

What is Responsible Care?

Responsible Care is an initiative of the global chemical industry in which companies, through their national associations, commit to work together to continuously improve the health, safety and environmental performance of their products and processes, and so contribute to the sustainable development of local communities and of society as a whole.

Responsible Care is managed by industry and focuses on improving performance, communication and accountability.

Responsible Care improves performance by identifying and spreading good management practices through the publication of codes or guidance documents.

Responsible Care promotes mutual support between companies and associations through experience sharing and peer pressure, replacing the competitive approach of the past in health, safety and environmental areas.

Responsible Care encourages companies and associations to inform their publics about what they make and do, about their performance including reporting performance data, and about their achievements and challenges.

Responsible Care helps the industry to engage and work with stakeholders at local, national and international levels, to listen to and address their concerns and aspirations.

Responsible Care promotes co-operation with governments and organisations in the development and implementation of effective regulations and standards, and helps companies to meet or exceed these requirements.

Responsible Care brings accountability through its requirement that chemical associations develop credible processes to verify that member companies are meeting Responsible Care expectations.

Responsible Care started in 1984 in Canada and is now in 46 countries where more than 85% of the world chemicals (in volume) are manufactured.

Photographs on pages 3, 29 courtesy of Shell Chemicals.

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Foreword



Jean-Pierre Tirouflet
Cefic President and
Chairman of the ICCA Board

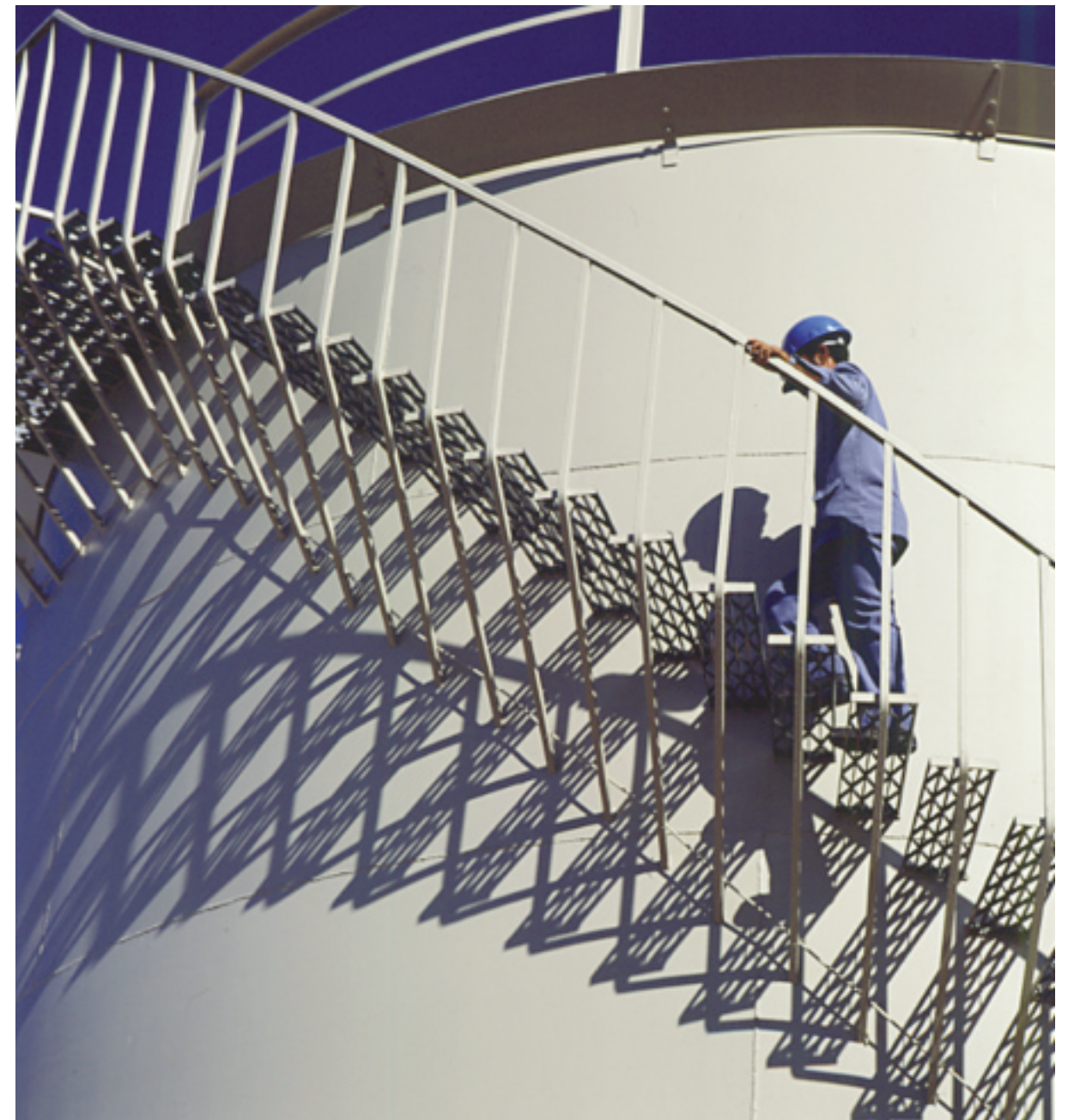
I am pleased to present to you this fourth status report on the global chemical industry's voluntary initiative, Responsible Care. Not only is it one of the longest running voluntary initiatives, but also it is our industry ethic and core value. Since its launch in Canada in the early 1980s, it has been extended to include all our health, safety and environmental activities and developed to respond positively and sympathetically to stakeholder concerns.

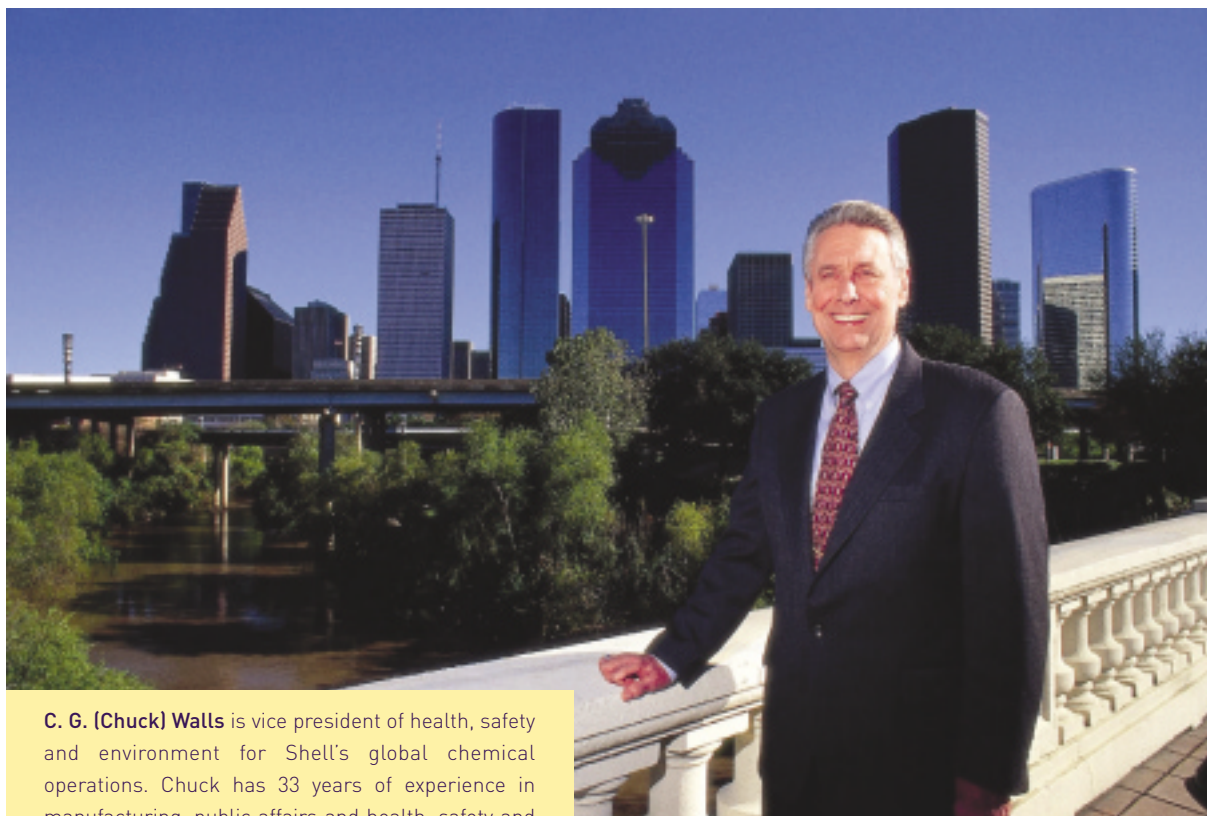
Responsible Care programmes are now being implemented in 46 countries, and this report gives a 'camera shot' of the current state of implementation. You will note that some performance data collected from around the world is included so you can judge at least one aspect of the success of Responsible Care, that of driving continuous improvement in safety, health and environmental performance. We recognise however, that much more remains to be done, and our goal is that all programmes must be transparent and consistent. This is just one of several goals now being pursued by the Responsible Care Leadership Group, which is charged by the ICCA Board of

Directors to promote, monitor and support member Federations in their implementation of Responsible Care, to review programmes, and where appropriate to offer help and assistance.

We live in a rapidly changing world, and our Responsible Care initiative will remain relevant only if it responds to current and future needs and requirements of the industry and our stakeholders. Responsible Care has shown what can be achieved on the environment and has much in common with Sustainable Development. We are therefore now addressing how we should link our efforts beyond the environment in the additional and important aspects that make up Sustainable Development. I am sure you will see a very positive response in our next Status Report.

I wish to take this opportunity to thank all the members of the Responsible Care Leadership Group from so many countries for their work in compiling this Report, and I hope you, the reader, will find it interesting. I welcome any suggestions you may have on how we can improve on it, and areas you believe we should address in our next Status Report.





C. G. (Chuck) Walls is vice president of health, safety and environment for Shell's global chemical operations. Chuck has 33 years of experience in manufacturing, public affairs and health, safety and environment in both Europe and the United States. His term as ICCA RCLG chairman will run for two years (2002 and 2003).

ICCA Responsible Care Leadership Group Chairman's Introduction

In the few short months that I have been chairman of the ICCA Responsible Care Leadership Group, I have been impressed by the enthusiasm and commitment of the people – from chemical companies and associations – engaged in making Responsible Care happen around the world.

As I think about this year's World Summit on

Sustainable Development – Rio +10 – I realize that Responsible Care's incredible growth over the last ten years is a testament to the fundamental strength of the initiative and the commitment of the chemical industry to improve its health, safety and environmental performance and improve its communications with the public at large.

Writing this in early July, there are just a few short weeks to the Johannesburg summit. Tens of thousands of delegates, officials and numerous non-governmental organizations will gather to chart new pathways on the journey of sustainable development. I believe that the summit presents the chemical industry a major opportunity to discuss with the delegates the links between Responsible Care and sustainable development, and to show we are an industry that is a reliable partner in achieving progress toward sustainable development.

