

Providing foundations for society's future

Corporate Sustainable Development Report 2002 Holcim Ltd



- We are committed to increasing our use of waste materials, whilst ensuring they have no adverse impact on public health, environment or product quality.

Managing our atmospheric emissions

- As we seek to substitute fossil fuels with waste materials, our atmospheric emissions are increasingly coming under scrutiny.

- Uniquely in our industry, we have developed a corporate standard for emissions monitoring and reporting (EMR). The standard will be used by all our clinker producing kilns worldwide by the end of 2003.

The health and safety of our employees

- The health and safety of the people working on our sites is a priority for us. Our current data tell us that we need to take steps to improve our performance. We will therefore implement global occupational health & safety (OH&S) standards in all Group companies by the end of 2005.

A strong emphasis on social responsibility

- The nature of the cement industry means that there are local as well as global impacts from our operations. Our license to operate therefore comes very directly from the communities and regions immediately around our plants and associated quarries.

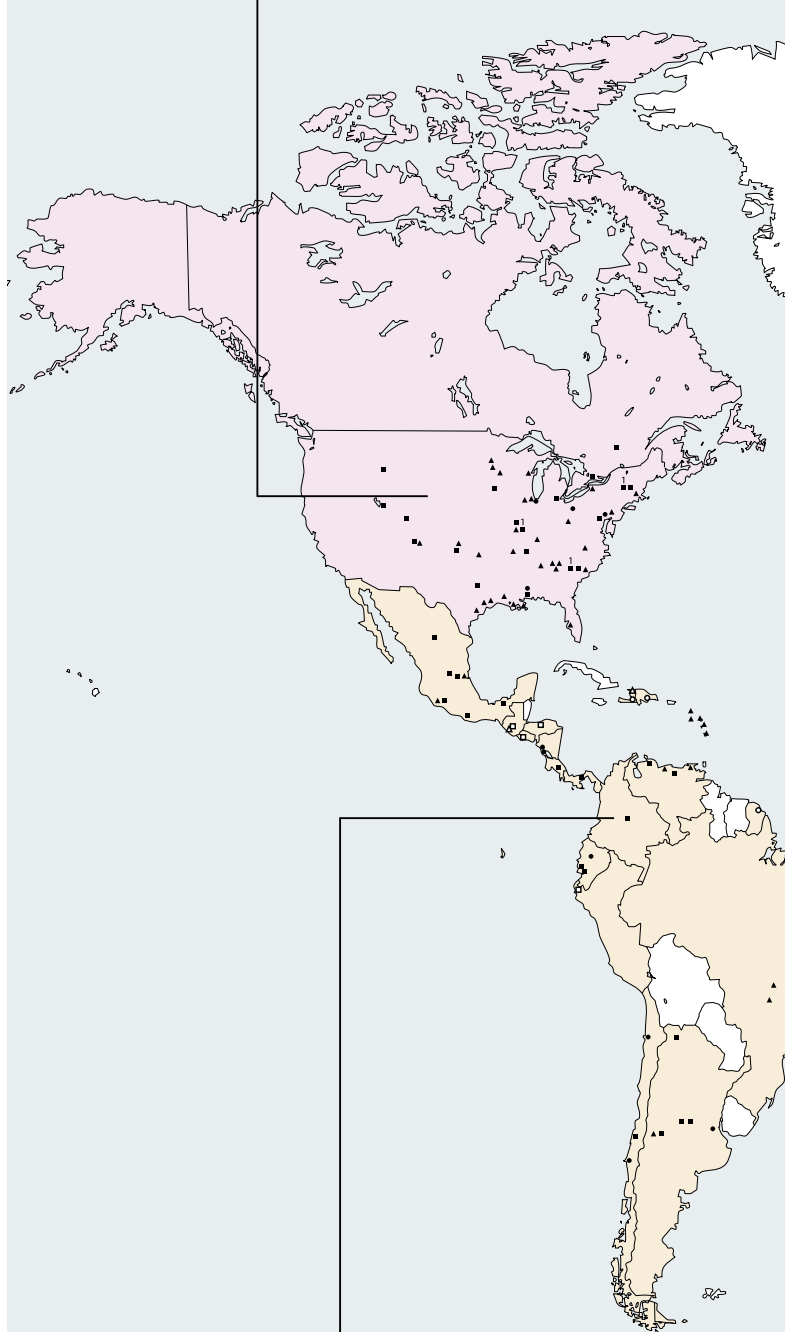
- We have been engaged in social responsibility activities throughout our history. Our intention is to bring together and share the experience that has been built up in individual companies, particularly in community involvement and health and safety, and to develop Group guidelines and business standards where appropriate.

- We are committed to working with all our stakeholders, building and maintaining relationships of mutual respect and trust.

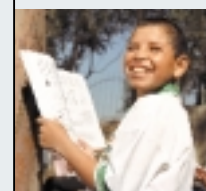
- Our Group-wide corporate social responsibility (CSR) approach, including CSR policy, CSR handbook and OH&S handbook, will be launched in 2003.



Holcim US has formalized its approach to stakeholder engagement and now leads the US cement industry in establishing the practice (see page 11).



- Group:**
 Cement plant ■
 Grinding station ●
 Important terminal ▲
- Affiliate:**
 Cement plant □
 Grinding station ○
 Important terminal △



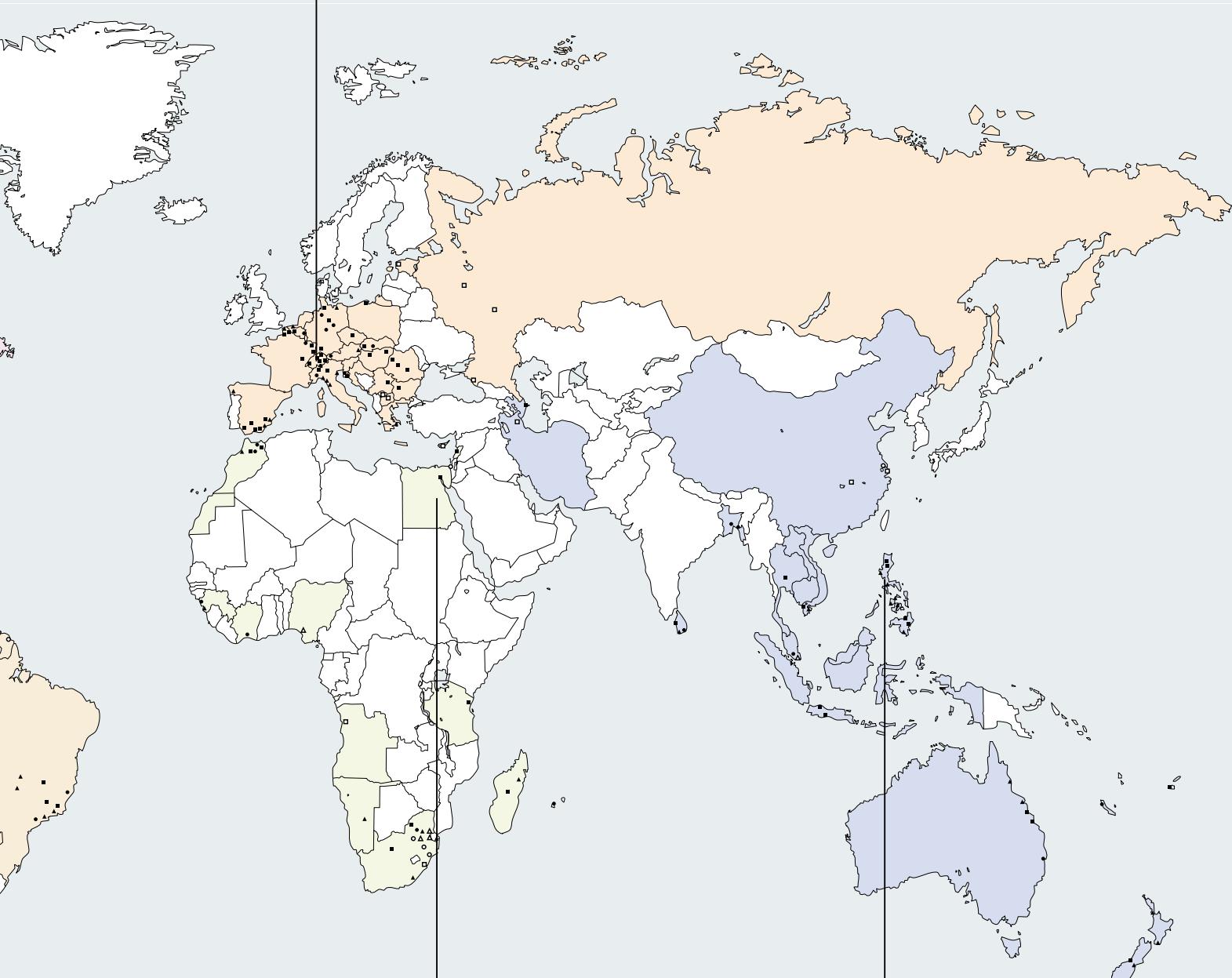
Cementos Boyacá, Colombia, has established a school center to provide secondary education and agricultural training to local children (see page 34).



At Holcim Switzerland, active engagement of local stakeholders has enabled the use of a variety of alternative fuels and raw materials (see page 22).



Holcim's global EMR standard prescribes appropriate equipment and common methodology for measuring and reporting emissions (see page 19).



Egyptian Cement Company gained a better understanding of local stakeholder concerns through hosting a WBCSD stakeholder dialogue event (see page 13).



Alsons Cement, Philippines, carries out a wide range of community projects in collaboration with partner organizations (see page 34).

Sustainable development is a priority for Holcim and we aim to put it at the heart of our business. Our business goals include commitments to sustainable development and to maintaining an active dialogue on the issues. This is our first report on the Group's performance against the "triple bottom line" of economic growth, environmental performance and social responsibility.

Holcim has been addressing sustainable development for many years. Our decentralized management approach has been effective in handling a variety of environmental and social issues, responding to specific local needs and priorities. In 1999, a thorough review indicated that our progress towards environmental and social goals needed in addition greater attention at corporate level. The review also identified the need to look at the social and environmental aspects of our business in a more systematic and integrated manner.

Responding to the expectations of our stakeholders

■ Understanding and responding to the changing needs and expectations of the people who are affected by our business is central to our approach. We have a long history of constructive engagement, particularly with our local communities.

■ Stakeholder engagement demands time, skills, resources and transparency on our part. In return, it allows us to make better decisions with broad ownership, and to scope and prioritize issues in the light of wider opinion.

■ We are encouraging Group companies to engage their stakeholders, and are producing guidelines to assist them in doing so.

Executive Summary

By 2001, we were on the way to achieving this – by putting the right systems in place, by seeking performance improvements and by setting targets. Our progress is recorded in this report, both quantitatively and with initiatives that demonstrate our approach. Our intention now is to deepen and strengthen our response to the challenge of sustainable development.

Key themes of the report

Effective business management

■ We are reviewing our environmental and quality management systems. All Group companies will be required to implement ISO 9001 and 14001-compatible management systems and to seek ISO certification by the end of 2004.

■ Understanding the social and environmental risks that may affect our business is a formal part of our risk management process.

■ Eco-efficiency improves both environmental and economic performance.

Tackling climate change

■ The global cement industry is responsible for an estimated 5% of the annual total of man-made carbon dioxide (CO₂) emissions.

■ We will reduce our global average specific net CO₂ emissions by 20% by 2010, with 1990 as the reference year. This reduction will be achieved through improving the four key eco-efficiency parameters: clinker factor, specific thermal energy consumption, thermal substitution rate and reducing cement kiln dust disposal.

■ We monitor and report our CO₂ emissions according to the WBCSD Carbon Dioxide Protocol for the cement industry.

Use of waste as a fuel or raw material

■ This is an important service we can deliver to society, while reducing both our costs and our use of natural resources. It is also a significant factor in reducing our CO₂ emissions.

About this report

This is Holcim's first Corporate Sustainable Development Report and covers the Group's cement business

The report focuses on 2001, but also describes some of the historical background to the company's current commitment and initiatives, and indicates the intended way ahead. It is complementary to our Annual Report 2001 and should be read in conjunction with it. Both reports can be downloaded at www.holcim.com. The Group's cement business, which accounts for 73 % of our net sales and the majority of our environmental and socio-economic impacts, is described in this report. This is the part of the business for which we currently have the most comprehensive data. The scope of the report does not include Holcim's aggregates, ready-mix concrete or other products and services businesses. It is our intention to include these areas of the business in future reports.

Tell us what you think

Holcim's Chief Executive Officer points out that building a sustainable future is a task for everyone and expresses the hope that "external stakeholders will be willing to engage with us" (see page 2). It will help us if our stakeholders tell us what they think of this report, and of the activities it describes. All feedback will be welcome, but particularly constructive comments and suggestions for future reports, so that we can provide the information our stakeholders want to receive. A feedback form is available to download at our website (www.holcim.com/sustainable) or send us an email or letter. Contact details appear on the back cover.

Contents

About Holcim

Holcim is one of the world's leading suppliers of cement, aggregates (gravel and sand) and concrete. From origins in Switzerland, Holcim has grown into a global player with majority and minority interests in over 70 countries on all continents.

With a production capacity of more than 120 million tonnes of cement, in 2001 Holcim recorded sales of CHF 13.6 billion and an operating profit of CHF 1.9 billion. Holcim currently employs close to 50,000 people.

CEO Statement	2
Vision and Strategy	4
Governance	7
Stakeholder Relations	10
Economic Performance	14
Environmental Performance	17
Social Performance	27
Summary of Targets	37
Methodology and Verification	38
Acronyms, Formulae and Glossary	40
Cement Manufacturing Process	inside back cover

There are sound business reasons for aiming to put sustainable development at the heart of our business. A corporate approach enables us to respond effectively to issues at local and global levels. Building a sustainable future requires a joint effort by Holcim and its stakeholders.

