

SUSTAINABILITY REPORT 2007

**Supporting growth  
Continuing dialog  
Developing solutions**



bringing materials to *life*





In the foreground, footbridge of Seonyu in Korea, realized with Ductal



An employee of the Witbank Project, construction of low cost individual houses, Witbank, South Africa

## What Sustainability means to us

The Brundtland Report says: “Sustainable development is development that meets the needs of the present without compromising the needs of future generations to meet their own needs”. This clear, concise definition helps define what Sustainability means for us. Our products meet basic human needs. They meet the needs of the present helping to provide homes, transport infrastructure and public buildings, such as schools, hospitals, offices and factories. All are necessary for a strong and healthy society. We are working with partners in our own industry, related industries, NGOs and government to make the current and future use of our products contribute ever more fully to securing a sustainable world through Sustainable Construction. But making our products also has a significant social, economic and environmental footprint. Throughout we look to enhance the positive impacts of that footprint and to be more resource and energy efficient in our production processes. Our *Sustainability Ambitions 2012* provide a framework to guide us here. Our activities have big benefits and big impacts. We are committed to working ever more sustainably: maximising the human benefits of using our products while reducing the size of our environmental footprint.

## How to read this report

Welcome to Lafarge’s seventh Sustainability Report. Last year we restructured our report by introducing the *Establishing understanding* and *Big issues* sections. Feedback showed that readers liked this change. This report opens with the *Establishing understanding* section. It includes our *Sustainability Ambitions 2012*. Understanding these ambitions is key to understanding our sustainability commitments and achievements. The expanded *Governance and public policy* section shows how we organise ourselves to carry out our business effectively and to meet our sustainability goals. It lays out our key public policy positions. *Responding to our stakeholders* is a new section. It contains our stakeholder panel’s comments on this report. It explains how we took comments on last year’s report into account. The *Big issues* section has been expanded to make clear how we follow through on all the commitments of our Sustainability Ambitions 2012. Finally, the *Methodology, performance and assurance* section explains how we went about pulling together our report and used external reporting standards to improve our reporting, sets out our key performance indicators, industry comparators and contains an assurance statement from our auditors, Ernst & Young.

## ESTABLISHING UNDERSTANDING

- 01 Lafarge presence in the world
- 02 CEO introduction
- 04 Sustainability Ambitions 2012
- 06 Understanding the processes
- 10 Understanding the industry
- 12 Understanding Lafarge

## GOVERNANCE & PUBLIC POLICY

- 14 Values and governance
- 17 Sustainability management
- 20 Public positions

## STAKEHOLDERS

- 22 Building on stakeholder feedback
- 23 Stakeholder comment

## BIG ISSUES

- 24 Sourcing and raw materials
- 28 Climate change
- 36 Environment
- 40 Emerging economies
- 44 Employees
- 48 Health & Safety
- 50 Customers
- 54 Relations with our communities

## METHODOLOGY, PERFORMANCE & ASSURANCE

- 58 What we considered in writing this report
- 60 Reporting methodology
- 63 Comparability of performance
- 64 Benchmarking our performance
- 66 Indicators and correspondence tables
- 68 NRE
- 69 Ernst & Young Assurance

# Lafarge presence in the world\*

World leader in building materials, Lafarge has top-ranking positions in each of its businesses: world leader in Cement and Aggregates, and N° 3 worldwide in Concrete and Gypsum. After the acquisition of Orascom Cement, completed on January 23, 2008, the Group has approximately 90,000 employees in 76 countries.

