the implementation of REACh. The main aspects of this role are:

- To support the formation of networks;
- To provide information to registrants on the usual conditions in which a substance is used. Based on existing risk management measures in the sector, good standard practice may be characterised;
- To paint a good image of a particular sector (in terms of REACh);
- To motivate and advise its member companies.

Sector associations and chambers of commerce need to rethink their roles. From now on, they may see more responsibility for initiating and moderating co-operation processes. Finally, they will be in a position to provide (highly qualified) advice, provided that their employees are suitably trained. This will provide an opportunity to remind members of the added value they gain by belonging to an association/chamber of commerce.

In addition to the points made above (particularly those under A.1 and A.2), reports on the experiences of chemicals industry initiatives in forming networks would be useful.

7 Remaining regulatory deficits

Even assuming that the above proposals for actor-specific technical guidance are adopted, the motivational deficit will not be fully rectified. The following regulatory and administrative deficits can be seen as possible causes of this motivational deficit. These deficits have their roots in the division of responsibility between competent authorities at EC level, national chemicals authorities and regional enforcement agencies for occupational safety and environmental protection.

- With the legal framework currently foreseen in REACh, it is possible to submit registration documents containing insufficient information without being directly penalised. This means the registrant gains a cost advantage over any competitors who comply in full with the legislation (a clear case of 'free riding'). The question of how to ensure that the safety documen-

tation is of consistent quality across the board has yet to be resolved.

- One reason for this is that the text of the draft regulation is not clear on the procedure and legal consequences to be applied in cases where registration dossiers remain insufficient in terms of safety documentation. It would therefore be appropriate to add the following clarification to Article 41(1) of the Regulation:

“If a registrant fails to submit the information required under Article 40(3) on time, or if it cannot be established with sufficient certainty on the basis of the information submitted which risks are associated with the manufacturing and use of the substance and how these are to be adequately controlled, the competent authority shall [may] draft a proposal for a decision which makes provision for the withdrawal [reversal] of registration; that decision shall be taken in accordance with the procedure laid down in Articles 49 and 50.”

A recital could be worded as follows:

This Regulation requires actors to practise self-responsibility. The obligation to submit meaningful registration documents is a key pre-requisite in order to nevertheless ensure a level playing field. Registration dossiers shall be subject to an initial, formal completeness check but not quality check. Registrants are responsible for the appropriateness of the information submitted. Irrespective of this, the authorities shall inspect random samples of dossiers submitted, including their content. Should the authorities establish as a result that a dossier fails to comply with the requirements of this Regulation, they shall demand that any missing information be supplied. If the registrant fails to supply this information on circumstances he is responsible for within a reasonable timescale, the authorities shall be authorised to withdraw the registration. The authority to do so is not dependent on the existence of an unacceptable risk. Instead, this power to withdraw the registration shall apply as soon as significant deficits in the documentation are established. This is the case where documents contain no comprehensible risk management measures or where the proposed measures are not

based on sufficiently firm evidence from the hazard and exposure assessments. The authorities’ power to withdraw registration is intended to ensure that there is sufficient incentive for all registrants to submit meaningful registration documents. It will guarantee the consistent application of registration obligations and thus help achieve the objectives of this Regulation.

- Nor is it clear how to ensure that the recommendations producers make in relation to risk management are actually adopted by the other actors. Finally, there is the related question of how the substance-specific evidence generated within the REACH framework will be used to enforce other legislative regimes.

All of the deficits described above can lead to inequalities in the treatment of companies in different sectors or regions of the EC. The idea that competing companies would not be required to comply to the same extent with the REACH requirements is likely to have a negative effect on the willingness of every actor in the market. This could be expected to cause a deficit in the attainment of the REACH targets on risk reduction. At the same time, the issue arises of *unequal treatment*, which can be traced back to the regulatory level (a ‘first-order implementation deficit’ or ‘instrument gap’), and responsibility for this lies therefore with the legislative bodies. It is possible that this constitutes an infringement of the principle of equal treatment, which would in turn mean that the Regulation was unlawful.

8 Conclusion: how technical guidance can help REACH succeed

Key factors for the success of REACH can be defined on the basis of an analysis of settings and incentives.

Chief among these factors is the internalisation of the paradigm shift which REACH aims to achieve. This goes one step beyond mere ‘compliance’ to encompass a readiness among actors to adopt new attitudes and roles. In this regard, experience to date of the preparatory projects under REACH shows that it is essential to make available sufficient scope for and staff to support the preparation and learning processes.

The other key factors can be allocated to the behavioural categories outlined at the beginning of this summary, namely:

1. Possibilities (normative boundaries, restrictions):
Clarity on legal requirements themselves (re-

sponsibilities, laws, objectives and timescales), plus the likelihood of being caught and type of penalty for both infringement and free riding.

2. Capacity:

Resources available in companies (staff numbers, experience, skills, expertise and capital).