2 CEO Statement

Sustainable development – why it matters to Holcim

The role of Holcim's Executive Committee is to make good business decisions that fulfil economic criteria and deliver healthy financial returns. We recognize that the long-term sustainability of the business depends on our decisions also meeting environmental and social performance criteria. It is a business reality that most decisions within our world-wide operations touch upon the interdependent economic, environmental and social factors – the “triple bottom line” of sustainable development. In seeking the best balance of outcomes for the business, we must make a careful examination of the costs and benefits, and maintain a balance between local and global priorities. The nature of our business requires us to take long-term decisions that affect all three factors. Economically, we are engaged in an extremely capital-intensive industry. Environmentally, making cement requires large-scale mineral extraction operations and highly energy-intensive production plants, which may leave substantial environmental footprints. Socially, our plants are important contributors to local economies and community well-being, yet our activities also have impacts on the lives of those communities.

We also recognize that stakeholder expectations about the role of businesses in society are growing in many markets. Earning and keeping the trust and respect of our stakeholders worldwide, through strong sustainable development performance, is not only a prerequisite for our license to operate, but will fundamentally strengthen our business. We have already embedded sustainable development in our mission, strategy and business goals. It is now one of the most important tasks for management throughout our Group to seek alignment amongst our employees.

Sustainable development – our approach and the way ahead

As a global company with 90 years of experience and operations in both the developed and developing world, Holcim's culture has long respected the communities and environment of which we are a part. This gives us a strong heritage from which to build an effective approach to the wider challenge of sustainable development.

In 1999, a thorough review indicated that our progress towards environmental and social goals needed greater attention at corporate level. The review also identified the need to look at the environmental and social aspects of our business in a systematic and integrated manner. In the past, Holcim's decentralized management approach was effective in handling a variety of sustainable development issues, as demonstrated by many of the initiatives in this report. This remains the case for many local issues. Local management is best placed to respond appropriately to specific local needs and priorities, and is encouraged to do so. However, important issues like climate change are global in scope and require a global response.

Our priorities are the implementation of our CO₂ policy, increasing the use of alternative fuels or raw materials, improvements in our safety performance and community involvement projects. A more centralized approach to managing these and other major issues will enable us to make best use of our valuable accumulated experience and know-how. We have therefore made corporate resources available to our Group companies, providing them with guidance in the form of standards and performance management systems.

Our Executive Committee recognizes that putting in place structures and procedures is not enough on its own. A wide range of internal and external audiences takes a keen and justifiable interest in our activities. By sharing information with them in an open and transparent manner, we can assist them to make valid judgments about our progress, and encourage their cooperation.

Holcim is also a founding member of the Cement Sustainability Initiative of the World Business Council for Sustainable Development. This broader initiative complements our own increased efforts in this direction.

We regard this report as a significant step in providing information about our response to the challenge of sustainable development. The report describes how we intend to manage these issues in the future, what systems have been put in place, and how we measure and report our performance. It also gives details of our targets, as an indication of the work program we are going to tackle in the coming years. Our targets include an ambitious goal to improve our eco-efficiency, by reducing our specific net CO₂ emissions by 20% by the year 2010.

Sustainable development – a personal perspective

The goals of sustainable development matter most of all to us as individuals. They go beyond corporate objectives. Economic growth and healthy financial returns are the decisive factors that enable companies to contribute to building societies that will provide a more sustainable future. Holcim is committed to playing its full and proper role in this endeavor. We will be trying to demonstrate our corporate and personal commitment to the "triple bottom line", and we hope our external stakeholders will also be willing to engage with us in recognition of the need for joint efforts.

At Holcim, successful sustainable development initiatives have often been started by strong-minded, passionate individuals, and then carried forward by the company. More initiatives will be launched in the future. For them to succeed we will more than ever need this entrepreneurial spirit, determination and "can-do" attitude, recognizing that the company is only as strong as its people and its relationships.


 Markus Akermann
 Chief Executive Officer



Sustainable development is embedded in our mission, strategy and business goals, as a key element in creating long-term value for all our stakeholders.

4 Vision and Strategy

▼ Committing to sustainable development is a vital part of aligning all our companies towards a common vision and mission, under one global brand.

Holcim is one of the world's leading suppliers of cement. From our origins in Switzerland nearly a century ago, we have grown through acquisition and expansion into a global company with operations in over 70 countries, on all continents and in both the developed and developing worlds.

Traditionally, Holcim has been a very decentralized organization, with Group companies managed primarily as local businesses. Throughout that period, respect for the communities and environments in which we operate was recognized as important to our continued success and many initiatives were undertaken at local level.

We are now aligning our companies towards a common vision and mission, under one global brand and with goals (see box) that include a clearly defined commitment to sustainable development. This process includes drawing together all our work on social and environmental issues, within a more structured framework.



Vision, Mission and Strategy

Our vision is to provide foundations for society's future.

Our mission is to be the world's most respected and attractive company in our industry – creating value for all our stakeholders.

We have a three point strategy for achieving our mission:

- we focus on our core products – cement, concrete and aggregates
- we build on a balanced global portfolio by continuing to invest in existing and new markets
- we develop global standards to support the strengths of local management.

Business Goals and “Mindsets”

Our business goals include:

- continually demonstrate our commitment to sustainable environmental performance, and visibly play a leading role in social responsibility within our sphere of influence
- maintain an active dialogue with governments, international organizations and NGOs, and be acknowledged as a valued and trusted partner.

Our goals are reflected in the set of core values or “mindsets” which guide our activities and employees, across many different cultures and operating environments.

Our “mindsets” are:

- sustainable environmental performance
- better cost management
- permanent marketing innovation
- human resources excellence
- corporate social responsibility.

Sustainable Development

Holcim is guided by the Brundtland Commission's definition of sustainable development:

“development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Through our goals and “mindsets” Holcim aims to put sustainable development where it belongs, as a key strategic element in creating long-term value for the company. We have made a start on that journey, but we will also need to learn as we go forward. We recognize that this cannot be a rapid process and that the reference to “future generations” in the definition of sustainable development takes us beyond normal business time horizons.

We often face dilemmas and challenges in balancing the environmental, social and economic factors that comprise the “triple bottom line” of sustainable development. In many situations, the three elements are interdependent. As with any other aspect of business life, sustainability achievements in one area may lead to costs in another. Good social and environmental performance is undoubtedly a factor in

achieving good economic performance, but individual decisions require a careful examination of costs and benefits. The net benefits, regardless of where they accrue, will add value to our business, but in different ways and over different time scales.

Sustainable development in a global cement company

As the most important ingredient in concrete, cement is a fundamental requirement of modern society. Yet cement manufacture requires intensive use of both energy and materials, and results in atmospheric emissions including significant volumes of CO₂. Our quarrying and production operations also have impacts on local communities and the landscape. This is the challenge that sustainable development poses for the cement industry and our customers in the 21st century.

We are faced every day with decisions about resource use, emissions, health and safety, local community engagement and financial performance. Sustainable development provides a conceptual framework within which to take informed business decisions, based

on the business case of understanding the expectations of stakeholders, managing risk and operating an efficient business.

Understanding the expectations of stakeholders

The local significance of our plants and quarries means that we gain and maintain our license to operate very directly from local stakeholders at new and existing sites. Understanding and meeting the needs and expectations of all our stakeholders is therefore crucial to our business success, and in particular to our strategy of future growth in the developing world.

Managing global risk

As we become an integrated Group with a single brand, the reputational risks that social and environmental issues pose for our business will intensify.

estimated 5% of the total of man-made CO₂ emissions. Holcim is committed to a reduction target and a program of eco-efficiency, as described on pages 20 and 24.

Use of alternative fuels or raw materials (AFR)

The cement industry can deliver a service to society, while reducing its use of natural resources, by utilizing waste materials and industrial by-products as alternative fuels or raw materials. The resulting reduction in our use of fossil fuels reduces both our total CO₂ emissions and the cost of our products. At Holcim, we are committed to increasing our use of these waste materials, whilst ensuring they have no adverse impact on public health, the environment or product quality.

6 Vision and Strategy



Understanding and anticipating the issues that may affect our business is part of our risk management process. A new global brand brings global responsibility and requires us to ensure that we have robust policies and systems in place to manage and improve our social, environmental and economic performance.

Operating an efficient business

In an increasingly competitive global market, gaining improvements in operational efficiency and performance, through more efficient use of resources and more effective engagement with our stakeholders, can make vital contributions to our overall performance.

Priority environmental and social issues for Holcim

In this context, we have identified the priority environmental and social issues facing Holcim and are working to address them. They are outlined below.

Climate change

Increasing levels of atmospheric CO₂ cause climate change. The global cement industry produces an

Using waste as alternative fuel or raw material benefits the environment, society and our business.

Holcim is taking important steps to improve our occupational health & safety performance.

Our corporate social responsibility approach helps our companies to engage with a variety of stakeholders.

Occupational health & safety (OH&S)

Comparison with best-of-class companies in related industries, such as mining and heavy manufacturing, shows that we do not perform as well in OH&S as they do. We are committed to improving our performance, and we are taking important steps to implement global OH&S standards in all Group companies.

Community involvement

We aim to support all our operating companies in their role as a social and economic asset and a trusted local partner. We are introducing a Group-wide corporate social responsibility (CSR) approach to help them carry out stakeholder needs assessments and engage in constructive dialogue.

Effective governance is the backbone of our continued success. We have developed risk and performance management systems to monitor and improve our performance on relevant aspects of sustainable development. Our task now is to implement new Group standards in all our companies.

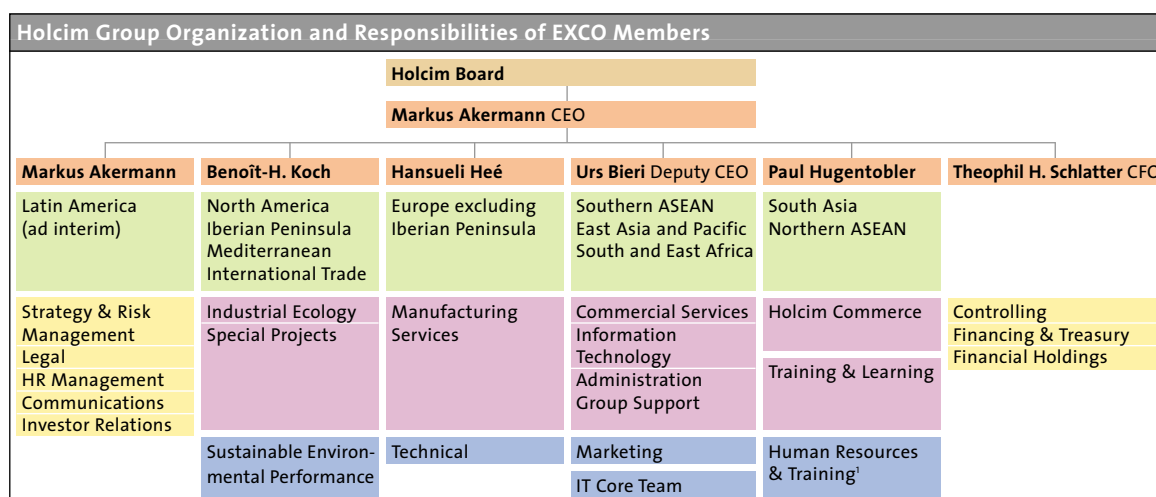
Governance 7

Organization

As a result of rapid growth over the last decade, the Holcim Group has made changes in its approach to governance, accountability and risk management. Most decision-making was previously devolved to company level, but we are in the process of developing global standards that companies are required to incorporate into their operations. Companies do however retain sufficient flexibility to operate effectively in their local markets. These

changes have been particularly important for the way we manage issues related to sustainable development.

These issues are the responsibility of the Group CEO and Executive Committee (EXCO), who are responsible for the day to day running of the Group. To support its decision-making process, the EXCO has a series of functional committees responsible for developing policies and standards in conjunction with Group companies, and for providing focused input to EXCO decision-making.



■ Executive Committee (EXCO)
 ■ Geographical responsibility
 Functional responsibility:
 ■ Group support
 ■ Staff
 ■ Functional committees
 ¹ Chaired by Markus Akermann and Paul Hugentobler

Two committees have responsibility for advising EXCO on key issues related to sustainable development.

The Human Resources & Training Committee is a working and discussion forum made up of Group company CEOs and human resources managers. Its remit includes strategic direction setting on topics related to human resources management, including the review of corporate social responsibility (CSR), driven by the CSR task force.

The Sustainable Environmental Performance Committee is a working and discussion forum made up of Group company CEOs, environmental managers and AFR¹ business unit managers. It is responsible for reviewing strategy and progress on key environmental issues, including internal awareness and compliance with regulations and Group standards.

Many of our companies have had environmental and occupational health & safety management systems for many years. However, the scope of these systems varies and not all have been externally certified to an international standard such as ISO 9001 (quality management) or ISO 14001 (environment). Currently, 59 of our 129 plants are ISO 9001 certified and 20 are ISO 14001 certified. Two of our companies (in Thailand and Hungary) are certified to OHSAS 18000 (an international health and safety standard).

Robust, auditable systems are essential for effective management of sustainable development performance. Our goal now is to identify existing best practices within the Group and provide details to all our companies. They will use this information in developing their own approaches, appropriate to local circumstances and consistent with recognized standards.

8 Governance

Business risk management

The growing visibility of issues related to corporate governance and shareholder value has created increased demand for comprehensive management of business risks. Our approach to risk management has been in place for several years, and is the direct responsibility of the CEO.