## Cement

### Worldwide market position:

World Leader - Lines of cement, hydraulic binders and lime for construction, renovation and public works

**Employees:** 45,000

**Sales:** 10.3 billion euros

**Countries:** 46

**Production sites**

**Cement plants:** 124

**Clinker grinding stations:** 32

**Slag grinding stations:** 7

## Aggregates & Concrete

### Worldwide market position:

World leader Aggregates & N° 3 Concrete - Lines of aggregates, ready-mix and pre-cast concrete products, asphalt and paving for engineering structures, roads and buildings

**Employees:** 24,000

**Sales:** 6.6 billion euros

**Countries:** 29

**Production sites**

**Quarries:** 588

**Concrete plants:** 1,144

## Gypsum

### Worldwide market position:

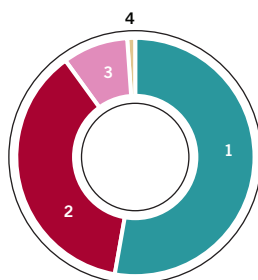
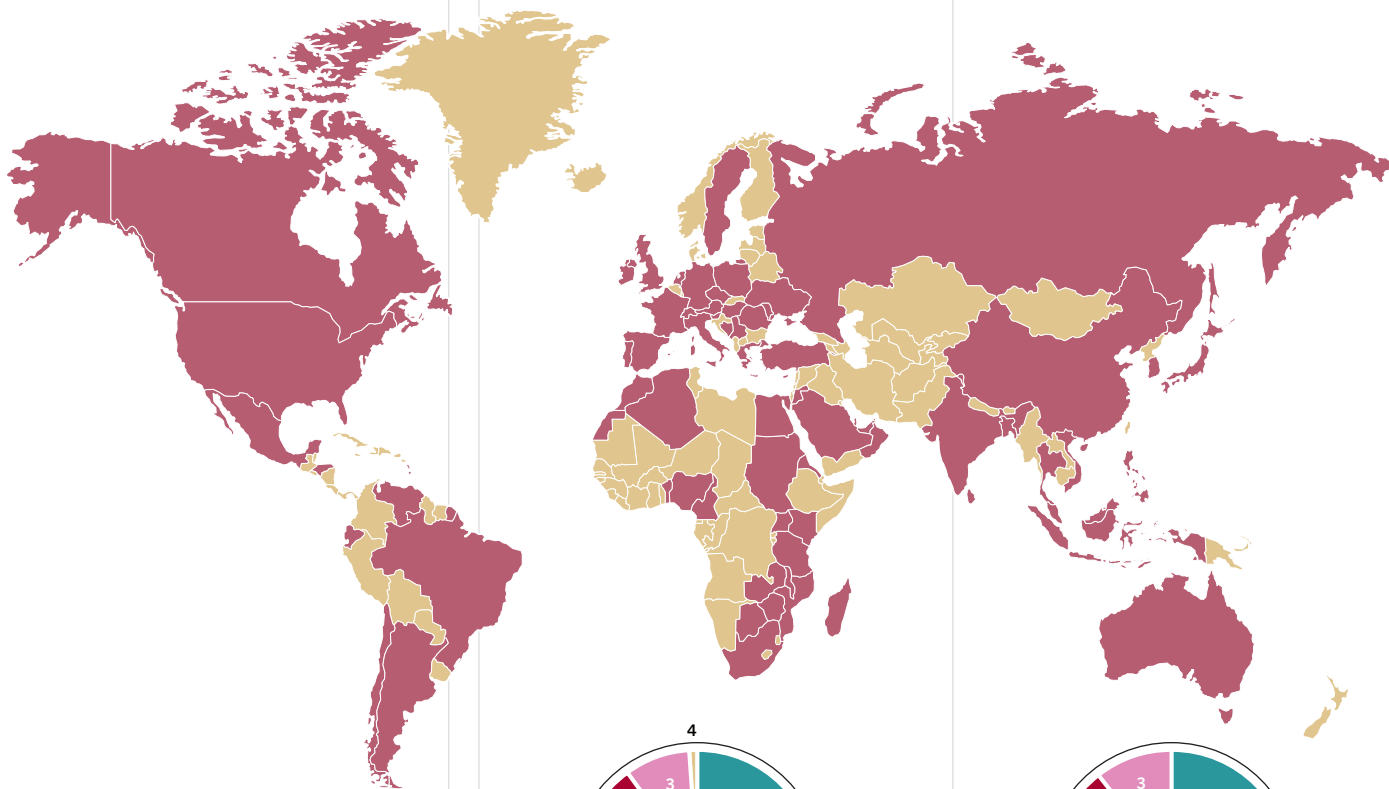
N° 3 - Lines of Plasterboard systems and gypsum-based interior solutions for new construction and renovation

