

Toward a Sustainable Cement Industry



Executive summary

An Independent study commissioned by



World Business Council for
Sustainable Development

Battelle
The Business of Innovation

Sustainable Development

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

UN World Commission on Environment and Development (Brundtland Commission), Our Common Future. 1987.



Working Group Cement



Mexico



Portugal

HEIDELBERGCEMENT

Germany



Switzerland



Italy



France



United Kingdom



The Siam Cement Group, Thailand



Japan



Cimentos

Brazil

Background to the report

Toward a Sustainable Cement Industry

A report by Battelle Memorial Institute

Toward a Sustainable Cement Industry, the final report of the Battelle Memorial Institute's two year, \$2+ million independent research initiative into the sustainability of the cement industry has now been published. This study was commissioned by the Geneva-based World Business Council for Sustainable Development (WBCSD) on behalf of ten of the world's leading cement producers.

World Business Council for Sustainable Development

The World Business Council for Sustainable Development is a coalition of some 160 international companies with a shared commitment to sustainable development via economic growth, ecological balance and social progress. WBCSD members are drawn from more than 30 countries and 20 major industrial sectors. The Council also has a global network of 35 national and regional business councils and partner organizations involving some 1000 business leaders globally.

Battelle Memorial Institute

Headquartered in the USA, the Battelle Memorial Institute is an independent organization with a world-class reputation in technical research - and a leader in the field of environment and sustainable development. The use of this not-for-profit Institute, together with the appointment of an external assurance group chaired by Dr. Mostafa Tolba, former Director General of the United Nations Environment Program, ensured both the independence and objectivity of the study and its results throughout.

Goals of the Study

The Battelle report is an independent review, designed to:

- Identify critical sustainability issues for the cement industry
- Catalogue and evaluate current industry performance on these issues
- Recommend actions for future improvement
- Provide tools for all cement producers to use in improving their performance



“The successful adoption of sustainable development is only possible if there is real synergy between profitability and sustainability.”

Battelle Memorial Institute

The business case for Sustainable Development

Working toward a more sustainable future presents the cement industry with opportunities and challenges. But the industry is not simply being pushed by outside forces to develop an agenda for sustainable development - there are strong business reasons to take advantage of changes in the marketplace and build competitive advantage.

The financial bottom line

The Battelle findings highlight growing recognition by the financial community that sustainably managed companies tend to generate superior economic returns in a number of key areas:

- Cost reductions due to increased operational efficiency and effectiveness
- Revenue increases through product differentiation and enhanced market acceptance
- Reduction in capital employed due to process simplification and improved utilization
- Better risk management due to improved practices and reduced liability
- Faster time to market, from improved stakeholder communications and trust

Stakeholders add pressure

Today stakeholders are putting increasing pressure on the cement industry to take sustainable development into account in business strategy, product development and plant management. These pressures have led many governments world-wide to place regulatory restrictions on industrial emissions and operating conditions.

How does this relate to the cement industry?

- Enhanced license to operate
- Lower emissions
- Improved energy efficiency
- Fuel substitution
- Blending of slag and fly ash
- Improved employee health and safety
- Improved permitting processes



Source British Cement Association

The Key Findings

Observations

The Battelle Report provides a number of key observations and recommendations, regarding both the present situation and the future route toward a sustainable cement industry

Battelle's Observations

- the cement industry as a whole is not yet on a sustainable path in any of the dimensions of the 'triple bottom line' - society, economy and ecology
- it is unrealistic to assume that cement companies will be willing or able to incur significant costs in addressing sustainability issues unless there is a clear business case for doing so - linked to business profitability
- progressive cement companies have recognized that to remain competitive in the future, corporate sustainability is increasingly vital to their long-term strategy and success
- process innovations will lead to resource and energy efficiency improvements with resulting cost savings
- product and service innovations will allow companies to meet new demands for construction products with lower environmental impact.
- sustainability is viewed seriously by both customers and shareholders alike and will continue to grow in importance.
- rising energy and materials costs, and adverse business impacts of poor environmental performance, mean maintaining the status quo is not a viable option
- the cement industry as a whole has not moved effectively toward systematic and sustained stakeholder engagement

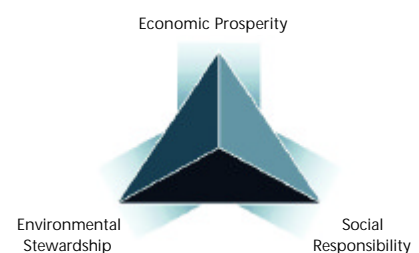
Who are the cement industry's stakeholders?