At the strategic level, business risk management allows companies to understand, anticipate and actively manage business risks and opportunities in their own markets. It is designed to be a flexible tool that sets a standard framework within which each company can reflect its local environment, engage with its local stakeholders, and apply its own investment models.

Management systems

Prior to 2000, both environmental and social performance management, including monitoring of performance, were decentralized responsibilities. Central data collection for environmental performance began in 2000 and for social performance in 2001.

¹AFR = alternative fuels and raw materials

Targets and Next Steps

All Group companies will develop and implement ISO 9001 and 14001-compatible management systems at all cement plants (from quarry to loading point) and will seek ISO certification by the end of 2004.

Reporting

We are committed to report publicly on performance and progress towards our environmental and social goals. Our environmental and CSR policies contain specific references to monitoring and reporting performance. Details of the information we are currently making available in various ways are contained in the environmental and social performance chapters of this report. Future reports will respond to the feedback we receive from our stakeholders.

We encourage our Group companies to report to their local stakeholders. Holcim Brazil's Social Report is a good example of the benefits of this approach.

Holcim Brazil – Social Report

Holcim Brazil is one of the first Holcim Group companies, and the first cement producer in Brazil, to publish a report on their activities in the communities where they operate (see www.holcim.com.br).

Throughout its 50-year history, Holcim Brazil has developed its role as a leader in environmental protection and been actively involved in its local communities. In 1999, the company recognized it needed to develop specific tools to improve public awareness of its social and environmental projects, partly in order to differentiate itself from competitors in the eyes of stakeholders. A social report and

Policies

Our environmental policy was launched in 2001, and our CSR policy will be launched in 2003. Developed in conjunction with internal and external stakeholders, these statements are useful in Group-wide communication and implementation of standards. Each of our policy statements is supported by pillars representing key areas for action. Guiding principles describe the intent of the policy and are underpinned by standards and guidelines. Internally, a “milestone map” sets out policy goals and is used to monitor progress. Group company CEOs are accountable for policy implementation.

Environmental policy statement

“Our commitment is to continuously improve our environmental performance and provide positive contributions to our business.”



The carpentry workshop is part of a program to educate young people with special needs.

The nursery mothers program provides care for the children of working mothers.

video was the result, including testimonials from those who had benefited from the company’s programs.

By investing in reporting, the company showed that it does more than simply produce cement. The report demonstrated that the company is not only interested in shareholder value – it has a sense of responsibility and seeks to improve the quality of life of the communities in which it operates. Relations with community officials, environmental organizations and local NGOs have improved significantly as a result of the reporting strategy.

The four pillars of our environmental policy are:

- management systems
- resources utilization (including use of energy and raw materials)
- environmental impacts (including quarry management and atmospheric emissions)
- stakeholder relations.

CSR policy statement

“We are committed to work with all our stakeholders, building and maintaining relationships of mutual respect and trust. We aim to contribute to improving the quality of life of our workforce, their families, and the communities around our operations.”

The six pillars of our CSR policy are:

- business conduct
- employment practices
- occupational health & safety
- community involvement
- customer and supplier relations
- monitoring and reporting performance.

Earning the trust and acceptance of our stakeholders is fundamental to maintaining our license to operate and achieving a stable environment for long-term investment. Through inclusive approaches, like the community advisory panels, we are helping to ensure the current and future success of the Group.

10 Stakeholder Relations

▼ Community advisory panels assist Holcim US and other Group companies to identify and understand issues of concern to local communities.

Understanding and responding to the needs and expectations of the people who are affected by our business is central to our approach.

- Our mission statement makes clear that we aim to create value for all our stakeholders, not just our shareholders and investors.
- Our corporate goals include maintaining active dialogue with governments, international organizations and NGOs, and being acknowledged as a valued and trusted partner.
- Our environmental and corporate social responsibility policy statements commit us to engage with stakeholders and to report our progress on the issues that affect them.

Stakeholder engagement demands time, skills, resources and a commitment to transparency on our part. The benefits include the ability to make better decisions with broad ownership, and to scope and prioritize issues in the light of wider opinion. We also value the opportunity to engage with opinion leaders and exchange information on important issues, and to forge alliances and collaborative partnerships, based on shared principles.



In this chapter, we give examples of how we are working with some of our key stakeholder groups. As the initiatives show, we are engaging in stakeholder consultation and dialogue in many of our operations. We want to build on the experiences of our leading Group companies to develop a consistent Group-wide approach. To this end, we are in the process of drafting corporate stakeholder engagement guidelines. Future reports will contain a specific section recording the most significant feedback we have received from stakeholders (see contact details on the back cover).

Employees

The people who work for us are central to our success. We recognize the importance of good relationships with and between all members of our workforce.

to sustainable development and its role in creating long-term value for Holcim and its stakeholders.

Local communities

Our license to operate at each of our sites around the world depends on maintaining the trust, respect and goodwill of our local communities. Our aim is to be a trusted partner in each community where we operate. Most of our community involvement and investment programs are run by individual plants and companies (see page 33 for more details). We are now developing a CSR handbook for the Group that also covers support for community relations activities, based on the experience of our companies. In particular, we are drawing on the experience of our companies in the US and elsewhere in establishing community advisory panels.

We are continually developing new ways of incorporating our employees into our decision-making processes. For example, in 2002 we set up a series of internal focus groups to discuss ways of implementing our corporate social responsibility (CSR) policy. Individual companies are also beginning to implement their own employee attitude surveys.

Building awareness of stakeholder engagement amongst our own management and employees is an important catalyst for change. Sessions on effective engagement are included at many of our management and technical seminars to introduce the concepts of open communication and dialogue.

Investors

Our business goals include making Holcim the most recommended stock in our industry. Achieving this requires open and active communication with our investors. We aim to communicate proactively and hold a number of events and briefings throughout the year. These events provide us with an opportunity to explain Holcim's strategy, including our approach

Initiative

Holcim US – Community Advisory Panels

Holcim (US) Inc. established its first community advisory panel (CAP) ten years ago. It now leads the American cement industry in this area.

The Holly Hill plant in South Carolina provides an excellent example of a CAP in action. In 1994, a cross-section of community interests was invited to come together to discuss key issues surrounding the use of waste materials as fuel in the kiln. The establishment of the committee – its method of operation, decision-making processes, facilitation options, length of tenure and so on – was decided by the committee members themselves. The panel provides the company with valuable insights into the concerns of the local community.

Six years on, the panel provided a perfect sounding board for Holcim US when a plant expansion was proposed. It assisted with identifying and understanding issues of concern to the community, and provided a reality check for plant management as it sought wider support for its plans. The members of the panel in effect acted as ambassadors for the plant, and helped provide a community base of support for the expansion.

These panels are a voluntary and proactive initiative, not required by any permitting process. Until recently, the program focused only on plants using alternative fuels and raw materials. However, the benefits of the process have encouraged Holcim US to establish CAPs at all its cement plants by the end of 2002.

Such consultation will generally be in relation to development of policies, such as our alternative fuels and raw materials (AFR) code of conduct (see page 18). External experts are currently involved in the development of our CSR policy (see page 28).

The Cement Sustainability Initiative (see below) will provide further opportunities for engaging with these groups.

Public policy

Holcim acknowledges that as a leading cement company, we have a role to play in the sphere of public policy. This ranges from commenting on environmental legislation, through discussion of issues such as AFR use by the cement industry, to recommendations on changes to cement composition standards to enable greater eco-efficiency. Such issues are often

12 Stakeholder Relations

Customers and suppliers

We regard our customers and suppliers as partners in our business. We aim to integrate them into our decision-making processes, and to work collaboratively to develop innovative professional solutions to their needs. Where appropriate, we seek to engage in partnerships with customers and suppliers whose commitment to sustainable development reflects our own (more details of our work with them are on page 35).

Experts and NGOs

Historically, the cement industry has had a poor record of engagement with outside parties, other than its business partners and local communities. However, there is a growing realization that such stakeholders can provide valuable insights into some of the key issues we face, and can be constructive partners in projects.

In recognition of this, we are seeking to involve representatives from external expert and NGO groups in our decision-making processes, on an informal basis.

first discussed by Group companies on a regional basis, so that our positions are clear and our actions consistent.

In all our public policy engagement, we are committed to openness and transparency, and to acting as an ethical and responsible member of society.

The national and regional trade associations of which we are active members also engage in public policy development on our behalf. We need to ensure that the positions we subscribe to publicly are aligned with the positions we commit to through our membership of associations.

The Cement Sustainability Initiative

Holcim is a founding member of the Cement Sustainability Initiative (CSI), which aims to explore what sustainable development means for the cement industry, and identify and facilitate actions that cement companies can take as a group and individually to accelerate the move towards sustainable development.

CSI brings together ten of the world's leading cement companies and the World Business Council for Sustainable Development. A key component of the initiative is the active engagement of the broader cement industry, and other relevant stakeholders, on sustainable development issues of concern to the industry.

In July 2002, following a three-year program of research and stakeholder consultation, the leaders of the ten companies launched a five-year "Agenda for Action" on sustainable development. The agenda is a series of joint projects and individual actions that the companies will carry out in six key areas (see box below). The joint projects will involve several companies working together to tackle a specific issue, often in conjunction with stakeholders. The individual actions will be implemented by companies independently within their own operations.

Initiative

ECC Egypt – Stakeholder Dialogue Event

Holcim's Group company Egyptian Cement Company (ECC) played a key role in the CSI's stakeholder dialogue in Cairo. A company only a few years old and still in the construction stages of Egypt's largest cement plant, ECC was the first to admit that engaging stakeholders was not an initial priority. Stakeholder consultation is not a requirement of Egypt's regulatory system, and as a result stakeholders often feel alienated in their efforts to highlight environmental problems associated with the industry. By hosting the Egypt dialogue and inviting stakeholder representatives



Hosting a stakeholder dialogue event helped ECC to understand key stakeholder concerns.

CSI will be reporting on progress every five years. The first full report, and a new "Agenda for Action" for the next five years, will be published in 2007. An interim report is due in 2005.

For further information on the Cement Sustainability Initiative and details of progress, visit the website at www.wbcscement.org.

including NGOs and community health organizations, the team at ECC gained first-hand experience of this sense of alienation and disempowerment. This has led to a greater sense of awareness of the issues of concern to key stakeholder groups, and discussion with several of the attendees has continued since the event.

The CSI Agenda for Action: Key Commitment Areas	Reference to Holcim's Commitments
Climate protection	page 20 (use of energy and raw materials) page 23 (climate change)
Fuels and raw materials	page 18 (management systems and tools) page 20 (use of energy and raw materials)
Employee health and safety	page 32 (occupational health & safety)
Emissions reduction	page 18 (management systems and tools) page 24 (other atmospheric emissions)
Local impacts	page 22 (quarry management)
Business processes	page 8 (business risk management) page 18 (management systems and tools) page 33 (community involvement)

All our investments are made with a long-term view. We are committed to building long-lasting and constructive relationships with all our stakeholders, and investing in the plants, people and communities in which we operate.

14 Economic Performance

Holcim Group		
Financial data in million CHF	2000	2001
Net sales	13,531	13,644
Operating profit	2,001	1,945
EBITDA	3,595	3,574
Investments in property, plant and equipment net	1,640	1,730
Financial investments net	1,929	1,949
Volumes in million t		
Production capacity cement	113.2	121.2
Sales of cement and clinker	80.6	84.3
Sales of aggregates	86.6	89.5
Volumes in million m ³		
Sales of ready-mix concrete	24.9	25.5
Personnel as at 31 December	44,316	47,362

Financial Contribution of Holcim's Cement and Clinker Business in 2001		
		% of Group total
Net sales in million CHF	9,994	73
Operating profit in million CHF	1,850	95
Number of personnel	29,100	61

Cement is a global commodity, manufactured at thousands of local plants. It makes an important contribution to economic activity, as an essential construction material for every sort of housing and infrastructure development. The industry has undergone rapid consolidation recently, so that six companies now account for approximately 35% of the world market.

Clinker and cement production is the largest single part of Holcim's business (see table below left).

In this section, we give an overview of our economic performance (see table) and look at each of the key stakeholder groups on which our business has a major economic impact – our customers, employees and investors.

Customers

Whilst cement is a global commodity, the product is bulky, relatively low in price and requires cost-sensitive distribution strategies. For these reasons, our markets tend to be local, regional or national.

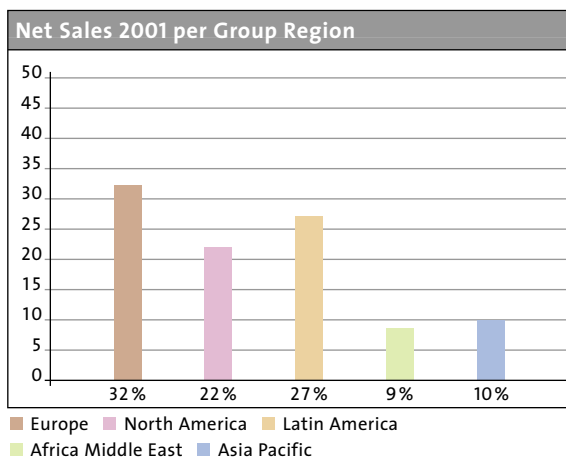
Our key customer groups are:

- **ready-mix concrete producers** – professional companies producing large volumes of concrete who buy in bulk
- **concrete products manufacturers** – diverse, highly specialized companies who also only buy in bulk, to strict specifications
- **wholesalers and retailers** – buy to sell only, often purchasing in bags for resale to other users
- **construction contractors** – generally buy from ready-mix concrete producers or concrete products manufacturers, but also buy direct from the cement company. In the developing world this is often in bags for small, local construction projects
- **government or construction project owners** – buying for larger projects.

Strong financial performance allows us to invest in leading technology, new product development, our workforce and our communities.