One year ago, the RCLG approved three core strategies to help it achieve its goals. Those strategies call for the RCLG to: achieve global understanding of, and commitment to, a common Responsible Care ethic; improve the quality of association Responsible Care initiatives worldwide; and effectively communicate and dialogue with internal and external stakeholders. As proud as we can be of our progress in the last ten years, the chemical industry knows that further progress is required in the next ten years, and participation in the WSSD gives us a powerful vehicle to further these strategies.

As part of the summit preparation process, the UN Environment Programme (UNEP) facilitated preparation of the ICCA's sectoral report on the chemical industry. In it, we state that "Responsible Care was a great innovation at that time and is still the most sophisticated, comprehensive and ambitious voluntary HS&E program conducted by any industry sector in the world." The chemical industry can be justifiably

proud of Responsible Care, but we also know we cannot be complacent. At the summit, the participants from ICCA will emphasize Responsible Care's contribution to sustainable development, and report on Responsible Care's progress, while acknowledging the further work and challenges that remain.

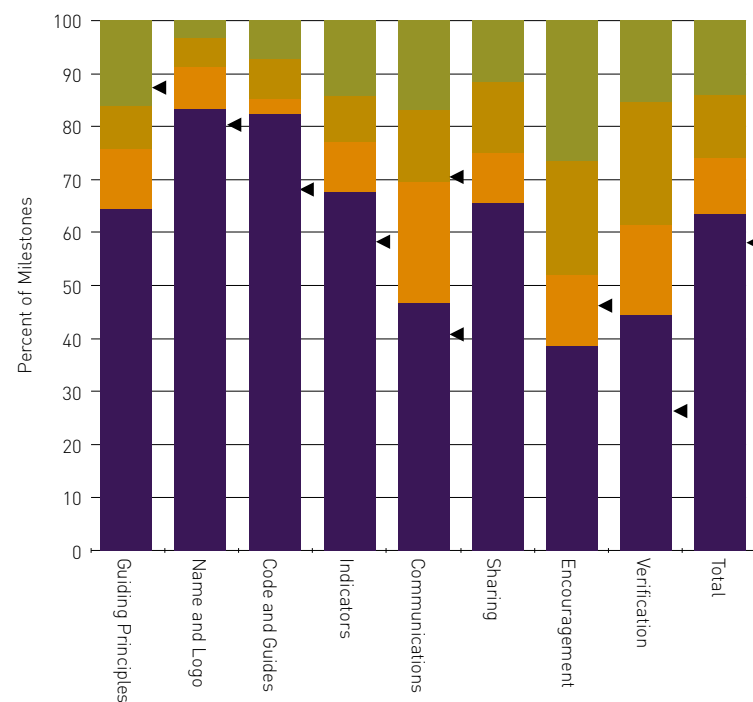
As governments, non-governmental organizations, and international agencies gather at the summit to reach agreement on new ways to accelerate society's progress toward sustainable development, the chemical industry will be part of the process. Responsible Care has positively positioned the chemical industry for discussions about sustainable development. From what I have learned about sustainable development within Shell Chemicals, however, I believe that, as an industry, we are really just beginning our sustainable development journey. More is to come.

The UNEP sector report includes a section on future challenges that emphasizes product stewardship, increasing the ability of developing countries to handle chemicals safely, and finding new ways to engage stakeholders in Responsible Care. The performance expectations set by ourselves and our stakeholders require significant undertakings, but I am optimistic about further progress during my term as chairman. As I work with the RCLG, I am convinced we have a strong global team of committed individuals and organizations who recognize our opportunities and are ready to move forward. It will be an exciting time and I am pleased to be part of it.

Chuck Walls

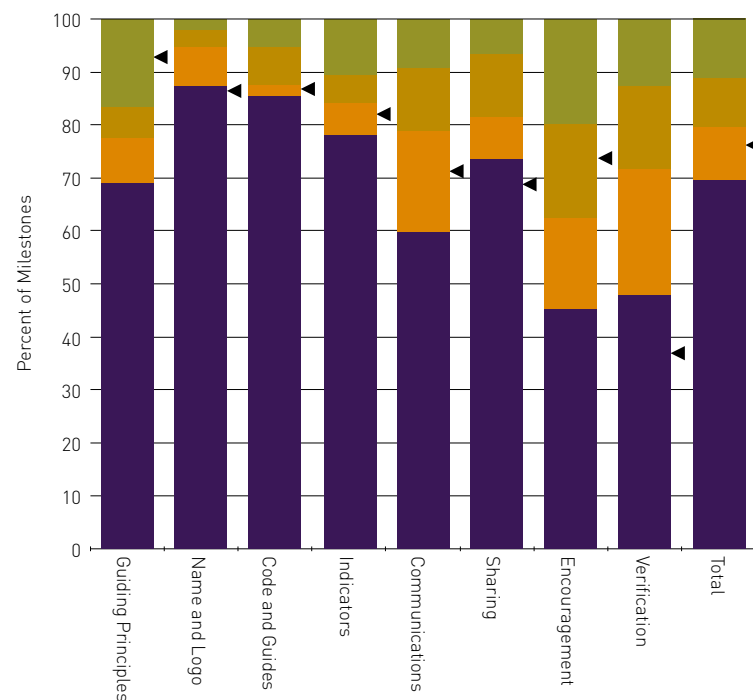
INTERNATIONAL RESPONSIBLE CARE IMPLEMENTATION STATUS

45 OF 45 COUNTRIES BASED ON MARCH 2002 ICCA SURVEY



INTERNATIONAL RESPONSIBLE CARE IMPLEMENTATION STATUS

MATURE PROGRAMS (8+ YEARS). 28 OF 45 COUNTRIES BASED ON MARCH 2002 ICCA SURVEY



■ Element in place/ongoing improvement ■ Implementing Plan ■ Developing Plan ■ Initiating

◀ Arrow shows level of compliance at previous assessments

Implementation

Each national association signed up to Responsible Care is required to make an annual report to show its progress in implementing Responsible Care. The basis for these reports is the eight fundamental features (see Appendix 1) that have been expanded into thirty "milestones" to create a thorough and comprehensive progress check.

These milestones were slightly changed since our previous status report. For example, the question "Is Responsible Care a condition of federation membership?" was introduced into the "Guiding Principles" assessment; the heavy weighting of "Codes" was reduced from 11 to 6 questions and the weighting of "Indicators" increased from 2 to 6 questions to improve the balance of these key parameters; and under "Encouragement" a process for dealing with persistent poor performers was called for. The progress of national associations against each milestone is rated according to four implementation status levels:

- A. Initiating
- B. Developing plan
- C. Implementing plan
- D. Elements (milestone) in place and ongoing improvement

The survey results are summarized in the table on page 9 and in the two graphs opposite that show the implementation status percentages for each fundamental feature. The first graph shows progress in the 45 countries in membership in early 2002, many of which have started with Responsible Care fairly recently. The second shows the status in the 28 countries with "mature" programmes that were started eight or more years ago. At the time of our last report in 2000 there were only 14 in this "mature" group, and only seven in 1998.

Israel has not been included in the survey as it only adopted Responsible Care in August 2001.

Highlights

Worldwide some 63% of the total 30 elements of the eight fundamental features of Responsible Care have been implemented (level D), compared with 58% in 1999. A further 23% are at the developing and implementing stages, (levels B and C). Implementation has improved worldwide for each fundamental feature with the exception of "Guiding Principles" and "Encouragement": the lower scores in these categories reflect the challenge of the additional questions introduced.

For the expanded subgroup of 28 countries with mature programmes, 70% of the elements have been implemented, level D, and work is in progress, at level B and C, on a further 20%. This compares with the status in 1999 when 14 countries had achieved 77% implementation, and 12% were at level B and C. This result represents a reasonable degree of progress for a group which has doubled in size, especially in view of the more stringent tests introduced since last time.

Out of the 45 countries surveyed, 33 countries have published all the required codes/guidelines for implementation, with Product Stewardship codes completed in 33 and Process Safety completed in 40 countries. Twenty-six federations are reporting on a full range of performance indicators such as employees' health, emissions, incidents and injuries and are making these indicators public and discussing them with interested parties, whilst 39 are reporting on employee safety; 24 countries have established effective

stakeholder dialogue and 26 countries have in place peer support and information sharing processes. All countries still have significant potential for continued improvement in the area of verification. This process is being led by the mature countries and their scores on the implementation of self-assessment has now reached 82 %.

Worldwide the Responsible Care initiative will benefit from increased focus on communication with interested parties and on encouragement/sanctions for participating companies. The survey of individual countries' implementation is already being used internally for benchmarking and to identify countries which would benefit from the help that the RCLG's membership support subgroup can provide. It will also help identify those countries where the ICCA/RCLG requires more information to demonstrate a continuous improvement in implementation and thus qualify for ongoing membership of Responsible Care.

Table 1
2001 Implementation Self Assessment

MILESTONE	Implementation Status				
	No. of countries	Initiating A	Developing Plan B	Implementing Plan C	Element in place/ongoing D
1 Guiding Principles					
(a) Guiding Principles agreed and published	45	0	0	1	44
(b) Guiding Principles signed by over 80% of members	45	2	4	11	28
(c) Responsible Care is a condition of federation membership	45	20	7	3	15
2 Name and Logo					
(a) Responsible Care name and logo registered & rules obeyed	45	3	0	4	38
(b) Regular use in publications by the association and member companies	45	0	5	3	37
3 Code and Guides					
(a) Community Awareness/Emergency Response	45	2	4	2	37
(b) Employee Health and Safety at Work	45	3	2	1	39
(c) Process Safety	45	0	3	2	40
(d) Protection of the Environment/Waste Reduction	45	2	3	1	39
(e) Safe warehousing & Distribution	45	5	4	2	34
(f) Product Stewardship	45	8	4	0	33
4 Indicators: Initial Reporting Agreed and member reporting begun for					
(a) Safety	45	0	2	4	39
(b) Health	45	2	4	4	35
(c) Environment	45	0	2	5	38
4 Indicators: Made public and discussed with interested parties for					
(a) Safety	45	6	6	4	29
(b) Health	45	8	6	5	26
(c) Environment	45	6	5	5	29
5 Communications with Interested Parties					
(a) Mechanism established to obtain input on issues/concerns from interested external parties	45	4	6	11	24
(b) Local consultation/liaison developed by & with member companies: Open days	45	4	4	12	25
(c) Internal/external surveys of Responsible Care awareness conducted and made public	45	15	8	8	14
6 Sharing between Companies/Associations					
(a) Regular meeting programs commenced for both Senior executives and Co-ordinators. Cells	45	2	2	4	37
(b) Regular newsletter or equivalent published.	45	2	5	3	35
(c) Association actively seeking Responsible Care partnership arrangements with other industry sectors	45	9	11	5	20
(d) Association providing (and / or seeking) active support or sponsorship to other country associations	45	8	6	5	26
7 Encouragement					
(a) Performance indicators monitored for both high and low performers	45	10	9	6	20
(b) Mechanisms in place to recognise high performers and to assist less advanced companies	45	10	8	8	19
(c) Process for dealing with persistent poor performers in place	45	16	12	4	13
8 Verification					
(a) Internal self-assessment of codes or other requirements carried out	45	4	3	5	33
(b) Verification results used to continually improve implementation	45	5	13	12	15
(c) Verification results communicated to interested parties	45	12	15	6	12

Responsible Care in Action

In this section we highlight just a small selection of the many success stories recorded from Responsible Care activities across the world. These examples are intended to provide an idea of the global scope of the initiative, and show how Responsible Care has spread out beyond chemical manufacturers and their trade associations.

