The Issue

The general scientific consensus is that human activity is challenging the planet's environmental sustainability, threatening its ability to sustain current and future generations. Several reports, such as the Millennium Ecosystems Assessment and the United Nations Intergovernmental Panel on Climate Change Assessment Report, have provided sound evidence illustrating the decline of the global environment. Among the main global drivers of this decline are the steady rise in the world's population, the increase in production and consumption of goods, and the associated trade flows underpinning this growth. The global population is predicted to grow from today's 7.0 billion to over 9 billion by 2050.[1] At the same time, the demand and desire for ever-improved living standards, particularly in developing countries, will increase. Such drivers have placed significant pressures on atmospheric balance, water and land availability, and our ecosystems' health and biodiversity.

Leading studies indicate that:

- In most countries, air quality is monitored to ensure that emissions with the potential to affect human health and ecosystems are under control. Main pollutants that can be released, either through natural processes or human activity, are SOx, NOx,[2] and dust, which are commonly limited by legal thresholds.
- To ensure that the basic needs of the world's increasing population are met, water availability has become a global priority. Health, food supply, energy provision, and industrial processes all rely on water. By 2025, two thirds of the world's population could be under water stress.[3] Solutions to avoid this situation are based on reducing the excessive withdrawal of water, controlling pollution, and increasing the efficiency of water use.
- Ecosystem services such as water purification, medicinal supply, pollination of crops, and carbon sequestration are fundamental to sustain life. 60 percent of these services, which depend on biodiversity, have been assessed to be in decline.[4] Land degradation and climate change are major causes of biodiversity loss, which affects the provision of ecosystem services. In fact, 11% of terrestrial species may be lost by 2050.[5]

[1] US Census estimates: www.census.gov/ipc/www/idb/worldpop.php

[2] NOx and SOx are the terms used to indicate the general oxides of nitrogen (NO, NO_2, N_2O_2, etc.) and the general oxides of sulphur (SO_2, SO_3, etc.)

[3] Global Environment Outlook (GEO4), United Nations Environment Programme, 2007

[4] Millennium Ecosystems Assessment, United Nations Environment Programme, 2007

[5] The Economics of Ecosystems and Biodiversity Report, TEEB, 2010

However, signs of environmental improvement can be found across the world. This demonstrates that with adequate awareness, resources, and political will, good practices can be widely implemented and replicated. Business has a critical role in leading this change and encouraging positive action.

CEMEX's Position

CEMEX's focus is to achieve and demonstrate sound environmental performance, consistent with our company's sustainability objectives, by controlling the impact of our activities, products, and services. We consistently strive to find and apply solutions to improve air quality, conserve biodiversity, protect water resources, and reduce waste outputs. We understand the importance of maintaining a balance between our needs and the environmental resources available. Reducing our environmental footprint means finding ways to become less dependent on natural resources,while maximizing their efficient use. Given our large portfolio of operations, we use a systematic approach to address these challenges and to ensure good management practices are in place across our company, as detailed below.

CEMEX has developed a customized Environmental Management System to align our environmental management across our operations.

Environmental Management System

CEMEX employs environmental management systems in all of its businesses in order to apply a consistent approach to address our environmental challenges. These approaches have proven to adequately manage environmental issues. However, CEMEX believes that a more focused corporate approach is needed to ensure that particular business questions, as well as common global requirements, are well managed in our day-to-day operations. As a result, CEMEX has worked to develop a customized Environmental Management System, compatible with the approaches above, which smoothly aligns our operations to:

- Identify environmental issues and their impacts
- Establish objectives, targets, and supporting action plans
- Support compliance with CEMEX's standards and guidelines

- Drive continuous performance improvement and common reporting

The most relevant environmental issues—air quality, biodiversity, water use, waste, environmental disturbances, and environmental incidents—are addressed by our Environmental Management System as follows:

Air Quality: Cement production releases various atmospheric pollutants that must be strictly controlled. The main direct emissions released by our operations are nitrogen oxides (NOx), sulphur compounds (SOx), and dust. The three belong to the group of major emissions in the cement industry which are covered by national legislation and local regulation in many regions where we operate. The first step to efficiently manage these emissions is to have an accurate and representative monitoring system that provides online information. Cement production also releases minor emissions that need to be tackled, such as mercury emissions and dioxins. In order to address this issue, CEMEX has:

- Set targets for continuous monitoring of major emissions
- Define reduction targets for individual major emissions, reporting regularly on progress
- Set guidelines for responsibly handling fuels and materials to keep emissions within allowable limits
- Ensured that status analysis for minor emissions is made in our cement kilns
- Contributed to sectoral efforts to establish multi-stakeholder dialogues for dealing with mercury and dioxin emissions

Key Performance Indicators	**2009**	**2010**	**2011**	**2012**	**Target 2015**
Clinker produced with continuous monitoring of major emissions: dust, NOx, SOx (%)	60	74	80	80	100
Specific dust emissions (g/ton clinker)	106	89	101	78	120
Specific NOx emissions (g/ton clinker)	1,063	1,134	1,094	1,025	1,600
Specific SOx emissions (g/ton clinker)	410	334	335	257	520

Biodiversity: Through quarry rehabilitation and correct biodiversity management, CEMEX can maintain and, wherever possible, enhance the ecosystems and biodiversity associated with its land holdings. The conservation of biodiversity plays a key role in CEMEX's long-term strategy for resource management; it directly influences how we access raw materials and affects our licence to operate. Increased scrutiny from stakeholders, more stringent permitting cycles, and emerging economic programs designed to protect biodiversity make it incumbent upon CEMEX to prioritize our action in this field.CEMEX aims to contribute to biodiversity conservation by partnering with leading NGOs to address these challenges. Our actions in this field include:

- Continuous monitoring and reporting of biodiversity performance according to widely accepted guidelines within the extractive industry
- Detailed scoping of biodiversity sensitivity and opportunities for all our operational sites worldwide
- Prioritization of actions according to the natural value of CEMEX sites and the surrounding areas
- Development and adoption of a corporate Biodiversity Action Plan Standard in collaboration with BirdLife International
- Establishment of Biodiversity Action Plans in all sensitive sites
- Robust quarry rehabilitation plans in all of our quarries
- Increased awareness of the importance of conserving biodiversity with our main stakeholders

We are also actively engaged in initiatives aimed to raise awareness and to increase proactive biodiversity conservation. Since 1993, CEMEX has published its Conservation Book Series to promote a culture of biodiversity conservation. The books illustrate strategies and diverse approaches for fostering the protection of our natural world, complemented with powerful images from the world's best photographers.

Spread across 200,000 hectares along the border of Mexico and the United States, El Carmen has been the most outstanding symbol of CEMEX´s effort to protect the natural environment since 2001. El Carmen, one of the most unique and diverse ecosystems in North America, is renowned for its large prairies—bordered by impressive mountains, pine, and oak forests—and a desert with the largest variety of cacti in the world.

The conservation of biodiversity plays a key role in CEMEX's long-term strategy for resource management.

Water Use: CEMEX requires water at various stages throughout our production processes. Access to reliable and affordable water sources is integral to our ability to operate. At the same time, we recognize that, in many parts of the world where we operate, freshwater resources are under pressure, and access will be increasingly subject to competing priorities. As clean water becomes an even more precious resource, CEMEX seeks to ensure that appropriate water management practices are in place at every site. Our actions in this area include:

- Understanding the global and local water contexts in which CEMEX operates
- Identifying CEMEX's water-related risks and opportunities
- Assessing CEMEX's precise water footprint and establishing accurate water accounting methodologies
- Optimizing water consumption by monitoring and reporting water use for our cement, aggregates, and ready-mix concrete businesses
- Developing management standards to efficiently operate with water, while avoiding incidents that affect its local availability and quality
- Harnessing the knowledge of our partnership with the International Union for the Conservation of Nature in recognizing CEMEX's water-related issues, including the identification of the most sensitive sites, stakeholder engagement, and the identification and replication of best practices
- Raising staff knowledge and skill levels, both at the site and corporate level, on issues related to water, the environment, and sustainable development