In Europe, North America and the rest of the developed world, most sales are in bulk. In the developing world, most cement is sold in bags to individual customers through wholesale and retail channels. The net value of our global sales in 2001 was CHF 13,644 million. Our sales by region are shown in the chart below.



Our sales increased more than four-fold between 1980 and 2001, in the main due to growth in the markets of the developing world since 1990.

Employees

Our employees are our greatest asset and the key to our performance and continued success. We aim to create a working climate that encourages personal and professional development, and to reward our employees with sound training, career prospects and remuneration.

At 31 December 2001, we employed a total of 47,362 people across the world. Employee numbers by region are shown below. Total personnel expenses in 2001 were CHF 2,419 million.

Group Personnel per Region			
	1999	2000	2001
Europe	14,249	16,190	15,719
North America	5,271	5,348	5,494
Latin America	10,676	10,499	12,266
Africa Middle East	4,999	4,779	5,224
Asia Pacific	4,132	7,500	8,659
Total Group	39,327	44,316	47,362

Between 1980 and 2001, the number of people employed by the Group more than doubled, in the main due to acquisition and expansion. In the last ten years, this has been focused in the developing world, where a growing cement industry is often regarded as a symbol of increasing prosperity, indicating rapid growth of infrastructure and housing development.

Investors

Holcim shares are listed on stock exchanges in Zurich and London and are also traded in Frankfurt. Full details on our performance in the capital markets can be found on pages 110 to 113 of our Annual Report 2001. To generate stakeholder value, and meet our goal of being the most recommended stock in the industry, we require strong financial performance that strengthens our global position, and allows us to invest in leading tech-

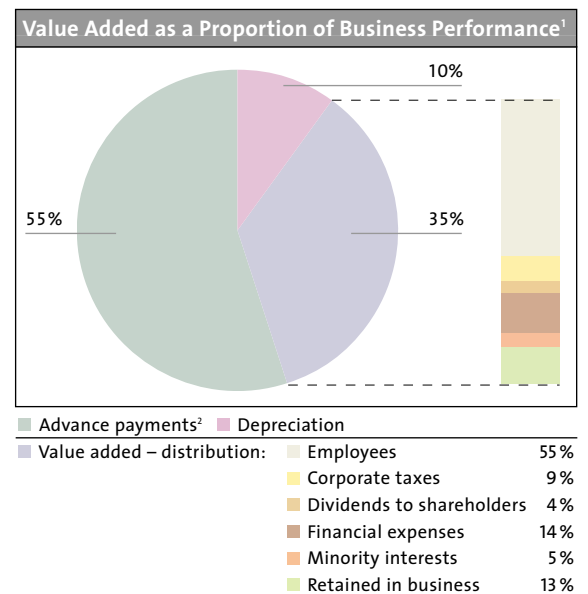
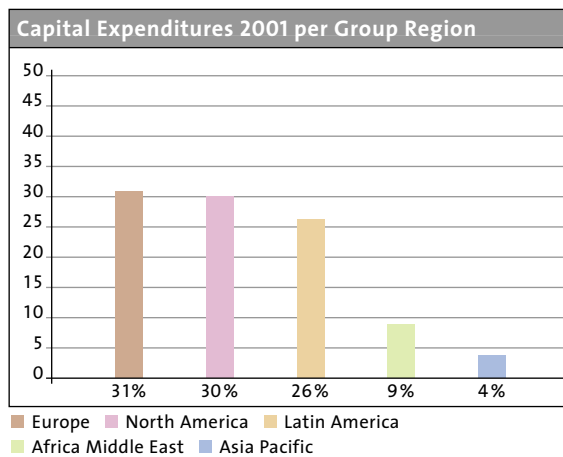
Adding value to society

Holcim’s economic performance adds value to society in ways that go beyond the direct contributions made by our products. We can calculate the total “value added” to society through payments to employees, state taxes, etc., using a simple formula derived from our overall business performance (see diagram for distribution of value added). This is not a sophisticated economic indicator and it does not take account of indirect impacts such as any contribution to innovation, the economic effects of changes in location and/or operations, or the contribution of our operations to national competitiveness. We acknowledge the existence of such indirect impacts, and the fact that they can be both positive and negative, but there is not, as yet, any generally accepted method of calculating and reporting them.

16 Economic Performance

nology, new product development, our workforce and our local communities. Our capital expenditures in 2001 reached CHF 1,730 million. This compares with a 2000 figure of CHF 1,640 million.

Full details of our financial performance and scope of operations are contained in our Annual Report 2001, available at www.holcim.com.



¹Business performance = net sales + other income = CHF 13,883 million

²Advance payments = distribution costs + cost of goods sold + marketing and sales expenses + administration expenses less included personnel expenses

Cement production requires intensive use of natural raw materials and energy. It also results in emissions to the atmosphere, the most significant being CO₂. That is why eco-efficiency is at the core of our business, and why we have made a commitment to reducing our specific net CO₂ emissions by 20%¹ by 2010.

Environmental Performance 17

We use the concept of eco-efficiency to drive our environmental activities – producing more cement while using fewer resources and producing less waste and pollution per tonne. This means carefully managing our impacts at all stages from raw material input to distribution and use of the final product. Our focus is on three key areas.

- Management: establishing effective environmental management and reporting systems at all our sites and operations.
- Process inputs: reducing our demand for natural resources and our CO₂ emissions per tonne of product, by replacing fossil fuels and raw materials with waste and industrial by-products, and introducing new process technology.
- Process outputs: reducing emissions to air by improving our process operations and management systems.

Principles

We aim to continuously improve our performance by increasing our understanding of the significant challenges that we – and our industry – face in moving towards environmental sustainability. Our policy-making is guided by six principles.

Our Environmental Principles
We apply environmental management guidelines and standards worldwide and monitor our performance.
We promote eco-efficiency, conservation of non-renewable natural resources and recycling of secondary materials.
We invest in the development of innovative and sustainable products and processes.
We measure our performance, continuously improve and promote best practice in our industry.
We engage our stakeholders and report publicly on compliance, performance and progress.
We promote our commitment through training and integration into business processes.

¹Global average figure measured against a 1990 baseline. See page 23 for more details.

Management systems and tools

Environmental management, including monitoring of performance, was a decentralized management responsibility until 2000. Corporate standards and guidelines started being implemented in 1997 and corporate data collection began in 2001 for 2000. This and the following page briefly summarize our key management systems and tools.

Environmental management systems

We are currently reviewing all our environmental management systems (EMS) against the demands of the ISO 14001 standard. At present, 20 of our 129 plants have obtained ISO 14001 certification. This is described further on page 8.

Corporate standards and guidelines support local implementation of robust, auditable environment management systems. ▶

Group-wide emissions monitoring and reporting (EMR) standard

Uniquely in our industry, we have developed and are implementing a global standard for continuous measurement of dust, SO₂, NO_x and volatile organics emissions and periodic measurement of other emissions, including metals and dioxins. More detail is contained in the box on the next page.

Company environmental assessment

The plant environmental profile (PEP) system is a suite of self-assessment tools which enables our companies to evaluate their performance on all relevant environmental issues. The system contains key elements of ISO 14001. PEP is applied by all companies and has been consolidated at corporate level since 2000. It has led to significant progress in monitoring and reporting.

WBCSD Carbon Dioxide Protocol

The protocol is a standard methodology for monitoring and reporting CO₂ emissions at plant, company and Group level. It was developed as part of the



WBCSD Cement Sustainability Initiative (see page 12) and validated by KPMG. It is based on the CO₂ monitoring & reporting protocol developed by Holcim in 2000 and now allows us to report our CO₂ emissions according to an internationally accepted standard.

Code of conduct for the use of alternative fuels and raw materials

The code of conduct guides our use of waste streams from industry, agriculture and communities as alternative fuels and raw materials (AFR) in the clinker-making process. It is backed up by manuals detailing engineering, health and safety guidelines. All our operations using AFR are required to adhere to this code.

Training

We carry out staff training at a number of levels to ensure our policies and procedures are implemented effectively.

- Every Group management training meeting includes a session dedicated to environmental policy.
- In 2002, regional training sessions were dedicated to the PEP system and the EMR standard.
- Our environment and AFR specialists meet every two years in a global conference and more often at focused, regional seminars.

Integration into business processes

Selected environmental parameters are integrated into our business management processes. Performance against the objectives and indicators for these parameters are included in monthly reports to Group and company management committees, business plans and investment decisions. These parameters include thermal and electrical energy efficiency, clinker substitution and thermal substitution rates.

Group Standard

EMR Standard

Regulatory requirements for measuring atmospheric emissions vary widely: different parameters are measured, using different measuring principles, and are expressed in different units. In some regions, some emissions have to be measured continuously, while other regions require emissions measurement only once or a few times per year. This makes it difficult for us to aggregate and compare performance across the Group, and makes it almost impossible for stakeholders to benchmark our performance against others.

We have therefore developed a corporate standard for emissions monitoring and reporting based on a thorough study of existing methodologies. The EMR standard prescribes the measuring methodology and will

Environmental Performance 19

Targets and Next Steps

From 2002, we will report regularly on our environmental performance and objectives.

Group companies will comply with the EMR standard by the end of 2003.

In line with our target on page 8, all Group companies that use alternative fuels or raw materials in their plants will have an ISO 14001-compatible EMS in place and will seek ISO certification by the end of 2004.

As part of our engagement with the Cement Sustainability Initiative (see page 12), we will work with stakeholders and other cement companies to develop the following tools:

- global guidelines on responsible use of raw materials and fuels in cement kilns
- an agreed global protocol for measuring and reporting atmospheric emissions
- development of key performance indicators on sustainable development.

be used by all our clinker producing kilns worldwide by the end of 2003. Key features include:

- continuous monitoring of dust, NOx, SO₂ and VOC
- periodic measurement (at least once per year) of metals, dioxins/furans, HCl, benzene and ammonia
- equipment calibration (at least twice per year) by an external, competent organization.

To implement the standard, plants need to have both the necessary monitoring equipment, and the technical expertise to use it. Following careful evaluation of the available equipment, we have embarked on a global program of installation and personnel training. All plants also receive a complete technical manual which includes guidance on converting the Holcim standard reporting unit into the different units that are required by regional regulations.

Global rollout of EMR has already begun. Most kilns installed the necessary equipment during 2001/02, and complete coverage is planned for 2003. To our knowledge we are the first and still the only global cement group to implement such a global standard.

Use of energy and raw materials

Producing cement centers on a chemical reaction in which mineral raw materials are converted into clinker at very high temperatures obtained by burning fuels in a kiln. The clinker is then ground with further raw materials to make cement (see inside back cover).

Because of the nature of the chemical reaction, production of clinker is the most energy and resource-intensive part of the process.

Efficient use of natural resources is an important cornerstone of our environmental policy. We are committed to using secondary materials (waste and industrial by-products) in place of natural resources where possible. This is done without increasing our

Ordinary Portland Cement is the most basic form of cement, with a maximum clinker factor of around 95% (added gypsum makes up the remaining 5%). The chart below shows how our average clinker factor has changed over time. Holcim's current average clinker factor is 80% which, given a maximum of 95%, means that we substitute 15% of our clinker with secondary cementitious materials. This compares favorably with an average of 86% for the industry. The use of composite cements is especially successful in Europe and Latin America with clinker factors as low as 65%. Market factors, as well as cement quality considerations, influence our ability to improve our performance. Some customers have particular technical requirements that preclude use of composite cements, while other customers are resistant to change. The low substitution rate in North America is primarily due to national cement standards in the US.



Investment in modern technology improves thermal energy efficiency.

Eco-efficiency measures reduce our use of natural raw materials.

Careful process control is key to optimizing our use of energy and raw materials.

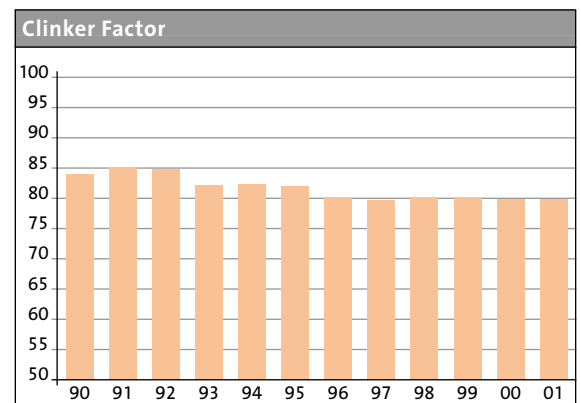
atmospheric emissions or impacting product quality and achieves reductions in CO₂ emissions.

Performance and indicators

We use four key performance indicators to monitor and report the eco-efficiency of clinker production.

1. Reducing the amount of clinker needed to make a tonne of cement: the clinker factor

The clinker factor is the percentage of clinker in cement. Clinker can be substituted by other materials (known as secondary cementitious materials) to make different kinds of cement. Lowering the clinker factor reduces the amount of fuel required per tonne of cement produced, and substituting the clinker with suitable waste materials reduces the volume of virgin raw materials required. Because strict quality standards are set for cement, the range of materials that can be used is limited, but suitable materials include fly ash from the power generation industry and blast furnace slag from iron production.