**Employees:** 8,000

**Sales:** 1.6 billion euros

**Countries:** 28

**Production sites:** 77



## Sales (in billion euros)

17.6

## Sales breakdown by business

1 - Cement	53.7%
2 - Aggregates & Concrete	37.4%
3 - Gypsum	8.8%
4 - Other	0.1%

## Workforce breakdown by business

1 - Cement	58.5%
2 - Aggregates & Concrete	31.1%
3 - Gypsum	10.4%

\* This does not include Orascom Cement, whose acquisition was completed on January 23, 2008

# Our sustainability actions and commitments

### The business and sustainability context

Our business meets basic human needs. Our building materials are used to construct homes. Our building materials are used to provide basic infrastructure: the roads, the hospitals, the schools, the factories and offices that underpin our everyday life.

Demand for our products is increasing. It is doing so particularly in emerging economies as a result of economic growth. Here individuals, families and societies quite rightly aspire to standards of comfort and provision long enjoyed elsewhere in the world.

This is good. Yet business as usual is not a sustainable option for us or for the planet as a whole. Together we must find a way of delivering the benefits of economic growth while leaving a lighter trace on the earth.

**“We are acting to improve where we have direct control. We set out to play a leadership role within our industry. We contribute to wider initiatives in society to secure a sustainable future.”**

### Our action

Our response is threefold. It is underpinned by what we have learned through listening to our stakeholders. We are acting to improve where we have direct control. We set out to play a leadership role within our industry. We contribute to wider initiatives in society to secure a sustainable future.

Our Sustainability Ambitions 2012 are our program of improvement for the medium term. We have selected the goals carefully from among the factors that are fully within our control. In each case we have

where we have direct control. We set out to play a leadership role within our industry. We contribute to wider initiatives in society



*Bruno Lafont  
Chairman & Chief  
Executive Officer  
of Lafarge*

measured where we are, and set future targets that, when achieved, will deliver major improvements. We are progressing well against these goals.

We recognise that acting alone we cannot secure the changes we desire. We have been, and remain, keen proponents of co-operation in our industry to achieve sustainability goals. Pride of place here must be accorded to the WBCSD Cement Sustainability Initiative of which we are a founder member. It is practical. It has a worldwide reach. And it provides a model for other industry sectors.

Our planet needs sustainability. Making sustainable construction a reality is part of that change. I am pleased that we are contributing so fully to the development of understanding of sustainable construction. I am pleased that we are doing so in alliance with other companies, other industries, academia, governments and NGOs. All of these actions have been and can only be delivered by the active engagement, care and commitment of everyone within Lafarge.

## **This report**

In preparing this year's report we have challenged ourselves to take special care to heed and integrate external reporting standards. We have also sought not just to cover the easy things but also to address some of those things where we should progress further.

## **The future**

It is perhaps unwise to make predictions about the future. However part of the job of a Chairman and CEO is to prepare the organization to meet the changes and challenges of the future. I believe that sustainability will grow in importance as an issue. It will pose new and more complex challenges. I commit that Lafarge will recognise and meet these challenges in an innovative, orderly, pragmatic and transparent way. I commit Lafarge to sustainability leadership.