Waste: We dispose of the waste generated by our processes according to our own standards and the requirements of the law. In terms of operational wastes, cement kiln dust represents the largest amount of waste we produce. It is widely reused within our production process, as well as for other uses. As we follow the waste hierarchy, we seek to minimize, reuse, recycle,and co-process our wastes. Some of the actions we undertake in this area are to:

- Monitor hazardous and non-hazardous waste generation in all our operations
- Replace primary aggregates with other discarded materials (e.g., glass, demolished concrete)
- Reuse and recycle, to the extent possible, the fresh concrete returned from construction sites

Our industry has the unique ability to transform many residues into harmless, even useful, materials by incorporating them into the cement production process. The special conditions in the kiln—with its high temperatures of up to 1,450°C—offer communities and governments a neat, final, and

environmentally friendly solution to dispose of wastes, while recovering the material and energy and effectively avoiding the use and ecological impact of landfills.

Environmental Disturbances: The extraction and utilization of natural resources for the production of cement, aggregates, and ready-mix concrete has the potential to generate environmental disturbances. We are committed to reducing the potentially negative aspects of our operations on our neighbours, adjacent communities, and wider society. We particularly focuson disturbances such as noise, vibration, vehicular traffic, aesthetics, and fugitive dust.

To prevent potential disturbances, CEMEX employs a number of technical solutions and controls:

- We use dust collection systems at our operations and adopt dust-suppression methods in roads, crushers, and conveyor belt systems
- We operate and maintain our vehicle fleets to ensure community safety and, by the use of strategic route planning, avoid unnecessary noise and vibration and congestion during peak travel hours
- Where feasible, we employ alternative means of multi-modal transportation (e.g., road, rail, water) consistent with our efforts to achieve environmental performance improvements.
- We avoid quarry operations at night to reduce noise.We also actively engage with our neighbours and other stakeholders, who are affected by our blasting schedule, to avoid disrupting community or agricultural activities
- We also maintain trees and other vegetation on and around our operations to control and prevent erosion, improve area aesthetics, and create a noise barrier

However, from time to time, events outside of normal operating conditions do occur. When such events happen, we initiate our incident management process.

Environmental Incidents: At CEMEX, our goal is to reduce the likelihood of incidents such as spills, emissions, and land or freshwater contamination. We maintain the capacity to respond to any emergency, natural or manmade, which may pose a potential threat to our neighbours, our host communities, or our own operations.

- We work with our neighbours, law enforcement officials, public agencies, and other stakeholders to develop contingency plans at each of our sites, and also contribute to the community's own emergency preparedness.

- We have set up Emergency Response Teams that are specifically trained to address environmental incidents and hold annual emergency drills.
- We record and report incidents in a consistent and accurate manner to identify recurrent systemic root causes, and to disseminate corrective actions based on best practices.
- We monitor and track incidents at every level of our business, including our Executive Committee. In addition, the Corporate Environment, Health and Safety team identifies any trends and areas of opportunity and, where required, provides technical support to businesses to complement local action plans.

Looking Forward

We will maintain our commitment to maximize the efficient use of natural resources and deliver products that respond to our customers' growing environmental expectations. We will continue working with governments and society to promote effective mechanisms that support environmental improvement, and we will maintain open communications to disclose our progress. In the coming years, we will focus our actions on the following three priorities:

- Continue to implement common environmental standards and monitor our procedures to improve performance and reduce incidents
- Engage with recognized stakeholders to enrich and validate our approach to biodiversity and water management
- Externally ensure our emissions data and monitoring systems, and achieve our continuing emissions targets