3. Willingness:

Ability of economic actors to recognise benefits and opportunities; thus (un)certainly about financial cost and risks for their own company.

These are fundamental considerations for the design of the technical guidance. They can be expanded as follows:

- Information has traditionally been part of all technical guidance ('the first component'). However, simply *being given* information and descriptions of processes is not enough. What actors need is *first-hand experience* (e.g. during a simulation) of the situations with which they will be faced. This means adding components to the traditional technical guidance model.
- Actors must also be *open* to the wishes and needs of other actors so they can *see each others' points of view*.

Whereas 'traditional' guidelines are aimed at a 'prototypical' actor within a particular organisation (such as a company) and provide him or her with specific information and instructions, the 'second element' of guidance addresses the actor as a 'person'. It aims to enable actors to embrace the learning processes which are required if the normative objectives are to be achieved.

One particular point should be emphasised with regard to the effectiveness of technical guidance: a toolkit can help clarify normative requirements. It can build capacity and help provide an understanding of the motivational context. However, technical guidance cannot compensate for deficits in regulation. Nor can technical guidance in itself affect market forces. What technical guidance can do – and this is the main way in which it can provide support – is improve actors' awareness of the opportunities available and help them exploit those opportunities.

Finally, the processes supported by the technical guidance can also contribute to building trust between actors. Thus technical guidance fosters a vital resource for successful co-operation within society and the economy, and therefore for innovation.

9 Recommendations

The recommendations for action primarily relate to steps to develop and test technical guidance for REACH actors in industry.⁸

Yet aids should also be developed for actors within the authorities,⁹ especially with regard to the necessary regulatory incentives, including the problem of legislative interfaces between the different sectoral legislation on an EC level, e.g. the IPPC Directive and the Water Framework Directive.¹⁰

Finally, producing a cross-sectoral guide to the sets of technical guidance and guidelines for implementing environmental legislation that already exist in the various industry sectors would be a worthwhile endeavour.

⁸ In a subsequent project called "Implementation support for Risk Management under REACH" this approach is tested in collaboration with the value chains "electroplating coating" and "textile finishing"; cf. www.reach-helpdesk.info (for a project description in English).

⁹ A specific part of the project "Implementation support for Risk Management under REACH" (cf. Fn. 8) addresses the role of regional environmental authorities and their possibilities to benefit from the data generated under REACH, e.g. details on risk reduction measures ore environmental quality standards (Predicted no effect concentration, PNEC; cf. <http://ecb.jrc.it/home.php?CONTENU=/Legislation/sommaire.php>).

¹⁰ Cf. Führ, M./Merenyi, S., Interface Problems between EC Chemicals Law and sector specific Environmental Legislation (IPPC/WFD), Dessau 2005 (download: <http://www.umweltdaten.de/publikationen/fpdf-l/2953.pdf>) and Führ, M./Merenyi, S., Mind the Gap, RECIEL 2006 (forthcoming).

The Öko-Institut (Institut für angewandte Ökologie - Institute for Applied Ecology, a registered non-profit-association) was founded in 1977. Its founding was closely connected to the conflict over the building of the nuclear power plant in Wyhl (on the Rhine near the city of Freiburg, the seat of the Institute). The objective of the Institute was and is environmental research independent of government and industry, for the benefit of society. The results of our research are made available of the public.

The institute's mission is to analyse and evaluate current and future environmental problems, to point out risks, and to develop and implement problem-solving strategies and measures. In doing so, the Öko-Institut follows the guiding principle of sustainable development.

The institute's activities are organized in Divisions - Chemistry, Energy & Climate Protection, Genetic Engineering, Sustainable Products & Material Flows, Nuclear Engineering & Plant Safety, and Environmental Law.

The Environmental Law Division of the Öko-Institut:

The Environmental Law Division covers a broad spectrum of environmental law elaborating scientific studies for public and private clients, consulting governments and public authorities, participating in law drafting processes and mediating stakeholder dialogues. Lawyers of the Division work on international, EU and national environmental law, concentrating on waste management, emission control, energy and climate protection, nuclear, aviation and planning law.

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The University of Applied Sciences in Bingen was founded in 1897. It is a practiceorientated academic institution and runs courses in electrical engineering, computer science for engineering, mechanical engineering, business management for engineering, process engineering, biotechnology, agriculture, international agricultural trade and in environmental engineering.

The *Institute for Environmental Studies and Applied Research* (I.E.S.A.R.) was founded in 2003 as an integrated institution of the University of Applied Sciences of Bingen. I.E.S.A.R. carries out applied research projects and advisory services mainly in the areas of environmental law and economy, environmental management and international cooperation for development at the University of Applied Sciences and presents itself as an interdisciplinary institution.