# Sustainability Ambitions 2012

TARGET	Dead-line	2006 Perf.	2007 Performance	WHY IS LAFARGE PURSUING THIS AMBITION? WHAT WILL CHANGE? HOW ARE WE PROGRESSING AGAINST THIS AMBITION?
<b>MANAGEMENT</b>				
On <b>safety</b> halve the 2005 lost time injury frequency rate (Fr : 3.09*) for Lafarge employees by 2008 to Fr : 1.55.	2008	2.57	1.66 ✓	Halve the 2005 lost time injury frequency rate for Lafarge employees by 2008, achieving a Group-wide LTI frequency rate of 1.55 and having contractors work to the same standard. Our aim is to reach as soon as possible zero fatalities and to join the "best in class" industrial companies. <b>As a result of good performance in 2007 we revised the 2008 target to 1.39.</b>
Continue to check the implementation of our <b>competition policy</b> in our business units. To support the implementation of our Competition policy, 100% of all significant business units will be tested for compliance with our Competition policy by 2010.	2010	27%	35%	In the long term, free markets and open competition always benefit the overall economy and population, and the long term viability of performing companies. We have a portfolio which has expanded in many areas, including in economies that have not always operated in free markets. Through implementing our policy, <b>we will ensure that all our units are aligned and operating under the highest competitive standards.</b> 2007 saw the launch of our new Group-wide Competition Compliance Program.
Design a training package on <b>local stakeholder relationship management</b> adapted to the respective divisional organization by 2008.	2008	N/A	In progress	All over the world, local stakeholders have increasing expectations from us on the way we operate our business and the way they benefit from our presence. We have thousands of experiences of good practices. We want to leverage this capital by embedding it in our organization. We aim to interact with local stakeholders in a timely, orderly, pro-active and transparent way and contribute to their well being and to the economic and social development of the local communities surrounding our operations. In 2007 First and 42nd carried out a benchmark study comparing our program to that of peer companies. It will help us <b>design a better training package and improve our program.</b>
On <b>customers</b> , by 2008, 100% of significant business units will carry out an annual customer satisfaction survey.  By 2008, 100% of significant business units will have implemented OTIFIC in their operations.  By 2008, the Group will achieve €1 billion annual sales in new products.	2008	N/A	Cement 83% A&C 55% Gypsum 61%  Cement 70% A&C 55% Gypsum 100%  €1.1 billion	Having customers satisfied today and tomorrow is absolutely necessary to achieve sustainability. This is an aspect of operations that has received insufficient attention within our industry. No longer. We have set ourselves tough targets for customer satisfaction and innovation. <b>In 2007 we made very good progress.</b> By 2008 all of our significant business units will be carrying out an annual customer satisfaction survey. Acting on what customers say and driven by a desire to achieve full customer satisfaction, we want to have completed the implementation of the OTIFIC program (on time, in full, invoiced correctly) in 100% of our significant business units by 2008. Good progress has been made on customer satisfaction and OTIFIC. We constantly innovate to meet customer need. By 2008 we aimed to achieve €1 billion annual sales from innovative products (that have been developed since 2003). <b>In 2007, we met the €1 billion annual sales in new products one year ahead of the target</b>
Double the percentage of <b>female senior managers</b> between 2003 and 2008.	2008	10%	12.2% ✓	The female population in senior management in Lafarge is far too low and therefore we have set the target of doubling the percentage of women in senior management between 2003 and 2008, with a target of 15.2%. <b>2007 saw further progress towards our goal.</b>
<b>SOCIAL</b>				
Report on <b>training</b> at business unit level using the GRI (n° 3) guidelines.	2007	In progress	Completed	We have broadly achieved this objective through our annual social survey which monitors no less than 1.8 million hours training Group-wide.
By 2010, establish a comprehensive Group-wide occupational health program including, at a minimum, regular medical examination.	2010	N/A	In progress	An effective workforce is a healthy workforce. Lafarge operates in countries ranging from those with comprehensive health provision provided by the state to those with no public health provision. Therefore our ambition is by 2010 is to establish a comprehensive Group-wide occupational health program with regular medical examination. <b>A full account of our progress in 2007 is given on page 49.</b>
For HIV/AIDS and malaria, by 2010, Lafarge will have extended to major developing countries where it operates, its best practice currently implemented in Africa.	2010	In progress	In progress	Lafarge's interests are equally balanced between the developed and developing worlds. In the developing world HIV/AIDS and malaria can be major killers. The misery caused by these preventable diseases is untold. The challenge is greatest in Sub-Saharan Africa. Here we have acted already. By 2010 Lafarge will have extended its best practice from Africa to other major developing countries where it operates. This will mitigate the human burden of these diseases among our workforce and its families, where the consequences of the diseases are most serious and where state health provision is weakest. We will do this while respecting local legislation and culture. <b>A full account of our progress is given on page 46.</b>

\* The 2005 LTIFR figure of 3.09 excludes employee fatalities while our 2008 target includes employee fatalities.