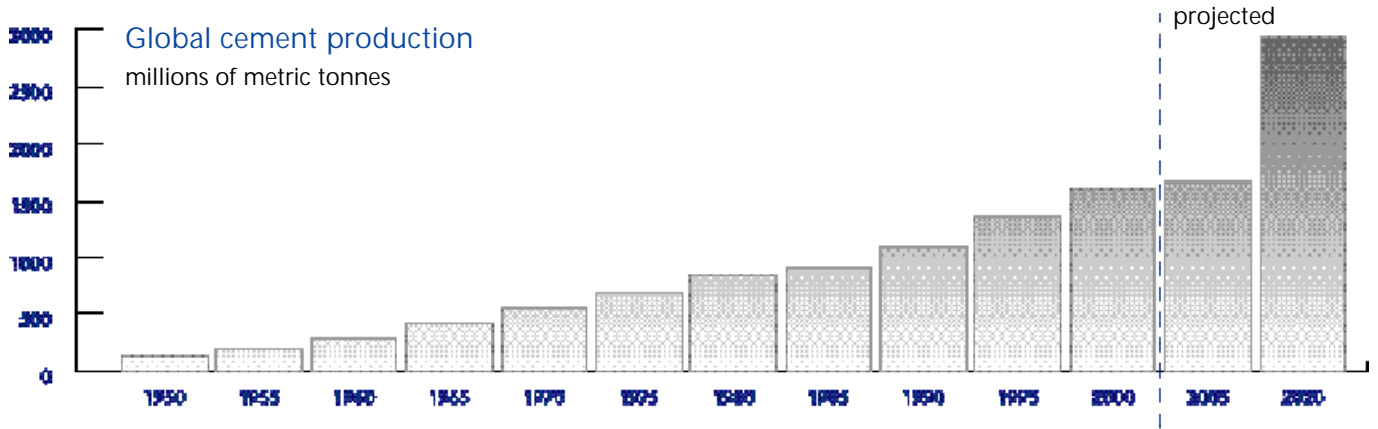
"Direct stakeholders include shareholders, employees, customers and suppliers. Indirect stakeholders include governments, research institutes, NGOs and communities."

Battelle Memorial Institute

'the triple bottom line'

- social responsibility
- environmental stewardship
- economic prosperity





Issues

Recommendations

Through thirteen separate industry sub-studies, which formed the basis of the research program (see end flap), Battelle identified eight major challenges which the cement industry must address in moving toward a more sustainable future.

No	Issues facing the cement industry	Recommendation for improvement
1	Resource Productivity	Reduce resource consumption via increased use of wastes as fuel and raw materials
2	Climate Protection	Establish carbon management programs, set company-specific and industry-wide medium-term CO ₂ reduction targets and initiate long-term process and product innovations
3	Emissions Reduction	Continually improve and make more widespread use of emission control techniques
4	Ecological Stewardship	Improve land-use practices by disseminating and applying best practices for plant site and quarry management
5	Employee Well-being	Implement programs to enhance worker health, safety and satisfaction
6	Community Well-being	Contribute to enhancing quality of life through local stakeholder dialogue and community assistance programs
7	Regional Development	Promote regional economic growth and stability, particularly in developing countries
8	Shareholder Value Creation	Provide competitive returns to investors as a result of improved sustainability practices

The need for improved business processes

Battelle argues that in order to make these types of improvements enhanced business processes are essential, principally

1. Systematic integration of sustainable development principles into business strategy, practices and the decision-making process
2. Encouragement of sustainability - related innovations in product development, process technology and enterprise management
3. Co-operation with other cement companies and external organizations to foster sustainable development practices and remove barriers

Suggested Actions

Battelle recommends a number of possible actions that could be taken by the cement companies, including:

- A strategic agenda for action over a twenty-year time frame should be drawn up by the industry
- The business value of sustainable development must be explicitly communicated to shareholders and employees
- Company-specific CO₂ inventories and control targets should be made
- Companies should require that, over a reasonable time period, existing plants improve their emission profiles or cease operation
- Cement companies must commit to integration of sustainable development principles into their business activities at Board and CEO level
- Global companies should establish uniform, corporate standards for use of the most energy-efficient and low-emission technology possible within cost constraints to ensure that they are adequately protecting the public and employees
- The industry should establish a Sustainable Development Institute of Cement and Concrete



The cement industry

Sustainability concerns

- consumes large amounts of energy and resources
- emits dust and other pollutants
- disturbs large tracts of land during quarrying
- generates more than 3% of the world's man-made greenhouse gases

Sustainability benefits

- provides a key product used in developing infrastructure to serve social needs e.g. shelter, mobility, water and sanitation
- disposes of unwanted waste materials in an environmentally responsible way

Sustainable development

Barriers To Sustainability

- mature product
- resource / capital intensive manufacturing process
- company inertia
- composition-based, rather than performance-based standards and specifications
- lack of trust between industry and stakeholders
- market pressures
- commodity product