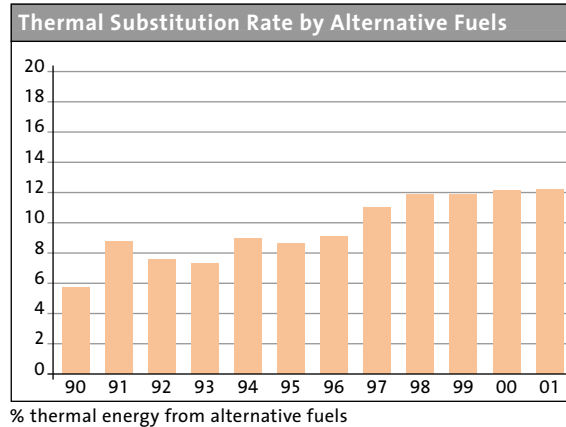
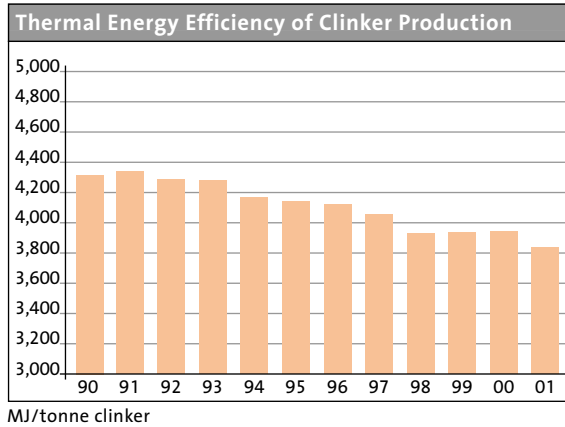
Average % of clinker in cement

2. Increasing the thermal energy efficiency of the clinker-making process: specific heat consumption

Specific heat consumption is the total thermal energy consumed per tonne of clinker produced. The thermal energy efficiency of plants is almost entirely a function of the technology applied in the production process. For this reason, the cement industry in Europe and North America – where plants are older and less efficient – is less energy-efficient than elsewhere in the world. Since 1990, our average energy efficiency has improved by almost 11% to 3,850 MJ per tonne of clinker in 2001.

This improvement is due to closure of 11 old energy-intensive plants, and the construction of more efficient ones, as well as the acquisition of modern efficient plants in Latin America and Asia. We have also started a plant renewal program in North America that will significantly improve energy efficiency and reduce specific CO₂ emissions.

industrial waste, we increasingly use hazardous waste derived fuels, such as solvents, paint and tank-bottom sludge. We have carried out detailed technical work to ensure that there is no adverse effect on public health, the environment or product quality from the use of alternative fuels.

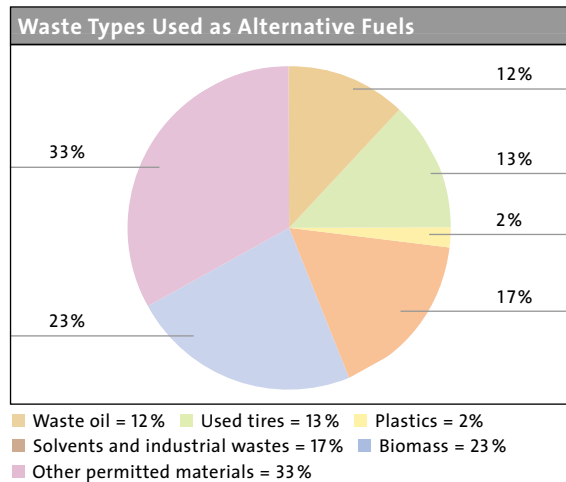


Environmental Performance 21

3. Increasing the proportion of energy from alternative fuels: the thermal substitution rate

Substitution of fossil fuels by alternative, waste derived fuels is a common practice in many parts of the world. It is an important business opportunity because it reduces fuel costs and CO₂ emissions and enables the industry to provide a waste disposal service to society, by dealing safely with wastes that are often difficult to dispose of in any other way. In 2001, our thermal substitution rate was 12.3 %, more than double the 1990 figure and well above the industry average of 9 %. This is equivalent to replacing 1.3 million tonnes of coal per year, by recovering 1.8 million tonnes of waste. In Western Europe and North America, our substitution rates quadrupled in the last decade to nearly 29 % and 17 % respectively in 2001. Latin America increased to 9 % in 2001, while in Asia and Africa fuel substitution is in the first stage of development.

Worldwide, around 80 % of the alternative fuels we use are waste oils and non-hazardous wastes such as used tires, plastic, wood, sewage sludge and others. In Western Europe, where over 50 % of the waste we use is



4. Reducing the amount of kiln dust discarded per amount of clinker produced: the cement kiln dust (CKD) rate

The CKD rate is a measure of the eco-efficiency of our process. For more information, see page 26.

Targets and Next Steps

We will improve our performance on each of these parameters, in order to achieve a 20 % reduction of CO₂ emissions by 2010 (see page 23).

Holcim Switzerland – Alternative Fuels and Raw Materials (AFR)

Holcim Switzerland is one of the most prominent examples of good AFR business development in the Group. In the early 1990s, driven by the financial and environmental benefits of using waste as a fuel, and a temporary shortage of landfill and incineration capacity in Switzerland, stakeholders came together to address the use of alternative fuels and raw materials in the cement industry. Together they developed an agreed framework of clear rules for regulation of the environ-

process. Any that remains is emitted as process effluent, and can be affected by the presence of solids or by elevated temperatures, which may have a minor impact on the local ecology.

We expect our plants to take steps to minimize the impact of process effluent, for example through installation of settling ponds or closed loop water cycles. However, process water consumption has not been systematically measured at all Holcim plants, thus reliable corporate information is not yet available.

Training and education of plant personnel in use of the Holcim plant environmental profile tool will improve the quality of our information and we aim to report in future on both water consumption and water treatment.



Waste plastics are used safely as alternative fuel, benefiting society and the environment.

Continued community engagement enabled the use of other alternative fuels, such as animal meal.

The high temperature and long residence time in the kiln ensure destruction of organic substances in fuels.

mental and societal aspects of the use of alternative fuels and raw materials.

Today, the company's five cement plants have thermal substitution rates of between 10 and 60%, using wastes including solvents, waste oil, plastic and used tires. Continuing engagement with stakeholders has enabled Holcim Switzerland to use a variety of other alternative fuels and raw materials. These include dried sludge from sewage treatment and animal meal from the preventive slaughtering of cattle potentially infected with BSE ("mad cow disease").

Water

The environmental impact of water use in cement production is relatively small, particularly in modern dry process facilities. Water is used mainly for cooling exhaust gases and equipment, and for slurry preparation in wet kilns. Most of this is evaporated during the

Quarry management

Other than fuel, the essential raw materials for cement production are limestone, marl and clay, which are obtained by quarrying. We have 150 cement-related quarries in operation across the world. An operating quarry obviously has major impacts on the local landscape and ecology, and can cause noise and traffic problems for local communities. We therefore have a number of systems in place to manage our quarries responsibly.

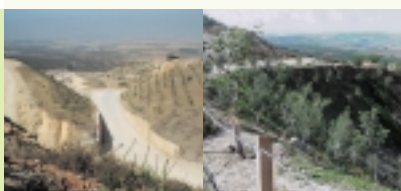
The standard quarry optimization tools used by our managers have environmental as well as economic benefits. Using computer-generated quarry maps, materials with the required qualities can be extracted and homogenized in the correct proportions, to minimize wastage of natural resources. Quarry layouts and operations are also optimized with respect to location of crushers and haulage roads, to minimize noise, transport and visual impact. Materials extrac-

Initiative

Holcim Spain – Quarry Management

The San José del Valle limestone quarry is located close to Cadiz National Park and has an expected lifetime of over 70 years. The El Puente gravel pit has an expected lifetime of 13 years and is situated at the Jarama River, near the historic town of Aranjuez, south of Madrid.

At both sites, quarry management plans have been developed to allow rehabilitation of those parts of the quarries where operations are complete, while continuing to excavate in other parts of the site.



Quarry management plans allow rehabilitation to begin while operations continue at other parts of the site.

Rehabilitation of the San José del Valle limestone quarry has won Spanish and European awards for quarry rehabilitation.

The slopes of the limestone quarry were designed to allow reforestation with native shrubs and trees, and to integrate into the natural environment. A watering system was installed to ensure optimal viability of the young plants. The El Puente site was landscaped with lagoons and islands of differing sizes, shapes and depths, and with banks with irregular slopes. The site is managed in a way that ensures food and safe shelter for birds, and since 1995 has become the habitat for 19 different aquatic birds, and a hibernating site for 31 species, some of which are endangered.

Both sites are used for environmental education, and in 2000, the San José del Valle rehabilitation scheme won Spanish and European awards for quarry rehabilitation.

tion is carried out in a shape that allows optimal rehabilitation, and usually rehabilitation can begin while the quarry is still operating.

All our quarry sites are required to have quarry rehabilitation plans in place for when the site is closed. In 2001, 78 % of our quarries had achieved this. 85 % of our quarries have a dedicated quarry rehabilitation fund in order to ensure that sufficient financial resources will be available to rehabilitate the site as planned.

Targets and Next Steps

As part of our commitment to the Cement Sustainability Initiative, we will develop rehabilitation plans for all our operating cement-related quarries by 2006.

Climate change and CO₂ emissions

Studies estimate that the cement industry is responsible for 5% of global man-made CO₂ emissions. Managing and reducing these emissions is therefore a key priority. Our emissions come from the following sources:

- chemical process of making clinker (50%)
- combustion of fossil fuels in the kiln (40%)
- indirect emissions from purchased electrical power (5%)
- transport (5%).

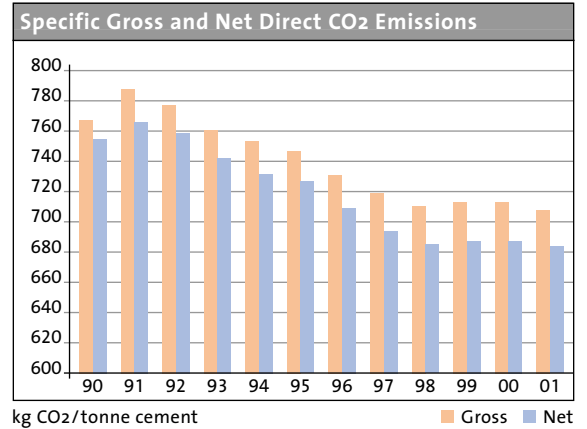
These emissions can be lowered by reducing the amount of clinker used per tonne of cement, substituting fossil fuels, improving energy efficiency and reducing kiln dust disposal.

We monitor and report our CO₂ emissions according to the WBCSD Carbon Dioxide Protocol for the cement industry (see page 18). This requires us to report on the following four indicators:

- absolute gross emissions – the total amount of CO₂ emitted from our cement production activities
- absolute net emissions – gross emissions minus credits for indirect savings, such as use of waste as fuel
- specific gross emissions – the gross amount of CO₂ emitted per tonne of cement
- specific net emissions – the net CO₂ emissions per tonne of cement.

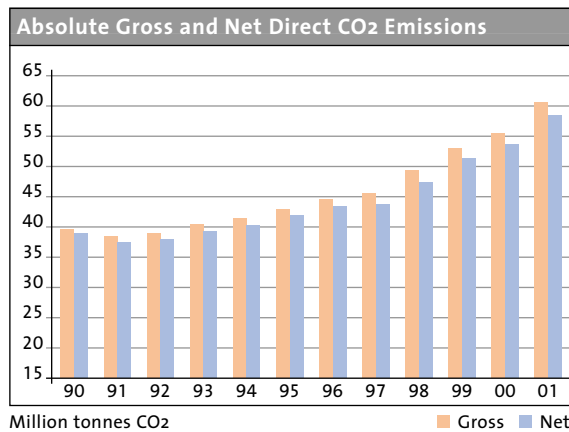
Absolute emissions – our performance in 2001 can be summarized as follows:

absolute gross emissions:	60.8 million tonnes CO ₂
absolute net emissions:	58.8 million tonnes CO ₂



On a worldwide level, our specific emissions have improved, mainly due to strong improvements on all eco-efficiency parameters in North and Latin America, and the building and acquisition of new, efficient plants in Asia Pacific and Africa Middle East regions.

24 Environmental Performance



Despite a 67% increase in our global cement production between 1990 and 2001, our increase in absolute net CO₂ emissions was only 51%, due to a 9.3% average efficiency improvement.

Specific emissions – our performance in 2001 can be summarized as follows:

specific gross emissions:	708 kg CO ₂ /tonne cement
specific net emissions:	684 kg CO ₂ /tonne cement

Targets and Next Steps

We will reduce our global average specific net CO₂ emissions (kg net CO₂/tonne cement) by 20% by 2010, with 1990 as the reference year.

This reduction will be achieved through improving the four key eco-efficiency parameters: clinker factor, specific thermal energy consumption, thermal substitution rate and reducing cement kiln dust disposal (see page 20).

Other atmospheric emissions

Alongside CO₂, cement production results in the emission of a certain number of substances to the atmosphere. In most places, local authorities regulate these emissions. As we seek to substitute more fossil fuels with wastes and industrial by-products, these emissions

are increasingly coming under scrutiny. Quite rightly, regulators and local communities are asking us to prove that using these materials does not increase emissions that may harm the environment or human health.

We are committed to measuring, monitoring and publicly reporting our emissions in ways that will allow others to judge our performance. The rollout of our corporate EMR standard (see page 19), which will be complete in 2003, is part of delivering this commitment, and will improve the coverage of all our data. The table below shows the average emissions for our plants in 2000 and 2001 based on data reported by over 95% of our plants (though not all of those plants reported on all parameters). Data are given in “eco-efficiency” units to enable comparison of performance across the Group and over time. 80% of our plants reported emission levels at or below the “80-percentile” value.



Emissions from our plants are monitored and reported under our corporate EMR standard, allowing comparison of data across the Group and performance benchmarking and improvement. ▶

Dust from cement production consists of non-harmful raw materials and clinker dust. Modern process management and equipment has now virtually eliminated what was once a major problem. 50% of our plants now have dust emissions below 50 g/tonne clinker, but since some older plants have significantly higher emissions, the average value is higher.