They illustrate how the Fundamental Features of Responsible Care are being put into practice and show how Responsible Care is not just about performance improvement, but how it is developing into an increasingly powerful ethic that is helping reshape the global chemical industry for the future.

Examples of how the initiative has spread up and down the supply chain reflect the increasing reach of Responsible Care, as partner companies and associations recognise the benefits it brings, and want to share those benefits.

Responsible Care and Sustainable Development

• ICCA report for World Summit on Sustainable Development

As part of its preparations for the World Summit on Sustainable Development in Johannesburg, South Africa, the International Council of Chemical Associations drew up an 83-page document, 'Industry as a partner for sustainable development.' Developed through a multi-stakeholder process facilitated by UNEP the report gives a detailed and forthright account of the industry's progress against sustainability goals since the Rio UN Conference of 1992, sets targets for the future, and highlights the challenges that lie ahead. External stakeholders providing input into the report included representatives from NGOs, labour unions, research institutes and national governments.

• Revisiting Responsible Care Guiding Principles

In the past few years, a number of national chemi-

cal associations have revised their Responsible Care Guiding Principles in order to incorporate elements of sustainable development. These include the associations in Canada, the US, the UK and Australia. Earlier this year, Brazil's ABIQUIM established a special task-force to see how its Responsible Care initiative could be expanded to encompass the social element of sustainable development.

• Triple bottom line reporting

In New Zealand, the government has undertaken a 12-month pilot study of 'triple bottom line reporting'. The pilot scheme, which involves member companies of the New Zealand Chemical Industry Council, will help to determine the criteria to be used. Once agreed, these requirements will be incorporated in NZCIC's PRINCE accreditation scheme.

Capacity building/Training programmes

• Industry resources for APELL

The UNEP programme, Awareness and Preparedness for Emergencies at Local Level (APELL), aims to prevent technological accidents and reduce their impacts by assisting decision makers and technical personnel to increase community awareness of hazardous installations, and to prepare response plans in case of an emergency. The chemical industry provides direct support for APELL from the ICCA and Cefic, the national associations of the US, Canada, and Japan, and a number of large international corporations including Dow Chemical, Shell, Nalco, OxyChem, DuPont and Rhodia. The industry also provides training and expertise.

• Responsible Care in EU candidate countries

Cefic's CHEMFED project, with funding from the European Union, aims to boost the CEEC Federations' organisational strength and capacity to support and represent chemical companies. The programme specifically includes development of the Responsible

Care initiative in chemical associations and their member companies in Central and Eastern Europe and plays an important part in aligning the CEEC industry to EU best practices. Extensive training and awareness programmes are being implemented through Cefic and four national federations – from Finland, Sweden, France and Germany – with the nine federations from the EU candidate countries.

• Emergency Response in China

Through its presence in Hong Kong and China, the Association of International Chemical Manufacturers is promoting the Responsible Care ethic in China. The AICM emergency response committee is working with the government's National Registration Center for Chemicals on transportation emergency response and has developed a protocol to support the improvement of emergency response information nationwide in the event of a transportation incident. The aim is to try and prevent such incidents, and to establish the means to respond promptly when they do occur.

• Joint seminars in India

India's Responsible Care Coordinators Group has been promoting awareness of Responsible Care outside the chemicals sector through joint seminars, workshops and training programmes with the Bombay Chamber of Commerce and Industry's HSE sub-committee. These included safety seminars for the construction and waste management sectors. The Dyestuff Manufacturers Association is working with the RCCG to familiarise its member companies with Responsible Care.

• KN-RCI works with Indonesian government on regulatory compliance

Indonesia's Responsible Care committee, KN-RCI, has set up a network with the government to ensure that regulations aimed at achieving the best practical approach to sustainable development are adhered to. The network involves companies, associations, and government authorities. Joint consultations, seminars and workshops have been held since early 2000 and help ensure industry's continuous improvement in regulatory compliance, and to exceed legislative targets.

• JSR Corp training programme

JSR Corporation started its environmental and safe-



ty training programme for technicians in developing countries in 1992 in co-operation with the International Centre for Environmental Technology Transfer (ICETT), a joint initiative covering industry, academia, and government to promote the smooth transfer of Japan's environmental conservation system. Over 400 technicians have completed this programme which includes air pollution control, water management, industrial waste treatment, odour control, environmental management systems and Responsible Care.

Mutual assistance/experience sharing

• ICCA peer review process

Three years ago the ICCA's Responsible Care Leadership Group launched a Peer Review process at its annual meeting. By end 2002, 15 associations will have been through reviews of their Responsible Care initiative. Presentations to the Group by each association are followed by a rigorous question and answer period designed to pinpoint strengths and weaknesses and identify any areas where help is needed. The main aim of peer reviews, which are intended to involve external stakeholders whenever possible, is to help associations improve, share successes and challenges, strengthen the initiative globally, and enhance visibility and credibility – both internal and external.

• Strengthening Responsible Care in Asia

One of the Japan Responsible Care Council's strategic goals is to strengthen the initiative in Asia by encouraging Responsible Care implementation in Japanese-Asean joint venture companies and in the Asian subsidiaries of Japanese companies. At association level, the Council is working closely with the Federation of Thai Industries on environmental issues. In the spring of 2001 JRCC experts were sent to evaluate the status of Responsible Care in Thailand.

Evaluations and recommendations were offered after visits to and interviews with policy makers, company leaders and seven companies.

- **Global experience-sharing initiatives**

Eleven Spanish- and Portuguese-speaking associations from Europe and the Americas regularly share experiences and best practices, and have established a global database on Responsible Care. French association UIC has been an active participant in Responsible Care events organised by the Moroccan chemical association for its members. With French as a common language, UIC shared its experience of practical implementation of Responsible Care, HSE management systems, and implementing product stewardship.

- **UIC programme to help SMEs**

The French association, UIC, initiated an awareness programme for small and medium sized enterprises (SMEs) in 1999 to help them adopt Responsible Care with assistance from larger companies and retired industry experts. In 2000 and 2001, around 80 SME sites participated with very positive results as the approach provides straightforward solutions to actual HSE problems – in other words, it makes Responsible Care practical and practicable. Interregional meetings, including potential SME candidates, provide an opportunity to share lessons learned through the programme, which is ongoing.

- **Mentoring new applicants**

When a country applies to join Responsible Care, neighbouring countries are nominated as mentors to assist the new association in getting up to speed by offering advice, speakers, guidance literature and examples of local initiatives. In the case of Israeli Chemical, Pharmaceutical and Environmental Society – the most recent to sign up – European association Cefic gave advice and assistance on development of a programme of events for Israel to promote awareness among member companies, and address issues such as codes development and implementation.

- **Chile and Korea benefit from Canada's experience**

Canadian pioneers drafted the first Responsible Care Guiding Principles in 1980, laying the foundations for the chemical industry's global voluntary initiative. The Canadian Chemical Producers' Association continues to use its experience to encourage and help

other countries. Recent examples include giving a major teach-in on verification at the annual Chilean Responsible Care conference, and providing a comprehensive report for the Korean Responsible Care newsletter on how the initiative has shaped Canadian industry over the past 20 years.

- **Mutual aid agreement in Singapore**

In 2000, a number of companies based on Singapore's industrial Jurong Island signed a mutual aid agreement. The group, mainly chemical manufacturers, have agreed to pool resources in the event of an incident involving a hazardous materials spill or fire, for example. The group also meets regularly to discuss health, safety and environmental issues, and share information and experiences. The Sakra Mutual Aid agreement involves ten members and was successfully tested in a joint chemical emergency exercise in February 2002.

- **ExxonMobil shares environmental risk assessment system**

A risk assessment system developed by ExxonMobil employees provides a comprehensive analysis of environmental hazards by using the methodology of safety risk analysis and applying it to the prevention of environmental incidents. After running the system at the company's Fife ethylene plant in Scotland, effluent-related incidents dropped to zero. The company has shared details of the scheme with the UK's Institution of Chemical Engineers, the Scottish Environment Protection Agency, and others.

- **Akcros Chemicals experience-sharing at all levels**

Experience-sharing is encouraged at the Eccles, UK, site of Akcros Chemicals, and takes place at various levels: Through active participation in the local Responsible Care 'cell' group of chemical firms, through national Chemical Industry Association committees, national and international HSE bodies, and partnerships with the community. Akcros and its parent Akzo Nobel also share experience on safety through involvement in groups under the aegis of the European Process Safety Centre. Learning through incident investigation is given high profile and all 'near misses' (360 in 1999 and 657 in 2000) are recorded and investigated. Akcros's LTI accident rate has been bettered year on year from 1996 to 2001, when, for the first time, it managed a full year with no LTIs.

Chemicals management: Supply chain/Product stewardship

- **ICCA works on new 'safe use' initiative**

ICCA is in the early stages of developing and implementing a new initiative aiming to ensure the safe use of chemicals by providing a 'knowledge base' of hazard, use, exposure information, and risk characterisation on chemicals in commerce, and make public an appropriate summary of that information. Companies would screen information against agreed criteria for setting priorities, and then conduct additional activities, including further testing based on a tiered use- and exposure-driven approach. The initiative will be implemented at regional/national level with further development through 2002.

- **New Zealand first to implement GHS**

New Zealand's new hazardous substances management system, developed in conjunction with the NZCIC, is the first known example of implementing the Global Harmonisation System for the classification and labelling of chemicals, as identified under Agenda 21.

- **CIA's PSGO system**

The UK Chemical Industries Association has developed an interactive internet service called Product Stewardship Guidance Online (PSGO), with major input from BP Chemicals. The system has proved a useful practical tool for chemical firms, particularly middle sized companies, to implement product stewardship initiatives throughout their supply chain facilitating legal compliance and promoting best practice. It is a 'living document' that can be added to and developed. A number of countries have expressed an interest in the system, and Cefic is working on development of a pan-European version of PSGO.

- **Close cooperation with German distributors**

German chemicals and chemical distribution associations, VCI and VCH, celebrated a five-year Responsible Care partnership in 2001. Each year they review the status of Responsible Care implementation in their member companies and check for conformity of their programmes, and encourage continuous improvement in safety, health and environment protection, irrespective of legal requirements. Companies participating in the VCH initiative represent around 80% of German chemical trade turnover.