TARGET	Dead-line	2006 Perf.	2007 Performance	WHY IS LAFARGE PURSUING THIS AMBITION? WHAT WILL CHANGE? HOW ARE WE PROGRESSING AGAINST THIS AMBITION?
<b>ENVIRONMENT</b>				
Have 100% of our sites <b>audited environmentally</b> within the last four years.	Permanent	84%	84% ✓	Have 100% of our sites audited environmentally by skilled/expert teams, within the last four years. One of our challenges is that our organization has close to 3,000 sites all over the world. We have grown by acquisition in places where environmental practices are not yet at Lafarge standards. In order to deliver these standards, we need to make sure that we regularly cover 100% of our sites. <b>We succeeded in maintaining a high rate in 2007.</b>
By 2010 reach a rate of 85% of <b>quarries with a rehabilitation plan</b> complying with Lafarge standards.	2010	79%	75% ✓	Lafarge puts as much effort into planning for the quarry after it ceases its active life as it does into putting a new quarry into operation. This involves engagement with local stakeholders in order to find the best output. Because of the complexity of our standards, it is unlikely that we could reach 100% at any point in time. 85% is a very challenging standard. The apparent fall in this indicator in 2007 was due to the adoption of tighter standards for rehabilitation plans.
By 2010, all our quarries will have been screened according to criteria validated by WWF International and those with realisable potential will have developed a site <b>biodiversity</b> program by 2012.	2010	N/A	38%	Biodiversity has been on the Lafarge agenda for some time, and even more since our partnership with WWF, which started in 2000. We are pleased that we are able to publish the result for this challenge for the first time. <b>This indicates that we made good progress in 2007.</b>
	2012	N/A	22%	
By 2010: <ul style="list-style-type: none"> <li>cut our worldwide <b>net CO<sub>2</sub> emissions</b> per tonne of cement by 20% as compared to 1990.</li> <li>cut our <b>absolute gross emissions</b> in the Cement Business in <b>industrialized countries</b> by 10% as compared to 1990.</li> <li>cut our <b>absolute net emissions</b> in the Cement Business in <b>industrialized countries</b> by 15% as compared to 1990.</li> </ul>	2010	-14.1%	-16.0% ✓	The increased concentration of CO <sub>2</sub> and other greenhouse gases in the atmosphere is driving climate change. It is the biggest environmental challenge of our time. Our overall ambition is to cut our net worldwide CO <sub>2</sub> emissions per tonne of cement by 20% by 2010 compared to 1990. <b>By the end of 2007 we stood at 16.0%, very good progress.</b> We believe we are on target to meet our 2010 goal. Net emissions are the gross emissions less the emissions that come from burning biomass and waste. In addition over the same period we have two further ambitions for the industrialised countries Cement Business: to cut our absolute gross emissions by 10% and our absolute net emissions by 15%. In European Annexe 1 countries (EU 27 + Russia, Ukraine and Turkey), production of cement has increased faster (+ 5.9%) than our ability to reduce the specific gross emissions / t of cement (-0.6%). In North America, production of cement has been decreasing (-2.5%) while our specific gross emissions / t cement were stabilised. In the light of the realisation of the increased understanding of climate change, we recognise that new targets will be necessary for the period after 2010.
	2010	-7.0%	-4.5% ✓	
		-9.6%	-7.6% ✓	
Cut our <b>dust emissions</b> in our cement plants by 30% over the period 2005 - 2012.	2012	-4.4%	-13.7% ✓	Our activities may generate dust. Although we are already within local regulations, our voluntary undertaking is to reduce our dust emissions by 30% by 2012 compared to 2005. This will considerably reduce nuisance for our neighbours. Achieving this aim will necessarily involve capital investment. <b>We made good progress in 2007 but some corrections were also brought to the 2005 baseline emissions which increased by 4% as a consequence.</b>
Cut our <b>NOx emissions</b> in our cement plants by 20% over the period 2005 - 2012.	2012	-4.0%	-8.5% ✓	Any combustion releases NOx into the atmosphere. Beyond local regulations, Lafarge is voluntarily committing to a 20% reduction of NOx generated per tonne of clinker over the period 2005-2012. This will add to Lafarge's efforts for a cleaner world. This will require capital investment and operating expenses. <b>We made good progress in 2007 and are on track to meet our target.</b>
Cut our <b>SO<sub>2</sub> emissions</b> in our cement plants by 20% over the period 2005 - 2012.	2012	-0.3%	-11.8% ✓	SO <sub>2</sub> results from kiln processes; the sulphur comes mainly from the local raw materials, like limestone, that are used. Consequently the levels of SO <sub>2</sub> emitted by plants can vary considerably. Beyond local regulations, Lafarge is voluntarily committing to a 20% reduction of SO <sub>2</sub> generated per tonne of clinker over the period 2005 - 2012. Significant capital investment and operating expenses are being made to mitigate the impact of these emissions. <b>We made good progress in 2007 and are on track to meet our target.</b>
By 2010 have a baseline for <b>persistent pollutants</b> in our cement plants for 100% of kilns and reinforce our Best Manufacturing Practices to limit emissions.	2010	N/A	49.3% of kilns analysed	Persistent pollutants can be found in inputs and at the kiln stack. In line with the methodology of CSI and working with WWF, Lafarge is voluntarily undertaking: <ol style="list-style-type: none"> <li>1 - To complete the measurements of the persistent pollutants for all its kilns by 2010.</li> <li>2 - To develop suitable KPIs and report on progress (in 2007).</li> <li>3 - To implement Best Manufacturing Practices to reduce emissions on top emitter plants in 2010</li> <li>4 - To integrate into standard management practices the lessons learnt that contribute to limit emissions of persistent pollutants. <b>We are able to report this indicator for the first time in 2007 and continue to make good progress. We are on track to meet our target.</b></li> </ol>