Sulfur dioxide (SO₂) is the main gas causing acid rain. Emissions of SO₂ from the cement process originate from volatile sulfur in the raw material. Sulfur present in the fuel is largely incorporated into the clinker itself and not emitted to the atmosphere. 50% of our plants have SO₂ emissions less than 250 g/tonne clinker. The average figure of 750 g/tonne is due to high emissions from a few plants using raw materials with high sulfur concentration. To date, five Holcim plants have been equipped with flue gas cleaning to decrease their SO₂ emissions.

	2000			2001		
	% reporting plants	g/tonne clinker		% reporting plants	g/tonne clinker	
		average	80-percentile		average	80-percentile
Dust	84	110	170	91	110	150
SO ₂	74	770	1,200	79	750	2,000
NO _x	60	2,100	2,200	76	1,750	2,300
Organics	44	75	100	57	80	120
Mercury ¹	43	0.05	0.11	62	0.02	0.04
		ng TEQ / Nm ³			ng TEQ / Nm ³	
Dioxins ¹	43	0.05	0.05	56	0.04	0.04

¹ When individual results were below the limit of detection (LOD), a value equivalent to half of the LOD was recorded.

Nitrogen oxides (NOx) are in part responsible for the photochemical smogs that occur over urban areas. Emissions of around 2,000 g/tonne clinker can be achieved through careful process control, but lower emissions require additional flue gas treatment. Regulations in many countries do not require continuous NOx measurement. In some cases, alternative fuels can be used to reduce NOx emissions.

Volatile organic compounds (VOCs) play a role in creating low-level ozone that can cause respiratory problems. Emissions from cement plants largely depend on the organic content of the natural raw materials used. To reduce our emissions, we limit the content of organic components in alternative raw materials, and ensure effective combustion. Regulations in most countries do not require measurement of VOCs, except when using some waste materials.

Solid waste

Cement kiln dust (CKD) and bypass dust are the only significant solid wastes produced by the cement production process. They are only extracted and discarded when this is necessary to decrease the sodium and potassium concentrations in the cement, and the chlorine content of the process. CKD is especially an issue in North America, where cement standards require low alkali concentrations; elsewhere, CKD is recycled back into the process. For this reason, 6% of production is discarded as CKD in North America, compared to less than 2.5% in Western Europe and around 1% in Asia and Latin America. The amount of CKD discarded per tonne of clinker produced is an indicator of our eco-efficiency, as the more we dispose of, the less efficient is our use of raw materials (see pages 21 and 23). On a global scale, in 2001 we sold or landfilled 29 kg CKD per tonne clinker.

26 Environmental Performance

Mercury is the only heavy metal that is highly volatile in the kiln system. Around half of our plants periodically measure mercury emissions and under our EMR standard all plants will be required to measure and report at least annually. 50% of reported results were below the detection limit. We control the content of mercury in the wastes we use as alternative fuels.

Dioxins – all periodic measurements show that dioxin emissions are well below the EU limit values of 0.1 ng TEQ/Nm³. To prevent formation of dioxins in the cement-making process, we have banned the addition of organic products to the raw materials.

Targets and Next Steps

As part of our commitment to the Cement Sustainability Initiative, by 2006 we will set emission targets for key substances and report publicly on progress relative to those targets. See also EMR standard target, page 19.

Transport

Cement is a low priced and heavy weight commodity, and our distribution strategies are driven primarily by cost considerations. Short distance trips and bagged (as opposed to bulk) product transport are mainly covered by truck; longer distances are covered by water and rail transport. As cement is still mainly distributed to local and regional markets, the majority of our product is transported by road, particularly in the developing world where the retail market of bagged cements is more important than bulk sale.

Our total volume of shipments of cement products grew from 96 million tonnes in 2000 to 107 million tonnes in 2001. About 70% of product was transported by road, while train and ship had an almost equal share of the remainder. For communities living near our plants, transport by road can be a source of nuisance and traffic safety risk. Most of our plants have discussed transport itineraries and precautionary measures with the surrounding local communities, and aim to limit nuisance and keep risk to a minimum.

Our ongoing business success and license to operate depend on the support and trust of all our stakeholders. Our companies have been engaged in a wide variety of social responsibility programs for decades. In 2003, we will launch our CSR approach, including a Group-wide health and safety management standard.

Social Performance 27



Responsible social performance is more than a collection of projects and occasional gestures. It is an important and integral element of our business. We recognize our social responsibilities and aim to visibly play a leading role within our sphere of influence. As our corporate social responsibility (CSR) policy statement says, we are committed to work with all our stakeholders, building and maintaining relationships of mutual respect and trust. We aim to contribute to improving the quality of life of our workforce, their families and the communities around our plants.

The nature of the cement industry means that there are local as well as global impacts from our operations. Our plants have a major impact on the local landscape, and their products are often sold in the local market. Our license to operate therefore comes directly from the communities and regions immediately around our plants and associated quarries. We have been engaged in social responsibility activities throughout our history, but these have been carried out by individual Group companies. We were aware that a great deal of activity was happening, but we did not have a clear picture of the range and type

of projects and programs that were being undertaken. In 2001, we therefore carried out a survey of social projects and activities across the Group. The chart below summarizes the main types of projects we identified involving internal and external stakeholders, and the number of companies engaged in each.

We found that:

- almost all our companies are engaged in numerous CSR activities, working with a wide variety of internal and external stakeholders
- many of our companies run community or charity projects, and these have been particularly important in developing countries
- only three Group companies have a formal CSR policy and there is little emphasis on monitoring, evaluation and reporting of ongoing programs, projects and activities
- sites in different countries have developed different occupational health & safety management systems.

Targets and Next Steps

We will continue to report our CSR performance in future reports.

Our Group-wide CSR approach, including CSR policy, CSR handbook and OH&S handbook will be launched in 2003.

By the beginning of 2003, we will define clear targets and milestones for the implementation of our Group-wide CSR approach.

During 2003 and 2004, all companies will:

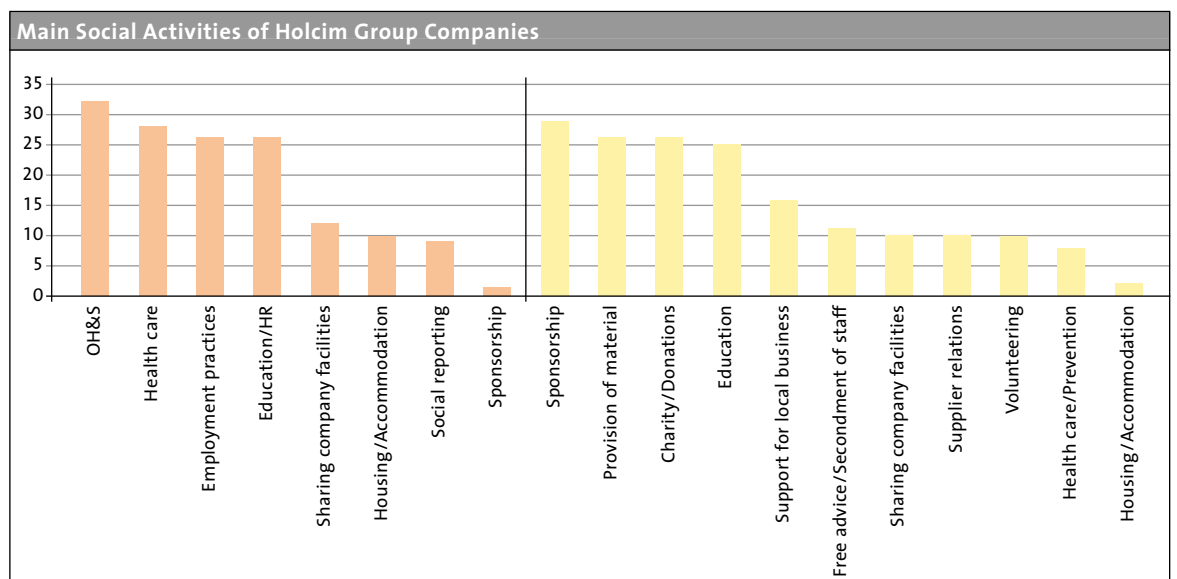
- conduct a CSR assessment
- define their own CSR strategy based on the Group policy
- integrate CSR and OH&S into their business plan
- establish a CSR and OH&S budget.

28 Social Performance

Our intention is to bring together and share the experience that has been built up in individual companies, particularly in occupational health & safety (OH&S) and community involvement projects, and to develop Group guidelines and business standards where appropriate. We aim to “professionalize” our engagement by introducing a management system and tools that focus on the

needs of stakeholders, and help us to work with them to find creative and effective solutions. In general, we will focus our resources on issues that relate to our business impacts and where we have most expertise.

See page 32 for more information on our OH&S targets.



Number of companies out of a total of 36 consolidated Group companies

■ Internal stakeholders ■ External stakeholders

Business conduct

Credibility and integrity are central to our business success. These values are enshrined in the way we make our business decisions and in the conduct of individual employees.

We are committed to high standards of professional and ethical business conduct in all our operations, everywhere in the world, and in all our spheres of influence. We are also committed to upholding the principles contained within the Universal Declaration of Human Rights.

Alongside our support for human rights, we are committed to upholding high standards of labor rights. This includes recognizing the right of employees to join and form unions and to make decisions on collective representation.

Employment practices

The people who work for us are central to our success. We strive to provide the best possible conditions in terms of trust, team spirit, mutual respect and personal and professional development – making us an employer of choice in the industry. Most of our employees work on site at our cement plants and related quarries around the world. Up to now, policies regarding their employment have been set by the local operating company. We are now in the process of consolidating some of these policies.

Faster learning

We have a long tradition of placing emphasis on people development. We aim to ensure the employ-



Literacy programs help to ensure the employability of our staff.

We partner with our customers to provide training in the use of our products.

Many of our companies provide health care programs for their employees.

Four of our companies – in South Africa, the Philippines, Argentina, and Canada – have published extensive codes of conduct. A further 16 have endorsed business ethics, as a core company value, either as part of compliance with national legislation, or within business policies, employment contracts and similar documents.

We now intend to develop a Group-wide code of business conduct which provides appropriate direction on business practices such as fair employment, worker health and safety, human rights and environmental standards, among others.

ability of our staff, using a model called “Faster Learning”, which is delivered through our Group companies. Most Group companies have needs-driven training plans. For example, our Vietnamese Group company trains local high school graduates using a three-year vocational program based on Switzerland’s apprenticeship system. Each year, 12 participants are trained to become cement technicians. The training is integrated into the plant’s workflow, and is simple, low-cost, efficient and government certified. Holcim Vietnam’s investment of USD 30,000 per participant provides them with excellent job opportunities within the company or anywhere else in Vietnamese industry.

At Group level, training includes annual learning events covering technical, functional and management programs aimed at future leaders. These include sessions looking at sustainable development, CSR and environmental issues. In addition, a Group-wide program secures fast track development of high potential candidates. Approximately 70% of our managers are promoted from within the Group.

Targets and Next Steps

As part of our commitment to the Cement Sustainability Initiative, we will develop and publish a Group code of business conduct by 2003.

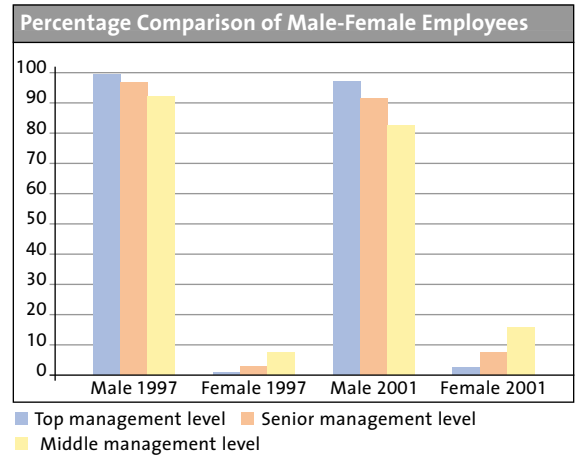
Performance management

Our Group performance management system – called “Dialogue” – was introduced three years ago. It covers objective setting, performance measurement and development planning. 25% of Group companies include all personnel in our performance evaluation system. The remainder includes an average 40% of their workforce. “Dialogue” is accompanied by a program of employee self-development. This uses on-site and virtual self-development seminars to enable employees to take responsibility for their career advancement and establish their own individual development plans.

Diversity

We are committed to valuing diversity and promoting equal opportunities. Our approach to management development is to involve managers in projects across functions and geographic borders, resulting in over 100

As the chart below shows, there are far more men than women in our management body. This reflects the overall pattern of employment in the building materials industry. However, in a number of functions, such as communication, human resources management, finance and marketing, women are starting to play a more prominent role.



30 Social Performance

cross-border transfers each year. As a result, our management teams are made up of people from a diversity of backgrounds and nationalities. For example, the top management level contains 36 different nationalities, and senior management is composed of 42. Since 1997, we have considerably increased the percentage of managers with international experience, and we now aim to continue this trend into middle management level.



This is a new area of work for the Group, and we intend to report more fully on the composition of our workforce in future reports.

Responsible restructuring

Reorganization or restructuring of a business will sometimes be necessary to ensure profitability or business survival, but its impacts on employees, their families and local communities can be severe. Recognizing this reality, we are committed to carrying this task out in a responsible way, communicating openly with the workforce and other stakeholders on the process. We look to involve stakeholders in developing effective ways to manage the change. “Responsible” for us also means establishing programs to support the workforce in coping with these changes.