- **UK Product Stewardship Accord**

The Chemical Industries Association and the British Chemical Distributors & Traders Association signed an Accord on product stewardship in November 2001. Developed by BCDTA, the Accord offers guidance on the sharing of product responsibilities between suppliers and their distributors. It sets out the responsibilities of both parties in areas of mutual concern and Responsible Care, and is divided into sections covering all areas of operation, from authority to sell the product, through packaging, classification and labelling for supply and transport, handling, safety data sheets, product and packaging disposal and so on. The Accord will provide the model for their respective European counterparts – Cefic and the European Distributors Association, FECC – due for signing during 2002.

- **European distributors adopt Responsible Care**

During the last three years the 16 national associations belonging to the European chemical distributors association, FECC, have individually agreed to Responsible Care partnerships with their national chemical-manufacturing counterparts. The distributors associations are at different stages of implementing their Responsible Care programmes, which are voluntary for the majority, but there is a concerted drive within the FECC to make Responsible Care membership mandatory for all. FECC has also developed a common document for indices of performance that will provide an overview of the members' safety, health and environmental performance and will enable members to benchmark against the norm within each country.

- **Safety and Quality Assessment for service providers**

Responsible Care is extended to logistic services providers through a programme of 'packages' called Safety and Quality Assessment Systems (SQAS), each related to a particular transport mode or logistic operation. SQAS packages exist for the following transport modes and logistic operations: Road, Rail, Distributors, Cleaning Stations, Marine Bulk, Marine Packed Cargo and Marine Terminals. SQAS enables chemical companies to have the quality and safety management systems of their logistic service providers assessed in a uniform manner, thereby avoiding multiple assessments by individual chemical companies. The whole system is in the process of a major upgrade with improvements to the first pack-

age, SQAS Road, completed in early 2002. Other associations – in South Africa, Brazil and Asia Pacific – are also adopting SQAS to enhance their product stewardship efforts.

- **Working with Europe's electronics sector**

In partnership with four European associations covering the electronics sector, Cefic and a number of affiliate groups pooled efforts to assess the safety of chemicals used in electric and electronic equipment. Together, the associations have produced guidance documents covering relevant legislation, product properties and assessments. The actions have enabled Cefic to allay concern about certain products through a process of dialogue and cooperation under its product stewardship efforts, and effectively address the problem of product 'blacklisting'.

- **Canadian agreement with AET**

The Canadian Chemical Producers' Association and the Alliance for Environmental Technology (AET) reached agreement in December 2001 for AET to become 'A Responsible Care Supporting Association.' AET is an international association of chemical manufacturers whose mission is to communicate, foster, and promote the environmental, economic, scientific, and technical benefits resulting from the responsible production and use of sodium chlorate and chlorine dioxide in bleached pulp manufacturing. The agreement furthers CCPA's initiative to extend Responsible Care to other industries and their associations, while simultaneously enhancing AET's ability to fulfill its new and expanded mission.

- **Improving Safety Data Sheets with Asian authorities**

In Asia, chemical industry associations have worked with governments on the use of material safety data sheets, MSDS, to supply information to the users of



chemicals. In China, Hong Kong-based chemical association AICM, has cooperated with the regulatory authorities to develop the regulation of, and supported translation of, the common elements of an MSDS to ensure commonality of language.

- **Responsible Care makes progress in the Philippines**

Philippine chemicals association SPIK has secured a commitment to Responsible Care implementation from over half its member companies, including eight chemical traders. A government agency, the Environmental Management Bureau, has invited SPIK to talk about Responsible Care at a number of seminars involving key regional personnel and industry representatives. SPIK has also secured funding from the Japan Economic and Trade Organisation (Jetro) for its Responsible Care initiative that will help it carry out various activities planned for 2002.

- **PRTR programme in Japan**

The Japan Chemical Industry Association prepared and published a manual for the management of chemicals emissions and results reporting in 2000 to help ensure national objectives under the PRTR (Pollutant Release and Transfer Register) are met. Intended for use mainly by SMEs, the manual embodies product stewardship principles that the chemical industry abides by. During the same year, JCIA held 25 seminars reaching 5000 people, not only JCIA member companies but also non-members from the chemical sector, and companies belonging to other industries. A further 2000 people were expected to take part in the 2001 series of PRTR seminars.

- **Malaysia institute benefits from JCIA expertise**

Leading Malaysian research institute, SIRIM (the Standards and Industrial Research Institute of Malaysia) has been visited annually for the past three years by a risk management expert sent by the Japan Chemical Industry Association under a 4-year programme called Risk Management of Hazardous Chemical Substances. Seminars are held on the methods and processes of risk assessment of chemical substances and problems discussed in conducting risk assessment for risk-based decision-making. The programme is carried out under the auspices of the Japan International Co-operation Agency.

- **Audit protocol for drum-reconditioning firms in South Africa**

In South Africa, large empty containers are in high demand, particularly for water storage. The Chemical and Allied Industries Association (CAIA) is preparing an audit protocol that will be used to certify all firms who recondition drums for the chemical industry. CAIA is including the requirement that Responsible Care signatories only use the services of drum reconditioners that have been successfully evaluated against this protocol. CAIA's main objective is to improve the quality of drum reconditioning services and to prevent contaminated drums reaching the public. Drum reconditioners have been invited to become Responsible Care signatories and members of CAIA.

- **Akzo Nobel Product Stewardship management system**

By the end of 2003, all Akzo Nobel business units are required to have developed a product stewardship management system under a corporate-wide Board directive. Developments include the assessing of quality, health, safety and environmental management of raw material suppliers. The catalysts business, for example, is finalizing development of a monitoring system for this purpose. It has developed joint ventures with customers to ensure proper recycling of waste products to close the lifecycle by effectively leasing out rather than selling products. Work at the research and development stage is also important, and Akzo Nobel has developed an 'early warning' document to be used as part of the project.

- **DuPont Colombia's partnership with TMG**

In 1998, DuPont Colombia contracted Transportes Multigranel (TMG) as its integral logistics supplier, after first carrying out an audit on TMG to ensure it complied with hazardous materials management, and with national transportation standards and regulations. The companies work together on a continuous basis with DuPont periodically training TMG personnel and conducting risk assessments. Regular safety audits are made of TMG's warehouses. Should there be an incident involving DuPont products, the transport firm has a continuous on-line connection also used to indicate distribution status on consignments. DuPont's interaction and permanent communication with TMG on safety issues was a direct result of the transport company's decision to adopt Responsible Care in October 2000.

- **Atofina – Product Stewardship at development stage**

Atofina's product stewardship efforts have produced an effective risk assessment approach for development of new solvents based on four categories: hazard toxicity, ecotoxicity, flammability, and environmental burden. First, it extensively screens the characteristics of HSE hazards using different criteria and then applies a scoring system to each criteria, each one having a different relative value weighted by a coefficient. Comparative results between substances can be obtained. Atofina's approach has already obtained positive results, including creation of a range of solvent-based formulations for paint stripping.

- **CropLife's safe disposal of pesticides and recycling**

Companies represented by CropLife International have collaborated with donor agencies from Denmark, Germany, The Netherlands, Switzerland and the US to achieve safe disposal of government-owned obsolete crop protection products from a number of developing countries. Up to June 2001, CropLife International companies contributed to the disposal of over 3,000 tonnes of obsolete pesticides in over ten countries, including 800 tonnes classified as Persistent Organic Pollutants (POPs). CropLife International member companies no longer produce POPs. In 2000 alone, 1200 tonnes of obsolete pesticides were incinerated in Brazil in a joint government and industry project. Approximately 180 tonnes were also successfully retrieved from Gambia, Madagascar, Pakistan and Uganda. CropLife International stewardship programmes, such as empty crop protection products container management, also illustrate the industry's commitment to promoting environmentally responsible product management. The Latin American Crop Protection Association (LACPA), for example, has organised recycling programmes in Argentina, Brazil, Colombia, Dominican Republic, El Salvador, Guatemala, and Mexico. Programmes first focus on educating farmers so they understand the benefits and procedures involved.

- **Shell Chemicals sets 100% as the target**

A vital element of product stewardship is the generation of data on the hazards and risks that products might pose. Safety data sheets are the principal means of communicating this information. In 2000, 100% of Shell Chemicals marketing operations sup-

plied a safety data sheet with all products sold, 89% supplied the safety data sheets in the principal local language. Shell has set itself a target of 100%. Computer-based systems for the automatic generation of safety data sheets in more than 24 languages have been developed and are being extended to include many more languages.

- **Fujifilm: effective ways with waste**

Fujifilm has developed effective ways of reusing and recycling waste materials. By end 2001, the company had achieved 100% conversion of waste from both raw materials used in production processes and all other waste materials at six sites in Japan. Specific measures being implemented include separation and recovery of waste materials, including chemical products; selection of an appropriate recycling company for each type of waste material; and selecting the optimal method at each point in time for the recycling of sludge, waste solvents, waste plastics, waste oils, waste paper etc.

- **Selling services, not just products at DuPont**

Some leading chemical companies are beginning to sell services rather than kilograms of chemicals so providing greater scope for creativity in finding the most efficient way of fulfilling customers' needs. DuPont, for example, has an arrangement with automaker Ford of Canada to paint the cars itself. DuPont gets paid for the number of cars painted rather than for gallons of paint – an effective incentive to use less paint. Its expertise in paint chemistry enables it to do more with less, saving money for Ford and improving efficiencies for DuPont.

- **Lubrizol – encouraging product stewardship by suppliers**

Programmes devised by Lubrizol's purchasing department are designed to ensure that the company's suppliers are good stewards of the products they sell to Lubrizol. Lubrizol holds an annual Product Stewardship Day to review progress and check the effectiveness of these programmes. One action for 2001 was to invite 10 suppliers not covered by Responsible Care or an equivalent programme to join the American Chemistry Council's Responsible Care Partners scheme. Lubrizol has also developed a rating system for supplier MSDS quality.

- **Safer transportation with Sasol initiative**

At South Africa's Sasol, safe transportation of the company's products is being addressed through management guidelines known as Transcare. Transcare guidelines help ensure that the transportation of chemicals and hazardous materials also considers contracts with service providers and takes into account the concerns of communities through which the products are transported.

- **Shell Chemicals' Customer Relationship Review**

Shell Chemicals shares its substantial knowledge of proper handling with customers through a product stewardship programme that includes responding to safety inquiries and carrying out safety reviews with customers. One product, ethylene oxide (EO), can present a significant risk if not handled properly. The Shell EO/Glycols business tracks how customers rate its product stewardship activity in the Americas by including questions on this aspect of its business in its Customer Relationship Review (CRR) process. The EO/Glycols business recently extended CRR to the Europe/Africa region and has already identified areas to enhance PS support. The CRR process is being extended to the Asia/Pacific region during 2002.

- **Eaglebrook drivers monitor customers**

US carrier firm Eaglebrook Inc has enlisted the aid of its 100 chemical delivery truck drivers to see how customers maintain their storage and transfer sites. Drivers are trained to look at the installations to which they deliver and to spot customer equipment that is deteriorating or incompatible with Eaglebrook's chemicals. Drivers have full authority to report unsafe situations that could lead to a refusal of delivery, if the hazard is felt to be serious enough.