The Institute fulfils its assignments particularly by:

- Undertaking projects in developing countries
- Realization of seminars in the areas of environment and development
- Research for European Institutions
- Advisory service for companies and know-how-transfer

Main areas of research:

- **European environmental policy**
 - Research on implementation of European law
 - Effectiveness of legal and economic instruments
 - European governance
- **Environmental advice in developing countries**
 - Advice for legislation and institution development
 - Know-how-transfer
- **Companies and environment**
 - Environmental management
 - Risk management

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The Society for Institutional Analysis was established in 1998. It is located at the University of Applied Sciences in Darmstadt and the University of Göttingen, both Germany.

The sofia research group aims to support regulatory choice at every level of public legislative bodies (EC, national or regional). It also analyses and improves the strategy of public and private organizations.

The sofia team is multidisciplinary: Lawyers and economists are collaborating with engineers as well as social and natural scientists. The theoretical basis is the interdisciplinary behaviour model of *homo oeconomicus institutionalis*, considering the formal (e.g. laws and contracts) and informal (e.g. rules of fairness) institutional context of individual behaviour.

The areas of research cover

- Product policy/REACH
- Land use strategies
- Role of standardization bodies
- Biodiversity and nature conservation
- Water and energy management
- Electronic public participation
- Economic opportunities deriving from environmental legislation
- Self responsibility

sofia is working on behalf of the

- VolkswagenStiftung
- German Federal Ministry of Education and Research
- Hessian Ministry of Economics
- German Institute for Standardization (DIN)
- German Federal Environmental Agency (UBA)
- German Federal Agency for Nature Conservation (BfN)
- Federal Ministry of Consumer Protection, Food and Agriculture

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elni

In many countries lawyers are working on aspects of environmental law often with environmental initiatives and organisations or as legislators, but have limited contact with other lawyers abroad, although such contact and communication is vital for the successful and effective implementation of environmental law.

In 1990 a group of lawyers from various countries therefore decided to initiate the Environmental Law Network International (elni) to promote international communication and cooperation worldwide. Since then elni has grown to a network of about 350 individuals and organisations from throughout the world.

Since 2005 elni is a registered non-profit association under German Law.

elni coordinates a number of different activities:

Coordinating Bureau

The Coordinating Bureau was originally set up at and financed by the Öko-Institut in Darmstadt, Germany, a non-governmental, non-profit making research institute. The Bureau is currently hosted by the University of Applied Sciences in Bingen. The Bureau acts as an information centre where members can obtain information about others working in certain areas thus promoting the development of international projects and cooperation.

elni Review

The elni Coordinating Bureau produces and sends to each member the elni Review twice a year containing members' reports on projects, legal cases and developments in environmental law. elni therefore encourages its members to submit such articles to be published in the Review in order to allow the exchange and sharing of experiences with other members.

elni Conferences and Fora

elni conferences and Fora are a core element of the network. They provide scientific input and the possibility for discussion on a relevant subject of environmental law and policy for international experts. The aim is to bring together scientists, policy makers and young researchers, giving the opportunity to exchange views and information as well as developing new perspectives.

Publication Series

The elni publications series contains 12 volumes on different topics of environmental law.

- Environmental Law and Policy at the Turn to the 21st Century, Liber amicorum, Betty Gebers, Ormond/Führ/Barth (eds.) Lexxion 2006.
- Access to Justice in Environmental Matters and the Role of NGOs, de

Sadeleer/Roller/Dross, Europa Law Publishing 2005.

- Environmental Law Principles in Practice, Sheridan/Lavrysen (eds.), Bruylant 2002.
- Voluntary Agreements - The Role of Environmental Agreements, elni (ed.), Cameron May Ltd., London 1998.
- Environmental Impact Assessment - European and Comparative; Law and Practical Experience, elni (ed.), Cameron May Ltd. London 1997.
- Environmental Rights: Law, Litigation and Access to Justice, Deimann / Dyssli (eds.), Cameron May Ltd. London 1995.
- Environmental Control of Products and Substances: Legal Concepts in Europe and the United States, Gebers/Jendroska (eds.), Peter Lang, 1994.
- Dynamic International Regimes: Institutions of International Environmental Governance, Thomas Gehring; Peter Lang, 1994.
- Environmentally Sound Waste Management? Current Legal Situation and Practical Experience in Europe, Sander/ Küppers (eds.), P. Lang, 1993
- Licensing Procedures for Industrial Plants and the Influence of EC Directives, Gebers/Robensin (eds.), P. Lang, 1993.
- Civil Liability for Waste, v. Wil-mowsky/Roller, P. Lang 1992.
- Participation and Litigation Rights of Environmental Associations in Europe, Führ/ Roller (eds.), P. Lang, 1991.

elni Website: elni.org

The elni website at <http://www.elni.org> contains news about the network and an index of elni articles, gives an overview of elni activities, and informs about elni publications. Internships for young lawyers/law students at the Öko-Instituts environmental law division are also offered on the web.