Forces For Change

- **stakeholder demands**
 - **customer needs**
 - **emerging economies**
 - **environmental concerns**
 - **regulatory policies**
 - **need for transparency**
 - **innovation**
 - **price volatility**
 - **global consolidation**
 - **energy prices**
- Increasing acceptance at CEO level of extended business responsibilities, including a sharper focus on environmental and social performance
 - Evidence that shareholder value can be created via 'eco-efficient' production methods
 - Concepts like 'extended producer responsibility' which broaden corporate accountability and raise public expectations
 - Explosive communications growth - creating almost instant global visibility for corporate behaviour

“One of the greatest barriers to sustainable development is inertia - resistance to change and scepticism that are often typical of mature industries”

Battelle Memorial Institute

The study provides a detailed analysis of the barriers to sustainability, the major forces for change now moving the cement sector along the path to greater sustainability, together with other key drivers which are now operating throughout industry. These include:

“The challenge to cement companies is to build sustainable development into all aspects of their business - plant siting, quarrying, plant operation, energy consumption, pollution control, research and development, health and safety, product development and community interaction.”

Battelle Memorial Institute

The Way Ahead

Next steps - the industry's response and action plan

For each recommendation Battelle has compiled a set of potential actions that can be taken up by the industry as a whole, by individual companies and/or by stakeholders. The sponsoring companies now have the task of looking carefully at Battelle's conclusions and recommendations; considering stakeholder input and interests; evaluating their own past experiences; and developing an Agenda for Action which will indicate specific future actions to be taken. Some of these actions will involve joint activity, with companies and stakeholders working in tandem to develop new approaches. Other actions can be selected and implemented by companies on an individual basis.

Meeting the challenge

Moving forward will be challenging for both the industry and its stakeholders. Each cement company already has its own business strategy, culture, resources and corporate philosophy - and its choice of actions and commitments will reflect this. Stakeholders will need to be active and productive participants - not just critical observers. At the same time, the study also notes that individual companies will respond to sustainable development issues in unique ways.

Government policies and regulations world-wide will inevitably challenge cement companies and plants to respond with alternative production processes, emission control technologies, and more effective and complex siting, permit and mitigation strategies. In the future, companies may compete on the basis of sustainable development - which might ultimately provide their competitive edge.

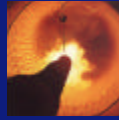
A vision for the future

The study concludes that the cement industry can ensure its continuity and prosperity by acknowledging its shortcomings, focusing on win-win opportunities to create value for society and working with its stakeholders toward a long-term vision of sustainability - a vision which ultimately the industry itself should define.



The key issues

1. Resource productivity



2. Climate protection



3. Emission reduction



4. Ecological Stewardship



5. Employee well-being



6. Community well-being



7. Regional development



8. Shareholder value



The sub-studies

1. Stakeholder Dialogue
2. Communications Strategy
3. The Business Case for Sustainable Development
4. Company Alignment around Sustainable Development
5. Key Performance Indicators (KPI)
6. Life Cycle Assessment (LCA) and Cement Manufacture
7. Innovation and Sustainable Development
8. Climate Change Management
9. Applying Industrial Ecology to the Cement Industry
10. Environment, Health and Safety (EHS) Improvement
11. Land Use and Biodiversity
12. Socioeconomic Development
13. Public Policy Instruments

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South African Cement Producers Association (SACPA) South Africa

VDZ VEREIN DEUTSCHER ZEMENTWERKE E.V., Germany

Assurance Group

"We have reviewed this report in detail. We believe 'Toward a Sustainable Cement Industry' provides a significant and useful contribution to the implementation of sustainable development. While we agree with the general content, findings and conclusions, this is not an endorsement of each individual recommendation and potential future action."



Prof. Istvan Lang

Past President, Hungarian Academy of Sciences,
Budapest, Hungary



Corinne Lepage

Huglo-Lepage & Associates, Paris, France;
Former Environment Minister France



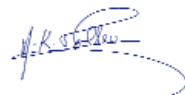
Prof. Victor Urquidi

Former President and Professor Emeritus,
Collegio de Mexico, Mexico City, Mexico



William K. Reilly

Aqua International Partners, LP, San Francisco,
USA; Former Administrator, Environmental
Protection Agency, USA



Dr. Mostafa Tolba

President, ICEM, Cairo, Egypt; Former Director
General, United Nations Environment Program

Project website: www.wbcscement.org

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World Business Council for
Sustainable Development

Dr Howard Klee, Jr., Program Manager

World Business Council for Sustainable Development
4, chemin de Conches, 1231 Conches-Geneva, Switzerland
Tel: +41 22 839 31 24, Fax: +41 22 839 31 31
E-mail: klee@wbcsd.org

Battelle
The Business of Innovation

Bruce Vigon, Project Manager

Battelle
505 King Avenue, Columbus OH 43201 USA
Tel.: +001-614-424-4463, Fax: +001-614-424-5601
E-mail: vigonb@battelle.org