- **FMC's tollers selection process**

FMC uses an on-site toll manufacturer assessment process. After a search identifies potential tollers, various safety reviews are conducted to narrow down the list. The first review is the use of the corporate toller standard checklist, developed on the guiding principles of Responsible Care. When possible, local tollers are selected to enable control and frequent auditing to protect the local community. Safety reviews also include a safety risk assessment following a 'what-if' protocol. The corporate safety team, plant personnel

and the tollers are involved in the assessment. An environmental assessment involves an on-site visit to the tolling facility by corporate and local environmental FMC personnel. They conduct an audit with the tollers and the impact on the local community is assessed. Waste issues are addressed to ensure cradle-to-grave FMC responsibility. Under management of change, the formal process change consists of notification, which involves the operators, maintenance, and engineers. The final stage is the pre-start-up safety review conducted at the tolling facility involving FMC operators interfacing directly with the tollers' operators.

Ethical investment

- **Leaders of the Dow Jones Sustainability Index**

In 1999, leading global financial index provider Dow Jones, in partnership with Swiss firm SAM Sustainable Asset Management, launched the world's first sustainable financial benchmark: the Dow Jones Sustainability Index (DJSI). This index measures the financial performance of companies belonging to the top 10% of companies in terms of corporate sustainability within their sector. As of beginning 2002, Dow Chemical and BASF were considered corporate sustainability leaders in the chemical sector.

What distinguished Dow Chemical as a leader were its eight Sustainable Development Principles that are an integral part of its strategy towards maximizing long-term shareholder value and include: product stewardship, stakeholder partnerships and dialogues, eco-efficiency, eco-system integrity, global "versus" Dow EHS standards, equity and quality of life, employee and public outreach, and transparency.

SAM analysts' research showed BASF has clearly acknowledged sustainable development as a key element of its corporate growth and innovation strategy. The company's corporate governance was extended through the establishment of a sustainability board committee in 2001. BASF further demonstrated its commitment to corporate sustainability by signing the UN Global Compact initiative. One of the company's core competencies is its highly-developed approach towards industrial ecology known as 'Verbund' which focuses on improving eco-efficient production processes.

Degussa's commitment to sustainable development

was recognised with its inclusion in the DJSI 2000. Degussa obtained the highest score of all 236 firms on the index for safety and environmental management. Analysts awarded particularly high marks for the company's responsible attitude to substances like cyanide, particularly its careful and critical approach to screening customers, and the training on cyanide handling provided for customers.

Outreach / Stakeholder dialogue

- **Responsible Care philosophy reduces tension in Thailand**

Samutprakarn Province on the outskirts of Bangkok is home to the highest density of chemical manufacturers in Thailand with over 6,000 factories, mostly SMEs. Acute pollution and transport problems had resulted in a confrontational situation with the local community and the media. The Thailand Environment Institute (TEI), a local NGO, backed by funds from the European Commission, brought together stakeholders – government, media, industry, the community and others – to solve the problems. The Samutprakarn Environment Society (SES) has been established to monitor targets set for both industry and the community. A community advisory panel has also been set up. SES has used the Responsible Care philosophy for guidance and it has already proved an important tool for many manufacturers to achieve their goals.

- **Industry strengthens links with schools in Finland**

Educational outreach efforts in Finland have been particularly successful under the association's Responsible Care initiative. A member of the national chemicals association, KT RY, is committed on a full-time basis to liaise and work with the school authorities. Close links have been established with educators, to the extent that schoolbooks on chemistry feature not only industry achievements, but also the Responsible Care logo which helps improve awareness of the initiative with schoolchildren.

- **Italy's Open Door event**

Around 600 chemical sites have participated in Federchimica's Open Door programme over the past 15 years. The association says the Open Door programme has improved the chemical industry's image by underlining its contribution to the improvement of

safety at work, environmental and health protection, and the quality of life in general. Open Doors 2000 involved 85 sites in 15 of the 20 regions in Italy with information going out to 300,000 people. Federchimica supports the Open Door initiative with operative guidelines including layouts for invitations and posters. Assistance and support for working with the media is provided as well as documentation for distribution during the event such as the national Responsible Care Report.

- **SCIC plans communication forum for Singapore residents**

There is concern by some residents and Singaporean environmentalists groups about the rapid growth of the Singapore chemicals industry over the past few years. It is now the world's third largest refining centre and second largest ethylene producing centre, and growth is set to continue. In response, the Singapore Chemicals Industry Club is considering ways of enhancing communications between the industry and local residents, and has held discussions with the Singapore Minister for Environment. SCIC plans to roll-out a communications programme by the end of 2002 scheduling regular meetings with residents groups, and to open dialogue with environmentalists.

- **Korean outreach efforts**

Since South Korea signed up to Responsible Care in 2000, it has worked hard to increase awareness of the initiative both within industry and with external stakeholders including government, academia and society in general. The Korean Responsible Care Council is publishing a regular newsletter, and has set up a website as part of plans to develop a variety of outreach projects.

- **Educating Canada's future workforce**

Chemical engineering students at universities across Canada are learning about Responsible Care through a lecture that provides an important introduction to entering the industrial workforce in Canada. Its purpose is to provide undergraduates in chemical engineering programmes with an understanding and awareness of the chemical industry's commitment to the initiative. Giving students the opportunity to learn about Responsible Care at an early stage will give them a much better understanding and appreciation of their future responsibility as engineers.

- **BASF to introduce Community Advisory Panels in Asia**

BASF plans to set up community advisory panels (CAPs) at all its major sites in Asia, starting with Yeosu in Korea. The Yeosu CAP will be industry's first such panel in Korea and is in response to local concerns about the rapid expansion of the site. CAP members will include opinion leaders representing local NGOs, academia, the commercial and industrial community, government authorities, and experts in environment, safety and health.

- **Dow's Community Perception Surveys**

Dow has set itself an objective of at least 80% of residents and leaders to agree that the company is a good neighbour and a valuable member of the community in each location where it has a significant presence. Since 1998, Dow locations around the world have incorporated globally comparable questions into their Community Perception Surveys. Each location is responsible for developing and implementing effective action plans based on the survey results. The surveys cover the spectrum of triple bottom line topics ranging from community economic impact, to public health and safety, to contributions spending and hiring practices. The surveys are not only valuable measurement instruments, but also effective stimulants for improvement.

- **Bayer's objectives**

Bayer has established objectives for continuous improvement in all areas of Responsible Care for the coming years. Goals have been set for the Bayer Group worldwide and include evaluation of all relevant Bayer production sites by 2004 by qualified outside auditors. Bayer AG is committed to a 53% cut in emissions by 2010 compared with the base year 1990 and additional efforts are in place to identify further potential for reductions throughout the Group. Under its safety management program, Bayer aims to achieve a further reduction in recordable incidents by 2004, and to reduce work-related injuries and illnesses by 50% by 2004.

- **Incitec Charter for the Community**

Incitec Ltd's Kooragang Island plant and the community group Citizens Against Kooragang Island Abuse (CAKA) won Australia's Plastics and Chemicals Industries Association 2001 Responsible Care

Environment Award for their co-operation on environmental and community issues. It took Incitec nearly three years to develop a charter to formalise an alliance between the industrial plant and the local community. The charter states the company's commitment to the community, community expectations of the company, and the community obligations under the charter. CAKA which represents a community of around 7,000 people, says the community felt safer knowing its voice would be heard and its opinions respected.

- **Safe water for Mensura, Eritrea**

Employees of Norsk Hydro along with trade unions, the environmental organisation Bellona and the Norwegian church have built a waterworks in Mensura, Eritrea. Employees donated 2,000 hours of pay to the project. The waterworks provides safe water to the 4,000 inhabitants of Mensura's two villages and a refugee camp built with aid from the Norwegian church. The project started as a wish to help people in rural Eritrea, but also to demonstrate that polyvinyl products can be useful to society by improving living conditions. About 5,000 metres of polyvinyl pipes supply pure water to various water posts in the villages. The local school and hospital have also received their own water supply.

- **Nexen initiative in Yemen**

Canadian oil and chemicals firm Nexen, through its status as a partner of the Canadian Chemical Producers Association, has 'exported' Responsible Care to Yemen, location for the company's single largest production operation. Nexen has been producing oil from the 'Masila Block' since late 1993 and ensured from the outset that operational policies and practices used in Canada were also employed in Yemen, where the regulatory regime there is still relatively undeveloped. The company has also overcome cultural differences with regard to workplace safety and in recent years, the Yemen operations have achieved the best safety record in the company. Nexen works closely with the government and neighbouring communities to keep them informed of its activities and to assist on issues such as access to clean water, health care and educational support.

- **Part of the community**

The Humber Chemicals Focus (HCF) in the north of England acts as a liaison for a group of nine chemical

companies with two local villages. Community representatives have access to senior management, and meet regularly to discuss a range of issues. Companies operating through HCF have come to value what access to the community can do for them, and now seek to answer concerns before they've even been raised.

- **First CAP launched in Turkey**

Leading acrylic fibre producer AKSA has established the first community advisory panel in Turkey. Launched in October 2001 the CAP includes 23 representatives from regional NGOs and the authorities. The panel is making recommendations on AKSA projects related to environmental, public health, emergency response preparation and risk management issues. AKSA says it established the panel to 'gain access to the concerns of the community, to exchange ideas and contribute sustainably to regional development.' AKSA's achievement was recognized at the national association's Responsible Care awards.

Health, safety and environment

- **Government signs new Memorandum of Understanding with CCPA**

In February 2002, the governments of Canada, Alberta and Ontario signed a new Memorandum of Understanding (MOU) with the Canadian Chemical Producers' Association. The objective is to prevent and reduce the release of toxic and other chemical substances through voluntary, non-regulatory action. The MOU was developed in cooperation with industry, the Government of Canada, the provinces of Alberta and Ontario who account for over 80% of chemical production in Canada, and environmental NGOs. The agreement, which runs to end 2005, commits the chemical sector to reduce its smog-causing emissions of volatile organic compounds by 63% in Ontario by the



end of 2002. The first MOU between the Government of Canada and CCPA was signed in 1994 and led to significant progress in reducing emissions of toxic substances. Between 1994 and 1998, for example, benzene and butadiene emissions were reduced by more than 50%.

- **Federchimica coordinates environmental plan for Ravenna**

In Ravenna, Italy, a unique agreement was signed in 2000 between various local authorities, the local industry association and 16 businesses, most of them chemical companies. The ultimate purpose of this joint initiative is to achieve EMAS registration for the entire area, following completion of individual companies' certification under ISO 14000. The main objectives of the local authorities are to obtain an overall environmental analysis of the Ravenna chemicals site, improve the environmental quality of the area, and to develop an environmental policy. Italy's national chemicals association Federchimica is acting as a consultant and project coordinator.