Targets and Next Steps

- We will elaborate a standardized approach to developing company training plans by the end of 2002.**
- We will encourage Group companies to carry out employee satisfaction surveys during 2003 and 2004.**

Initiative

Holcim Sri Lanka – Responsible Restructuring

In 1998, our Sri Lankan Group company was hit by a heavy market downturn due to ongoing political conflict and civil unrest in the country. Holcim Sri Lanka needed to downsize considerably at the plant in Puttalam, with about 400 employees from a workforce total of 1,000 losing their jobs. The company was committed to supporting redundant employees in a way which exceeded national laws. Specifically, it wanted to ensure that those retiring

Through the voluntary early separation plan, Holcim Sri Lanka and its partners supported employees to set up their own businesses, including fruit and vegetable farming, grocery stores and bakeries. ▶

earned a reasonable monthly income as well as guarding against the potential squandering of compensation payouts.

Employees were offered a voluntary early separation plan, which included the option of starting their own small business. To facilitate this, a partnership was formed with two other organizations: Sri Lankan Small Business Center (SLSBC) identified promising entrepreneurs and trained them for their new venture; meanwhile, Hatton National Bank offered low-interest loans. The company's role was to facilitate the process and to maintain close communication with all new entrepreneurs.

A project manager supported the new businesses during the difficult start-up phase, until they reached self-sufficiency. Maintaining the partnership between the organizations and small businesses and ensuring that the services of SLSBC and the bank remained continually available, were important to the project's success. A network among the entrepreneurs was also established.



About 270 employees accepted the voluntary early separation plan and the additional support to set up their own business. In 2002, 261 entrepreneurs are still in business and more than 60% have a better income today than during the times they had worked for Holcim Sri Lanka. And the benefits extend further. Businesses have been established throughout the island, providing better services and products to their local communities. They include fruit and vegetable farming, engineering services, clothing factories and shops, transport services, grocery stores, bakeries, bicycle shops and others.

This approach to restructuring has already been applied by other Group companies.

Occupational health & safety

Health and safety is an important subject for the cement industry. At Holcim, we place the highest value on ensuring the health and safety of our employees, subcontractors and visitors.

In 2001, most Holcim Group companies had some form of occupational health & safety (OH&S) policy and supporting program in place, and there were many examples of good practice within the Group. However, there were a number of different definitions, approaches, and understanding of what OH&S policies and programs involve.

In 2001, 129 of our cement plants reported their data. Seven fatal accidents were reported in 2001, six

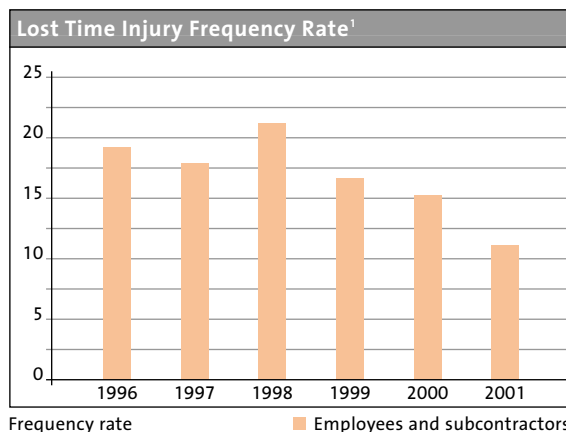
Our lost time injury frequency rate has declined over the last few years, but still remains unacceptably high. This fact, coupled with the diversity of approaches to OH&S management across the Group, has led us to develop a policy and targets for the whole Group. The aim is to achieve zero accidents resulting in death or permanent injury/disablement annually, and to reduce our lost time injury frequency rate to less than five annually.

From 2003, it will be mandatory for Group companies to apply our global OH&S standards, to provide the necessary resources and training programs, and to measure their performance. An OH&S handbook for employees has been developed to communicate the main elements and principles of our approach.

Changing cultural and behavioral patterns in order to develop healthier, safer environments is a major

32 Social Performance

involving Holcim employees and one employee of a subcontractor on site. While this is 15 fewer than in 2000, we deeply regret that deaths have still occurred. Serious accidents are not acceptable, and we are taking deliberate steps to reduce this number to zero.



¹ The lost time injury frequency rate (LTIFR) is calculated as:

$$\frac{\text{Number of lost time injuries}}{\text{Total number of hours worked}} \times 1,000,000$$

The LTIFR shows combined data for Holcim employees and subcontractors. In our next report we will be able to provide separate LTIFR statistics for employees and subcontractors.

challenge. We have already begun to implement a critical incident reporting system for sharing information about serious accidents and incidents that occur at any of our sites.

Targets and Next Steps
From 2003, all companies will carry out an annual OH&S assessment.
By the end of 2004, all companies will establish an OH&S action plan with specific targets.
By the end of 2005, all companies will establish or adapt their OH&S management systems in line with the Group standards.

Initiative

QCL Australia – Integrated OH&S Reporting System

QCL is the Holcim Group company in Australia, operating business units across a distance of some 3,500 km. In 2001, QCL finalized development of an electronic, fully integrated incident management system as an efficient and effective process by which hazards could be identified and controlled. The reporting system is intranet-based, as this allows all personnel to easily access it and register a report. Once a report is registered, it proceeds through a series of prescribed steps in a set timeframe which ensures that the incident is properly investigated, that corrective and preventive

- helping to build infrastructure for livable communities.

Our programs, projects and activities must be based on the needs of the community itself, involving local stakeholders in both planning and management. We favor projects that build replicable models for solving social problems. Projects must have the potential to be economically sustainable as well as socially beneficial.

Group companies engage in a wide variety of community involvement activities, including donated time, financial support, products, services and management knowledge, many of which have been in place for decades. The following initiatives provide examples.

At Alsons Cement in the Philippines, a comprehensive approach to community relations includes the “Women’s Livelihood Assistance Program”.

action is taken and that all relevant people and agencies are informed. QCL’s system is now being used as an example of good practice for other Holcim companies to follow.

Community involvement

Our aim is to be a trusted partner in each community where we work and live.

The ultimate objective of our community involvement is to identify and realize mutual goals, and to resolve common concerns of the company and the community. Based on our policy, an assessment of local needs, and our core business expertise, we recommend our Group companies to focus their engagement on three main themes:

- contributing to the provision of education for society’s future
- supporting sustainable community development



Targets and Next Steps

As part of our overall CSR approach, in 2003 we will introduce a CSR handbook which includes guidance on community involvement activities.

Initiative

Cementos Boyacá Colombia – School Center

In 1998, Holcim's Colombian subsidiary, Cementos Boyacá S.A., developed a project to provide secondary education and agricultural training to children of local farmers, and promote environmental awareness and improvement around its cement facility in Nobsa. The project was driven by the local plant managers, who hoped to train the youth of the region so that they did not feel forced to leave.

With initial costs of approximately USD 220,000, and with the enthusiastic participation of the entire

Initiative

Alsons Cement Philippines – Community Relations

Until Holcim acquired Alsons in 1998, the company had a poor relationship with its local community, due to the company's inattention to its environmental and social responsibilities.

However, a flood that devastated the area in 1999 became a turning point in this relationship. Alsons' employees volunteered assistance in food, medicine, infrastructure repair and emotional support for the

Cementos Boyacá in Colombia has established the Centro Juvenil Felix Gloor to provide secondary education and agricultural training to children of local farmers.

workforce, a school center (Centro Juvenil Felix Gloor) with a total floor space of 1,500 m² was constructed in 83 days.

Around 60 girls and boys from the local farming and mining communities in which Cementos Boyacá is active now attend the school regularly. They are taught to use their country's resources in a sustainable manner and contribute to the well-being of their families and region. Education and farming are the school's main programs.

The children live at the center from Monday to Friday. Each morning they are taught educational basics and the afternoons are devoted to agricultural skills at the school's farm, learning to grow and cultivate the produce needed to turn their homes into self-supporting farms.

The center admits thirty children (aged 11 to 13) every two years. The students graduate after six years. The center expects its first 30 graduates in 2005.



victims, and in doing so opened the door to improved relations. As a result, a community relations committee was created, made up of the company management, unions, local community representatives, NGOs and government agencies. This committee assesses and validates Alsons' proposals for community activities, which have themselves been identified through a local stakeholder engagement process. Projects are then carried out in collaboration with partner organizations.

For example, the "Adopt-a-School" program focuses on the community's national high school which Alsons has adopted to improve its facilities. With a poverty rate of around 90% in Lugait, many children need to drop out of school early. Alsons provides scholarship grants for 44 poor and deserving high school and college students from the community.

The "Women's Livelihood Assistance Program" trains local women to sew and produce different "house-keeping" materials for use by company operations. This provides them and their families with additional income, and ensures the company is supplied with quality "housekeeping" materials. Recently, the program extended its services to include the sewing of school uniforms, curtains and other products for the benefit of others in the area.

In addition, the "Masonry Skills Education Program" ensures local masons are trained in the application of cement as well as general house construction. The program was established in coordination with the Philippines Technical Education Skills Development Authority (TESDA), the Iligan Habitat Housing Project Ministry and the Philippine Institute of Civil Engineers, Iligan chapter. To date, more than 90 masons have participated.



The "Livelihood Assistance Program" helps to provide families with extra income.

The "Masonry Skills Education Program" trains local masons in cement application.

Customer and supplier relations

We offer competitive, high-quality products and services that meet our customers' needs, through research and development and by providing detailed product information. As society moves towards a more sustainable future, we will be challenged to develop further products and services that integrate the environmental and social responsibility needs of our customers. We expect our own suppliers to behave likewise in meeting our needs and we are starting to talk to suppliers about their environmental and social commitments. We acknowledge that we have to do more in this area in the future. In the developing world, much of our cement is sold in bags to individuals. To better meet the needs of some of our poorest customers and neighbors, we have been working with local institutions to find innovative solutions for local infrastructure and housing. The "Mi Casa" project in Mexico is an excellent example of this.

Apasco Mexico – “Mi Casa”

Around 40% of the cement produced in Mexico is used to build houses. Concrete is a popular building material, the Mexican impression being that “only a concrete house is a good house”. The housing shortage in the country is currently more than six million and this figure rises each year. In cities there is more and more illegal settlement which needs urgent attention. However, government social housing programs can only support 80% of current demand, even without reducing the historical deficit. As a result, most people solve their housing needs by building their own homes. However, because of financial limitations and limited



The “Mi Casa” scheme helps local people with practical advice, enabling them to self-build to acceptable standards.

By improving access to affordable construction materials, Apasco is helping to solve Mexico’s housing shortage.

knowledge of building techniques, around a quarter of these homes have neither running water nor drains. In addition, building materials are only available from centrally located stores, leaving those who want to build their own homes with little access to affordable materials and professional advice. Apasco’s “Mi Casa” scheme is concerned with both helping people self-build to an acceptable standard, and with improving the availability of affordable construction materials.

Since 1996, Apasco has brought together tradespeople, local authorities, housing law experts and credit institutes to offer total housing solutions. In that time, Apasco has set up more than 120 standardized “Mi Casa” centers (building materials depots) that allow resellers to have the full range of building materials and products available locally at reasonable prices. A parallel scheme has trained



more than 10,000 self-builders in the skills needed to build their own homes.

The “Mi Casa” model was developed in close cooperation with architects and civil engineering associations. Around 500 enthusiastic graduates now work for the “Mi Casa” scheme. After some basic training in Apasco’s concrete technological center, students are assigned to the various “Mi Casa” centers to help local people with practical advice. This enables the students to gain experience that stands them in good stead in their future professional careers as architects and engineers.

We estimate that through the “Mi Casa” initiative Apasco has supported the construction or improvement of about 400,000 homes all over Mexico during the last six years.

Year	Target
2002	<ul style="list-style-type: none"> ■ We will report regularly on our sustainable development performance and objectives. ■ We will elaborate a standardized approach to developing company training plans. ■ As part of our engagement with the Cement Sustainability Initiative, we will work with stakeholders and other cement companies to develop the following tools: <ul style="list-style-type: none"> – global guidelines on responsible use of raw materials and fuels in cement kilns – an agreed global protocol for measuring and reporting atmospheric emissions – development of key performance indicators on sustainable development.
2003	<ul style="list-style-type: none"> ■ We will develop and publish a Group code of business conduct. ■ We will launch our Group-wide corporate social responsibility (CSR) approach, including clear targets and milestones for implementation. ■ During 2003 and 2004, all companies will: <ul style="list-style-type: none"> – conduct a CSR assessment – define their own CSR strategy based on the Group policy – integrate CSR and occupational health & safety (OH&S) into their business plan – establish a CSR and OH&S budget. ■ From 2003, all companies will carry out annual OH&S assessments.

Summary of Targets 37

	<ul style="list-style-type: none"> ■ We will encourage Group companies to carry out employee satisfaction surveys. ■ Group companies will comply with the emissions monitoring and reporting (EMR) standard by the end of 2003.
2004	<ul style="list-style-type: none"> ■ All Group companies will develop and implement ISO 9001 and 14001-compatible management systems at all cement plants (from quarry to loading point) and will seek ISO certification by the end of 2004. ■ By the end of 2004, all companies will establish an OH&S action plan with specific targets.
2005	<ul style="list-style-type: none"> ■ By the end of 2005, all companies will establish or adapt their OH&S management systems in line with the Group standards.
2006	<ul style="list-style-type: none"> ■ As part of our commitment to the Cement Sustainability Initiative, by 2006 we will: <ul style="list-style-type: none"> – develop rehabilitation plans for all our operating cement-related quarries – set emission targets for key substances and report publicly on progress relative to those targets.
2010	<ul style="list-style-type: none"> ■ We will reduce our global average specific net CO₂ emissions (kg net CO₂/tonne cement) by 20% by 2010, with 1990 as the reference year.

Methods applied for data collection

The aggregation of Group company-derived information, internally verified, has been the main form of data collection using the following tools:

- plant environmental profile (PEP) questionnaires
- corporate main equipment data and operating statistics (MEDOS) report based on plant annual technical reports (ATR) for both environmental and OH&S statistics
- corporate CO₂ inventory according to WBCSD Carbon Dioxide Protocol
- corporate social responsibility survey.