- **VNCI exceeds targets of environmental covenant with Government**

The latest Responsible Care report from the Dutch chemicals association VNCI showed that industry has honoured its decade-old environmental covenant with the authorities. Indeed, many of the provisional targets for the period 2000-2010 have also been achieved. The report shows targets for atmospheric discharges were achieved for 25 of the 29 substances listed in the covenant; emissions reductions on 17 of those substances complied with the 2010 targets. Industry made all its targets for 34 named substances emitted to water, with 31 hitting the 2010 target. The NOx reduction targeted for 2000 was reached in 1999. Energy efficiencies over the decade amounted to a 25% improvement, better than the 20% targeted. VNCI has decided to expand the covenant's agenda to include a large number of initiatives in the field of sustainable enterprise.

- **Working with the Government in Chile**

The national chemical association in Chile, ASIQUM, has made good progress in its relations with government agencies thanks to Responsible Care and is directly involved in working groups setting new reg-

ulations. The chemical sector is the first to have been selected to work with government on two voluntary agreements with the theme of cleaner production. It is also working with the authorities to prevent chemical products being diverted for use in the manufacture of illegal drugs, and has voluntarily eliminated harmful ingredients in glue and paint formulations to reduce substance abuse.

- **Contractor safety scheme for Europe**

SHE Checklist Contractors (SCC) is a procedure developed in the Netherlands for the certification of a safety, health and environmental management system for contractors. Contractor safety is a major issue for the chemical industry worldwide. In Europe, for example, statistics show that over 80% of accidents in the chemicals sector involve contractors' employees. SCC is currently in use in the Netherlands, Belgium and Germany and is being considered for use in Switzerland and Austria. Discussions are underway for Cefic to provide a 'European platform' so the checklist becomes standard use throughout Europe.

- **Energy efficiencies**

Nearly 293 JCIA member companies reduced their average unit energy consumption by 7% against the 1990 level, a notable achievement as Japan is highly dependent on imported energy sources, and efficiencies before 1990 were already good. JCIA's goal is to achieve a further 3% reduction by 2010. In Europe, Cefic has committed to reduce specific energy consumption by 30% by 2010 in its Voluntary Energy Efficiency Programme (VEEP). In the USA, ACC members achieved an average annual improvement in energy efficiency of 2.4% from 1992 to 1998, for a total improvement of 13.5%.

- **Raising the bar**

Olin Corp has embraced "The Goal is Zero", an ambitious extension of the Responsible Care process under which the company is striving to achieve zero incidents in four key areas: workplace health and safety incidents; transportation incidents; accidental spills and emissions; and discharges above permitted levels. "The Goal is Zero" highlights the company's commitment to excellence by proclaiming that no amount of workplace safety incidents or environmental incidents is acceptable – a vision requiring daily

vigilance and a commitment to the improvement process embodied in Responsible Care.

- **Safety first at Cytec and Milliken**

Cytec Industries Inc operates a programme called SAFE – safe attitudes from empowerment – under which top management has a personal commitment to health and safety. The company's CEO together with SAFE chairpersons from all locations worldwide review progress towards safety goals, identify opportunities for improvement, and set future targets. Cytec won the ACC's 2000 Responsible Care Employee Health and Safety Code Sustained Excellence Award for SAFE, including its 'exceptional' contractor safety programme. Milliken Chemicals also won an ACC award – the first time a firm from the 'small company' category has been honoured under the scheme. All Milliken employees – from clerical staff, to operators, managers and contractors – are required to participate in annual safety audits.

- **South Africa pilots hazard communication system**

One of the mechanisms used to prevent occupational illness and injury is the use of hazard communication. Successful hazard communication is particularly challenging in countries with a relatively low literacy rate and where traditional hand signals may be confused with some of the hazard signs. Chemical companies in South Africa have participated in pilot testing of a new global hazard communication system in order to identify the ease with which employees recognise the hazard illustrated by a specific pictogram.

- **DuPont slashes CO₂ emissions**

DuPont Fluoroproducts in Dordrecht, the Netherlands, converted a fluorine-containing waste stream, primarily HFC-23, into a new raw material through construction of a special incinerator known as the Thermal Converter. Besides the recovery of a useful raw material, the biggest advantage of the new installation is that the CO₂ equivalent emissions of DuPont in Dordrecht were reduced by no less than 6 megatons as HFC-23 has a very high global warming potential. So DuPont has, on its own, accounted for almost 10% of the total reduction the Netherlands is required to achieve under the Kyoto protocol.

- **Henkel corporate accident database**

Henkel's target is to reduce the number of occupa-

tional accidents in the Group by 25% by 2005 against the base year 2000. Systematic collection and analysis of all accident data plays a crucial role. A corporate accident database was set up in 2001, in which all Henkel companies enter precisely defined information about occupational accidents, operational incidents, and distribution incidents. The data is systematically analyzed to form the basis for targeted improvement and training measures.

- **Improving safety at Dow Corning**

A number of the Responsible Care codes of management practice including employee health and safety, process safety and emergency response helped Dow Corning make its Barry, UK site an even safer place to work. A 'B Safe' behaviour-based safety programme has been initiated for hazard identification, a new electronic 'permit to work' system has been evaluated, and an intranet-based safety management system adopted. Several older processes have been upgraded; and fire protection standards and communications improved. Careful selection and management of suppliers and contractors is enhancing site safety and helping meet product stewardship obligations. Performance benchmarking of product stewardship has helped identify opportunities for improvement.

- **Olin Corp's environmental action in Venezuela**

Olin Corporation has taken leadership in improving the environment in Venezuela's Lake Maracaibo district. A \$1.1 million investment in a joint wastewater treatment system for two plants the company operates on the lake makes them the first in the region to achieve world-class effluent standards. The project is cited as a model for restoration of the lake's environment. Olin has shared its knowledge with the World Bank's International Finance Corporation to help develop the first manufacturing process safety and environmental control criteria for World Bank-funded industrial plants in developing countries.

Implementation Assurance

- **Verification of Responsible Care**

A common stakeholder criticism has been that Responsible Care lacks credibility because there is no independent verification of the initiative. Industry's response has been to develop management systems

for Responsible Care that can be externally verified. The UK, for example, recently introduced such a process while Austria has had third party verification of Responsible Care in place for a number of years. Changes to Responsible Care in the USA include introduction of mandatory verification from 2003. Japan launched a new verification process in 2002, which can be monitored - though not performed - by external stakeholders. Brazil, Chile, Ecuador and South Africa are also developing verification schemes.

- **Third party inspection of distribution companies in Germany**

The German chemical distributors' association, VCH, carries out third party inspections of all members' Responsible Care programmes. First, a company completes a self-assessment questionnaire, the results of which form the basis of actions and goals for the next three-year plan drawn up by the Responsible Care coordinator. The plan is submitted to the third-party expert, together with the annual coordinator's report, for an evaluation of Responsible Care implementation. As well as the evaluation, assistance and advice for future activities is also provided under the system, which aims to verify continuous improvement in all areas of Responsible Care. Audits take place every three years.

Performance Reporting

- **CEFIC pilots occupational illness reporting**

European association Cefic is extending regional reporting activities with the piloting of an occupational illness frequency measurement based on the experiences of multinational chemical companies. The results have been reported at European level for the first time in 2002. The reporting scheme has been researched since early 1999 when Cefic found broad support for the proposal, although amendments were needed to reflect national differences. In February 2001, Cefic issued guidelines to enable companies and federations to provide data in accordance with national schemes or regulations in a harmonized way.

- **PIL website for performance data**

Norwegian industry association PIL has put site-



specific data covering the core parameters of Responsible Care on a single web site, making it easier for companies to carry out benchmarking, and providing a useful tool to track sector averages and trends. The site provides national averages and a range of HSE statistics for PIL's numerous different industry sectors including chemicals. The website also gives the HSE averages for Responsible Care companies. All companies that contribute data have access to a password-protected area containing the site-specific data submitted by other firms in the same sector. Companies are identified by name so it is clear who are the best and the worst performers. Companies that have not submitted the data required under their Responsible Care commitment are highlighted in blue. Plans to make the data available to the general public are under consideration.

- **VNCI's environmental burden approach**

Development of the Environmental Burden (EB) approach, which was pioneered by ICI, began in VNCI in 1999 with the help of a grant from the Dutch environment ministry. The methodology was introduced in 2000. The system offers industry an accurate way to assess the impact of emissions so it can properly target resources to reduce those that are potentially the most harmful. Government, too, is able to use the EB approach to assess whether it is sensible to regulate on certain emissions or not. Using the EB approach to measure, manage and reduce the environmental impact of the chemical industry's activities in the Netherlands has proved so successful that the Dutch chemicals association VNCI translated its guidance into English to enable it to be applied on a global basis.

Performance Reporting

Since openness is a vital part of Responsible Care, the communication of performance improvement to customers, suppliers, local communities, regulators, employees, shareholders and the general public is a prime requirement.

In order to monitor, benchmark and communicate the achievements of the chemical industry at local, national, regional and global level, the industry needs a comprehensive assessment of its HSE performance, based upon common definitions. Agreement on a core set of quantitative Indicators of Performance is the first step in achieving this objective. In Europe, such a sector-specific system of Indicators was developed by CEFIC in 1998.

At global level, the ICCA Responsible Care Leadership Group agreed, at its 2001 annual meeting in Mexico City, to present in this status report the first ICCA performance indicators, country by country. It was also agreed to gradually add further parameters in future years.

As the first industry to embark on global performance reporting, the data presented in this chapter is still somewhat fragmented. It has been compiled by ICCA, but has not been through any formal review process at ICCA level. We need, for example, to improve on achieving common definitions.

The Indicators chosen for this report, covering the years 1999 and 2000, were:

Safety:

- Number of fatalities
- Lost Time Injury Rate (number of lost time accidents per million working hours).

Environment:

- Emissions to air: Sulphur dioxide (SO₂). Expressed as tonnes of SO₂.
- Discharges to water: Chemical Oxygen Demand (COD). Expressed as tonnes of Oxygen.

Reference parameter:

- Number of employees in the Responsible Care companies reporting.

First and foremost, we have not been able to collect a complete set of data, but we have made a useful start. The detailed results, with the exception of fatalities, are given in the table in Appendix 5: they cover a total number of employees of around 2.1 million. For various rea-

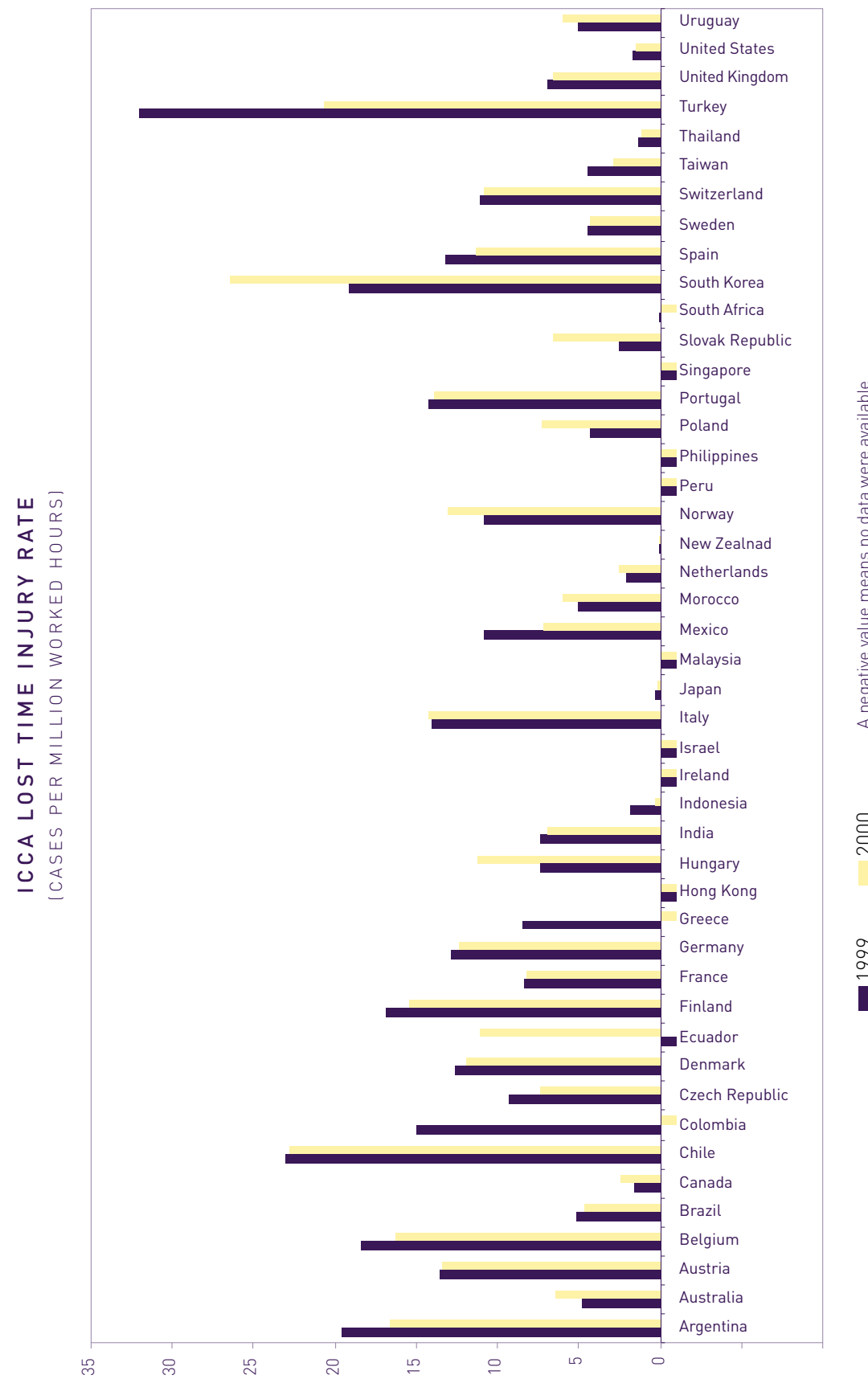
sons there are some countries that were not able to report the indicators in the units requested, and for several national associations this is the first time they have undertaken data collection on this scale. We will continue to encourage all associations to report for the upcoming years and to improve the quality of their reporting - a process which, amongst other things, will promote sharing of best practice in the spirit of Responsible Care.

Fatalities Unfortunately in 1999, 43 fatal accidents were reported in the 35 countries that submitted data to the ICCA. Sadly the figure for 2000 was worse: there were 59 fatal accidents with the same number of countries reporting. Whilst these are better than the statistics for 1998, when there were 70 fatal accidents (28 countries reporting), they are clearly not acceptable. The ICCA objective has to be zero fatalities.

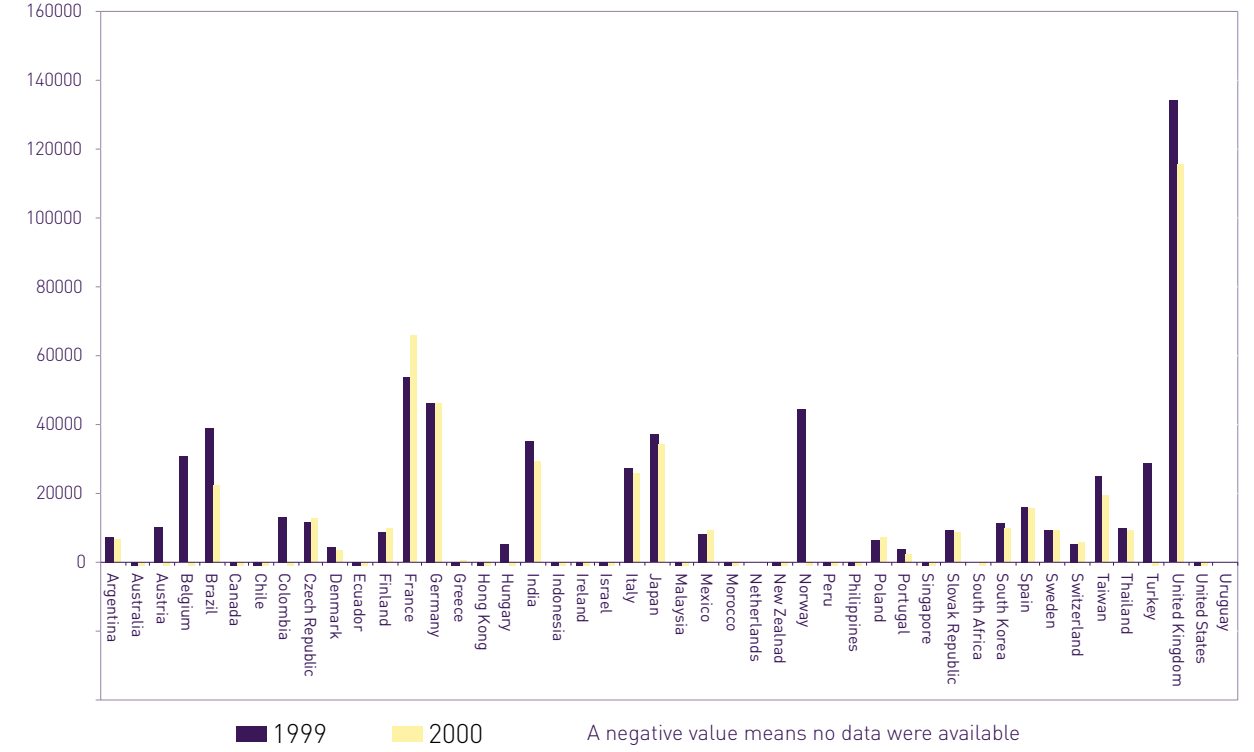
Lost Time Injury Rate (LTIR) Whilst this safety indicator is nominally the most well-known of all HSE indicators, the differences in culture and legislation in the different countries do not allow a full comparison between the figures: different countries do use different criteria. From the LTIR chart where 35 countries reported data for 1999 and 2000, there is clearly a very wide range of safety performance, with considerable scope for improvement. The ICCA must learn from best-in-class federations and best-in-class companies.

Environment Although it is not possible to compare the emissions to air or the discharges to water between countries since it depends on the type of chemical installation, the total production and many other factors, it is possible to compare the trend in each country. We can see that in almost all countries the emissions are decreasing.

Companies and federations are encouraged to collect data and publish their own reports taking into account the defined and agreed core parameters, adding other parameters to reflect national or local concerns. Many national federations' annual Responsible Care reports detail health, safety and environmental performance. More information can be found in Appendix 4 of this report.

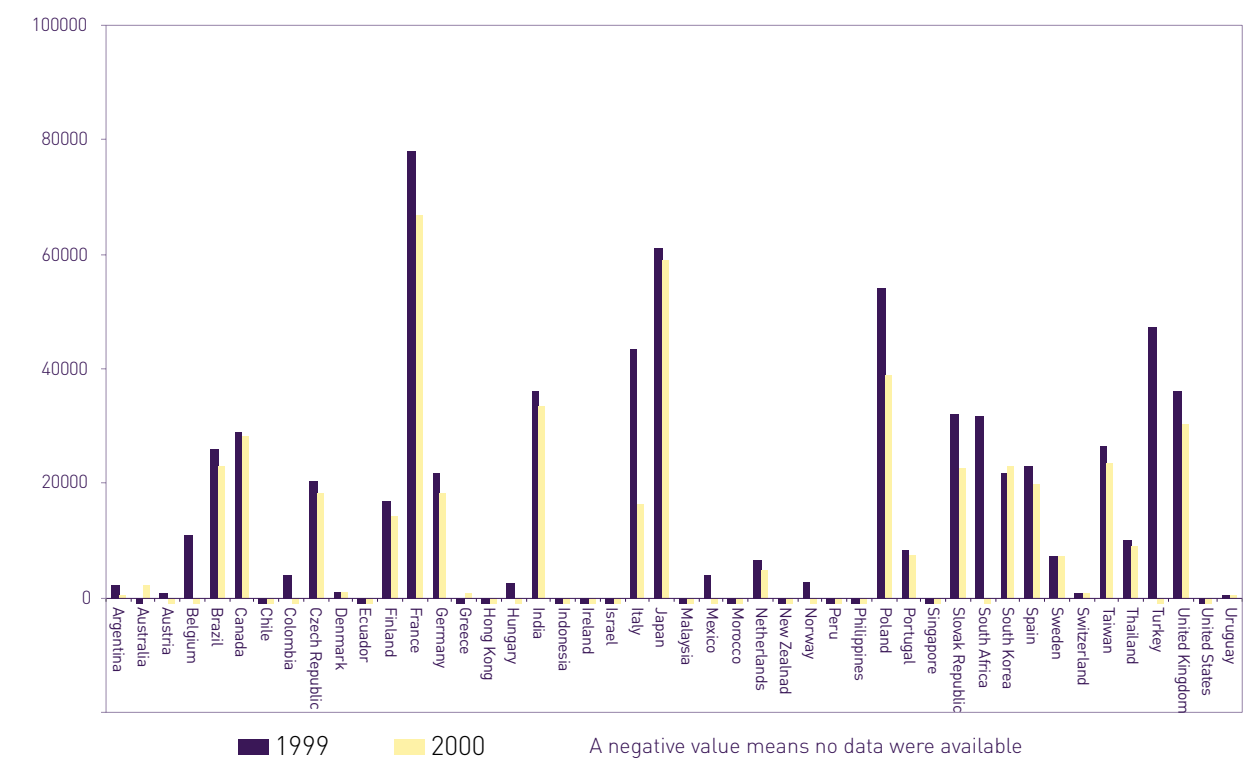


CHEMICAL OXYGEN DEMAND (TONNES OF O₂)



A negative value means no data were available

SO₂ RELEASES (TONNES)



A negative value means no data were available

Voluntary Action on Products

In recent years, the global chemical industry has responded positively to increasing public concern about the perceived adverse effects of chemicals on human health and the environment. Rising public expectations about safer workplaces, reduced emissions, waste reduction, and avoiding adverse environmental effects mean stakeholders want to know more about the possible risks associated with chemical products and be assured they are being transported, used and disposed of safely.