System boundaries

This report covers our cement producing operations only. Aggregates, ready-mix concrete and other products/services will be dealt with at a later stage.

ing the report, however, we consulted extensively with a broad cross-section of key Holcim managers and with a number of recognized experts in sustainable development, to seek their feedback on the structure, content and relevance of the information contained herein.

Stakeholder feedback will assist us in further improving our reporting strategy. We welcome your input, using the form available at www.holcim.com/sustainable.

38 Methodology and Verification

It is worth noting, however, that the PEP scheme is already operational in the aggregate and ready-mix concrete businesses of the Group, and has been compulsory since 2000.

The data in this report represent consolidated data from Holcim Group plants and companies. The scope of consolidation is consistent with that applied to Holcim's financial statements, as described on page 60 of our Annual Report 2001.

Reporting standards

The report was prepared referring to the Global Reporting Initiative's (GRI) guidelines, in conjunction with the guidelines and recommendations of the World Business Council for Sustainable Development (WBCSD). At this early stage of our corporate data collection, we are unable to fully comply with GRI guidelines. It is our intention to work towards that goal.

Consultation and verification

Again, at this early stage of reporting, we have not sought external verification of the report. In prepar-

Acronyms and Formulae

AFR	Alternative fuels and raw materials
CAP	Community advisory panel
CKD	Cement kiln dust
CO ₂	Carbon dioxide
CSI	Cement Sustainability Initiative
CSR	Corporate social responsibility
EMR	Emissions monitoring and reporting
EMS	Environmental management system
ISO	International Organization for Standardization
NO _x	Nitrogen oxides
NGO	Non-governmental organization
OH&S	Occupational health & safety
PEP	Plant environmental profile
SO ₂	Sulfur dioxide
UNDHR	Universal Declaration of Human Rights
VOC	Volatile organic compound
WBCSD	World Business Council for Sustainable Development

Glossary

Absolute gross emissions The total amount of CO₂ emitted from cement production activities.

Absolute net emissions Gross emissions minus credits for indirect savings, such as use of waste as fuel.

Alternative fuels and raw materials (AFR) Inputs to clinker production derived from waste streams contributing energy and/or raw material.

Cementitious material or product A substance which when mixed with water forms a paste that subsequently sets and hardens at room temperature.

Clinker An intermediate product in cement manufacturing produced by decarbonizing, sintering and fast-cooling ground limestone.

Clinker factor The percentage of clinker in cement.

Composite cement Cement with a fixed percentage of secondary cementitious materials, such as slag and fly ash, replacing the clinker portion of the cement.

Concrete A material produced by mixing cement, water and aggregates. The cement acts as a binder, and the average cement content in concrete is about 15%.

Corporate social responsibility (CSR) The commitment of business to contribute to sustainable economic development, working with employees, their families, the local community, and society at large to improve their quality of life.

Eco-efficiency Reduction in the resource intensity of production, i.e. the input of materials, natural resources and energy compared with the output. Essentially, doing more with less.

Fossil fuels Non-renewable carbon-based fuels traditionally used by the cement industry, including coal and oil.

40 Acronyms, Formulae and Glossary

Editing consultant

Burson-Marsteller,
London

Design

Ernst Schadegg,
Zurich-Gockhausen

Printed by

Stäubli Ltd,
Zurich

Industrial ecology Framework for improvement in the efficiency of industrial systems by imitating aspects of natural ecosystems, including the transformation of wastes to input materials.

Kiln Large industrial oven for producing clinker used in the manufacture of cement. In this report, “kiln” always refers to a rotary kiln.

Lost time injury A work-related injury after which the injured person cannot work for at least one full shift or full working day.

Occupational health & safety (OH&S) Policies and activities to promote and secure the health and safety of all employees, visitors, and subcontractors.

Sustainable development Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Triple bottom line A business principle that measures corporate performance along three bottom lines: economic growth, environmental performance, and social responsibility.

Waste A substance or object whose owner discards it, wants to discard it, or has an obligation to discard it.

WBCSD Carbon Dioxide Protocol Internationally accepted standard methodology for monitoring and reporting CO₂ emissions from cement manufacturing activities.

Ordinary Portland Cement Cement that consists of approximately 95% ground clinker and 5% gypsum.

Secondary cementitious material Waste and industrial by-products, such as blast furnace slag and fly ash, that have cementitious properties and are used to substitute clinker in cement.

Specific gross emissions The gross amount of CO₂ emitted per tonne of cement.

Specific net emissions The net CO₂ emissions per tonne of cement.

Subcontractors The number of full-time equivalent personnel working for the company but not on its payroll.

Stakeholder A group or an individual who can affect or is affected by an organization or its activities.

Stakeholder dialogue The engagement of stakeholders in a formal and/or informal process of consultation to explore specific stakeholder needs and perceptions.

Holcim Ltd

Zürcherstrasse 156

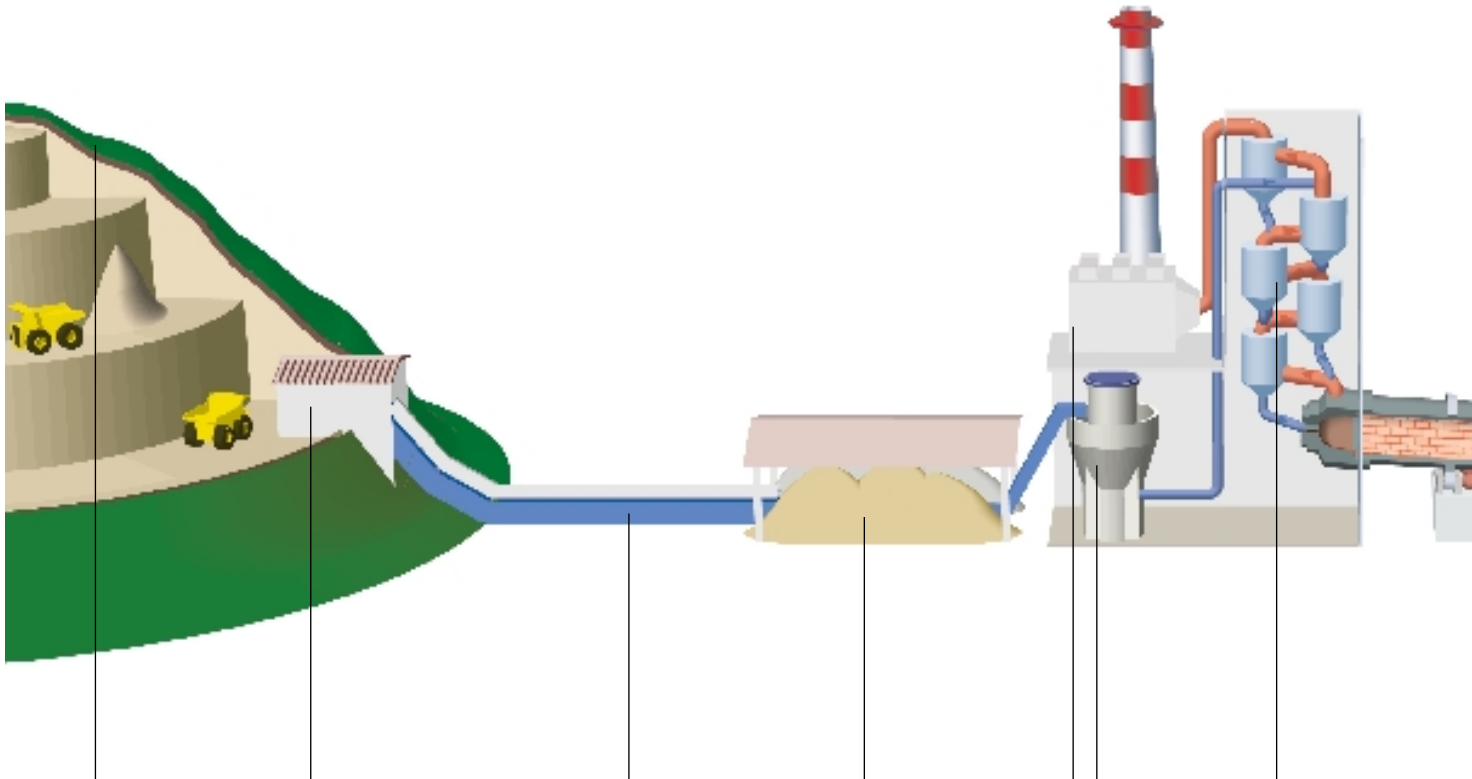
CH-8645 Jona

Phone +41 58 858 87 10

Fax +41 58 858 87 19

communications@holcim.com

www.holcim.com



Quarrying and Raw Materials Preparation

Quarry

Limestone and other raw materials are extracted using drilling and blasting techniques.

Crusher

The quarried material is reduced in size in crushers by compression or impact.

Transport

The crushed raw material is transported to the cement plant, mainly using conveyors or rail wagons.

Clinker Production

Mixing bed

The limestone, clay and alternative raw materials are mixed and homogenized.

Raw mill

The homogenized raw materials are milled and dried in a mill.

Preheater

The raw material is preheated before entry into the kiln.

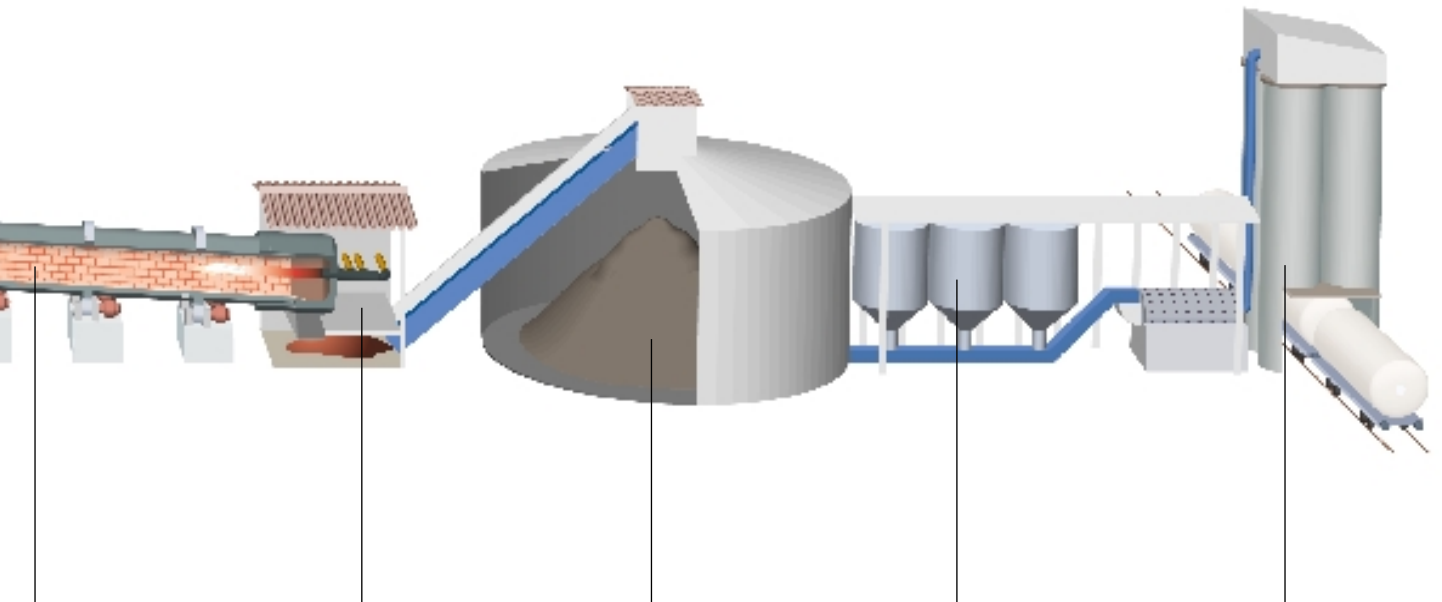
Dust filter

Baghouse filters or electrostatic precipitators remove particles from kiln and mill exhaust gases.

Reducing impacts

■ Quarrying activities have impacts on the local landscape and ecology and can cause noise and traffic problems for local communities. Holcim has established a number of systems to manage our quarries responsibly. These systems help to minimize noise, transport and visual impact, to reduce the use of natural resources and to optimize quarry rehabilitation.

■ Clinker production requires intensive use of raw materials and energy, and also results in emissions to the atmosphere, the most significant being CO₂. Holcim is reducing its demand for natural resources and its CO₂ emissions per tonne of product by replacing fossil fuels and raw materials with waste and industrial by-products.



Cement Manufacturing Process

		Cement Grinding and Distribution	
<p>Kiln</p> <p>At flame temperatures up to 2,000° C and materials temperatures up to 1,450° C the raw materials are transformed into clinker minerals.</p>	<p>Clinker cooler</p> <p>The molten cement clinker is rapidly cooled.</p>	<p>Clinker silo</p> <p>Cooled clinker is stored in preparation for grinding on site or transport to other sites.</p>	<p>Cement mill</p> <p>Cement clinker is ground with around 5% of gypsum and other alternative cementitious materials such as slag or fly ash to form the final cement types.</p> <p>Logistics</p> <p>Cement is transported in bags or as a bulk powder.</p>

Dust, NOx, SO2 and VOC emissions are subject to continuous monitoring under a new Holcim standard. Heat recovered from the kiln and clinker cooler is recycled for preheating the raw meal, reducing thermal energy consumption.

■ Use of secondary cementitious materials reduces the amount of clinker required per tonne of cement. This reduces our CO2 emissions per tonne of cement and our consumption of natural raw materials. Distribution is via the most cost-effective method to market – 70% is by road, the remainder by rail and ship. Transport by road can be a source of nuisance and traffic safety risk, which we aim to limit.