Three voluntary ICCA programs, arising from both the obligations and spirit of Responsible Care, demonstrate the global chemical industry's commitment to addressing these public concerns: Product Stewardship, the Long-range Research Initiative, and the High Production Volume Chemicals initiative.

High Production Volume (HPV) Chemicals

The ICCA launched its High Production Volume (HPV) Chemicals initiative in 1998. Under that initiative, industry has set a goal of providing for OECD assessment harmonized hazard data sets and a draft initial hazard assessment for approximately 1,000 global HPV chemicals by 2004. An initial "working list" of candidate chemicals for possible inclusion in the initiative was selected because of high production volume of a chemical in at least two OECD member countries, or otherwise of interest in two regions (EU, North America, Japan). Priority will be on substances of high concern (e.g., for chemicals with wide dispersive uses or the potential for extensive human exposure.)

The OECD's Screening Information Data Sets (SIDS) program includes information on physical/chemical characteristics, environmental fate and pathway, ecotoxicity and human toxicity endpoints. By providing data on each of these endpoints, the ICCA initiative will enable the completion of an initial hazard assessment on sponsored chemicals. The initiative also will make OECD-like hazard assessments available on a significant portion of global HPV chemicals much sooner than would otherwise have been possible.

HPV chemical producers in the United States, Europe

and Japan have joined forces to "sponsor" chemicals of interest to them. Sponsorship involves the systematic collection of all valid, relevant existing data, generating new data where necessary, and drafting the initial assessment reports. In this way, sponsors avoid unnecessary animal testing as well as duplication of national efforts.

The ICCA has established a web-based tracking system to identify both the companies involved in the program, the chemicals they have agreed to sponsor, and the progress against those commitments. Soon, industry hopes to link directly to the data made available from work completed under the program.

Industry also has volunteered to provide information on HPV chemicals in other venues. Early lessons from those programs include: (1) more data exist on HPV chemicals than previously estimated; and (2) a relatively small amount of new testing is needed in order to complete the SIDS data set. For example, in the US HPV Challenge Program companies have volunteered to provide SIDS-level hazard data and test plans for roughly 1,400 HPV chemicals in addition to their ICCA commitments. In that program, SIDS data already are available, summarized and posted on the US EPA web site for more than 800 HPV chemicals. And while there are several possible animal tests per chemical, only 161 new tests have been proposed as necessary to complete the data sets.

And in the ICCA initiative, to date nearly 800 global HPV chemicals have been identified by companies and are being "sponsored" for assessment. By the end of this year, nearly 130 of those chemicals will have completed their initial assessments, and another 100 or so are in "advanced discussions" with sponsor countries. Industry is working hard to complete the data packages and draft the initial assessments by 2004, although the pace at which the ICCA chemicals are assessed by governments is not within industry's control. Nevertheless, the ICCA initiative is already a highly successful program, and it is providing information necessary for improving chemical assessments, decision-making and risk management.

The Long-range Research Initiative

Through the Long-range Research Initiative (LRI), initiated in 1999, the chemical industry sponsors research that will be publicly available and increase scientific knowledge of the potential impacts that chemicals may have on human health, wildlife populations, and the environment. Such knowledge will provide valuable assistance to governments in making risk assessment judgments about the potential impacts of chemicals, and more certainty regarding those impacts for the public and manufacturers of those chemicals.

The ICCA provides global coordination of the LRI. Together, the LRI sponsors – the American Chemistry Council, European Chemical Industry Council, and the Japan Chemical Industry Association – provide approximately US\$34 million.

LRI Goals The goals of the chemical industry's international LRI are to:

- Extend knowledge worldwide on the health, safety and environmental effects of the chemical industry's products and processes;
- Support informed decision-making by providing the scientific data and understanding that are the foundation of good public policy decisions;
- Develop new tools to promote the safe use of chemicals, especially as new questions emerge about the health and environmental effects of chemicals; and,
- Coordinate research of ICCA member associations to achieve international scientific participation in the research process and to create synergy among the research projects.

Areas of Research Three broad areas of inquiry, rather than chemical-specific testing, frame the research strategy for the LRI and encourage strategic, multi-disciplinary approaches. For example, a number of scientific disciplines are brought to bear on increasing understanding of the global endocrine issue, as well as providing science to support issues related to the European Union's White Paper on Chemicals.

- Improved methods: to evaluate potential risks of chemicals to public health and the environment, with attention to more reliable and interpretable test methods for dose-response effects, more cost-effective human exposure methods, and better risk assessment methods;
- Susceptible populations: identification of groups that may be vulnerable (including children) and characterization of factors that may place them at higher risk; and

- Chemicals in the environment: understanding how chemicals move and change along pathways from sources to humans and wildlife.

Research Conduct and Publication Research is performed by third-party investigators who remain independent and are responsible for the design and conduct of the research project, the interpretation of the results, and its publication in peer-reviewed literature.

Product Stewardship

Product stewardship is the responsible and ethical management of the health, safety and environmental aspects of a product throughout its total life cycle. The global chemical industry's product stewardship initiatives ensure the successful management of products from manufacture through packaging, distribution, transport and use, to ultimate disposal. This involves establishing formal partnerships with stakeholders and carrying out effective education and training to strengthen links with suppliers, distributors and users, thus ensuring product stewardship extends throughout the supply chain.

- As an example, the International Council of Chemical Trade Associations (ICCTA) represents chemical distributors in over 20 countries worldwide. A memorandum on Responsible Care signed by ICCA and ICCTA ensures this key component of the supply chain is helping its members to strengthen product stewardship efforts.
- Discussions with the International Paint and Printing Ink Council (IPPIC) are looking at how the two organizations can work more closely together. Last year, ICCA and IPPIC agreed that the safe manufacture, distribution, disposal, handling and use of paint and coatings, as well as their chemical raw materials, is paramount. Coatings Care programmes, modeled on Responsible Care, are being implemented in the US, Canada, Mexico, UK, France, Netherlands, Japan, Australia, New Zealand, Malaysia and Brazil.
- Many national chemical industry associations have also established partnership agreements with national associations of chemical distribution and trade. Others have established Partnership programmes within their own Responsible Care initiative to enable non-manufacturing companies like storage and distribution firms to participate as full or associate members. In this way, the supply chain is encompassed directly in Responsible Care.

Future Challenges

Although the chemical industry is proud of its Responsible Care achievements, companies' own expectations have increased, as have the expectations of the public. The industry realizes that more work is required to achieve the promise of Responsible Care. These company and public expectations will shape the future of Responsible Care; so too will the continuing dialogue regarding sustainable development and the contributions of companies in the private sector to progress in sustainable development.

This section of the report presents challenges for the future. The summary is based on the new expectations held within the industry, as well as the stakeholder input that has been received at the local and national level, and also received at the international level through the UN Environment Programme (UNEP) process of preparing sector reports for the 2002 UN World Summit on Sustainable Development.¹

The future challenges for Responsible Care are grouped into three areas:

1. Continued implementation and extension of the initiative;
2. Performance reporting & assurance; and,
3. Dialogue & Partnership.

Continued Implementation and Extension of the Initiative

Within the chemical industry Even in countries that have been the pioneers in Responsible Care, continued effort is required to see that implementation is complete and performance improvement is maintained over time. In countries that have more recent-

ly begun Responsible Care, implementation assistance to companies will be the focus of activities in the next few years. There will also be several countries, with growing chemical industries, in which the industry should work to introduce Responsible Care and to begin the process of improving the health, safety and environmental performance of companies in those countries.

Throughout the chain of commerce After introduction and implementation of Responsible Care within chemical companies, the next step is to implement and extend the initiative through the "chemical" chain of commerce (e.g., first to customers, but also to suppliers and companies that provide transport, storage, waste management and other services to the chemical industry). Much progress has already been made through company outreach and peer influence; association partnership agreements at the national level have also been effective. More work will be necessary to meet the public's expectations for improved performance throughout the life cycle of chemical products.

Performance Reporting and Assurance

Individual companies have seen impressive gains in their health, safety and environmental performance as they implement Responsible Care. Similarly, there are some areas in which aggregate performance statistics collected at the national level show that companies implementing Responsible Care perform better, as a group, than the industry at large. For example, statistics of employee safety (injury and illness records) show that companies implementing Responsible Care have healthier and safer employees than other chem-

1. In collaboration with UNEP, the International Council of Chemical Associations (ICCA) prepared a major report entitled 'Industry as a partner for sustainable development' – the Chemical Sector Report to UNEP for the World Summit on Sustainable Development. The report is available on the ICCA website at www.icca-chem.org or UNEP DTIE's website at www.uneptie.org/wssd

ical companies, and other companies overall.

Despite the impressive performance gains of individual companies and in some areas, there does not exist at this time a consistent set of measures across the full range of health, safety and environment performance areas important to chemical companies.

In order to demonstrate to the public that chemical companies are making the progress that the public expects, the industry will be working with stakeholders to develop meaningful and credible means across the ICCA membership to allow verification of companies' implementation of Responsible Care. This needs to be developed in each country with that country's chemical industry stakeholders, finding commonalities across ICCA membership. The objectives for these means are that they will be consistent and comparable. If ready in place, the means will reflect the safety, health, and environmental performance of individual companies, and, when aggregated, of the group of companies implementing Responsible Care.

Performance measures will be important, yet the industry expects that performance statistics alone will not be responsive to public concerns about company and industry performance. There have already been efforts underway in national associations to review the performance of individual companies and to check that they are implementing Responsible Care. These efforts will continue and will evolve with experience. Even though many countries recognize the need to provide public assurance of Responsible Care imple-

mentation, it is clear that national differences in the cultural, legal, political and social context will lead to different ways of providing such assurance.

Dialogue and Partnership

Although "getting the job done" is the chemical industry's first priority, it is also important to have a dialogue with key stakeholders regarding their expectations for the industry, and industry's efforts in response. The chemical industry has considerable experience in this area. Many companies have corporate advisory committees and/or local community advisory panels to have such a dialogue. Also, many associations have national advisory panels in which to conduct such discussions. These forums for dialogue will continue and grow in the years ahead.

Partnerships are a development for the industry that is relatively more recent than dialogue. In the last few years, for example, the industry developed its initiative on High Production Volume (HPV) chemicals in partnership with the Organization for Economic Cooperation and Development (OECD). Similarly, in its Long-range Research Initiative (LRI) the industry has developed cooperative research agreements with national government research programs. It is expected that further partnerships will develop in the years ahead as the industry continues its efforts through Responsible Care.



Statement on Responsible Care

of the International Council of Chemical Associations

Responsible Care is the voluntary initiative of the global chemical industry in which companies, through their national associations, commit to work together to:

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- continuously improve their company's and the chemical industry's performance in protecting people and the environment throughout the life cycle of their products and processes;
 - contribute to the sustainable development of local communities and of society as a whole;
 - inform their publics of the risks and benefits of what they make and do, and about their performance, achievements and challenges;
 - dialogue and work with their stakeholders at the local, national and international level to understand and address their concerns and aspirations;
 - cooperate with governments and organizations at all levels in the development and implementation of effective regulations and standards, and to meet or exceed those requirements;
 - extend Responsible Care to all those who manage chemicals.