✓ Indicators verified by Ernst & Young

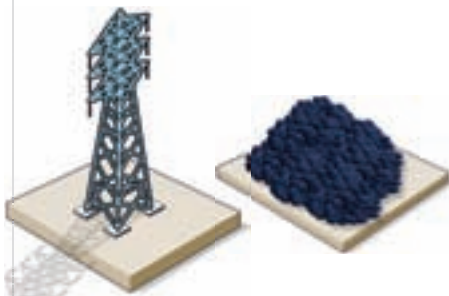
# Understanding the processes

To understand Lafarge's sustainability challenges and opportunities requires an understanding of: how our products are made; how our industry is structured; how Lafarge is organised and run. We now deal with each of these in turn to give a firm basis on which to judge our sustainability issues and performance. This double page spread examines the processes involved in our Businesses. The next double page looks in detail at a cement plant and a quarry.

## Sourcing

### Energy, goods and services

Lafarge spent 9.2 billion euros with external suppliers in 2007. Energy, from conventional and alternative sources, is the largest item. See pages 34-35.



Energy from conventional sources



Alternative fuels, waste fuels and biomass



Other goods and services

### Raw materials

Lafarge sources most of its raw materials from its own limestone, aggregates and gypsum quarries. But half the raw materials for gypsum board and one-tenth of the raw materials for cement come from other sources. See pages 24-27.



Limestone quarry



Aggregates quarry



Gypsum quarry

Lafarge's property and control

## Manufacture

### Processing

Our raw materials are bulky and heavy: they must be processed near to the quarries. Turning limestone into cement is the most energy intensive process. In some markets we are also involved in the ready-mix concrete business. For our impact on climate change see pages 28-35.



Cement plant



Ready-mix concrete plant



Gypsum plant



## Construction

### Construction

Our cement, concrete, gypsum and aggregates products are used in construction.

## Use

### Customers

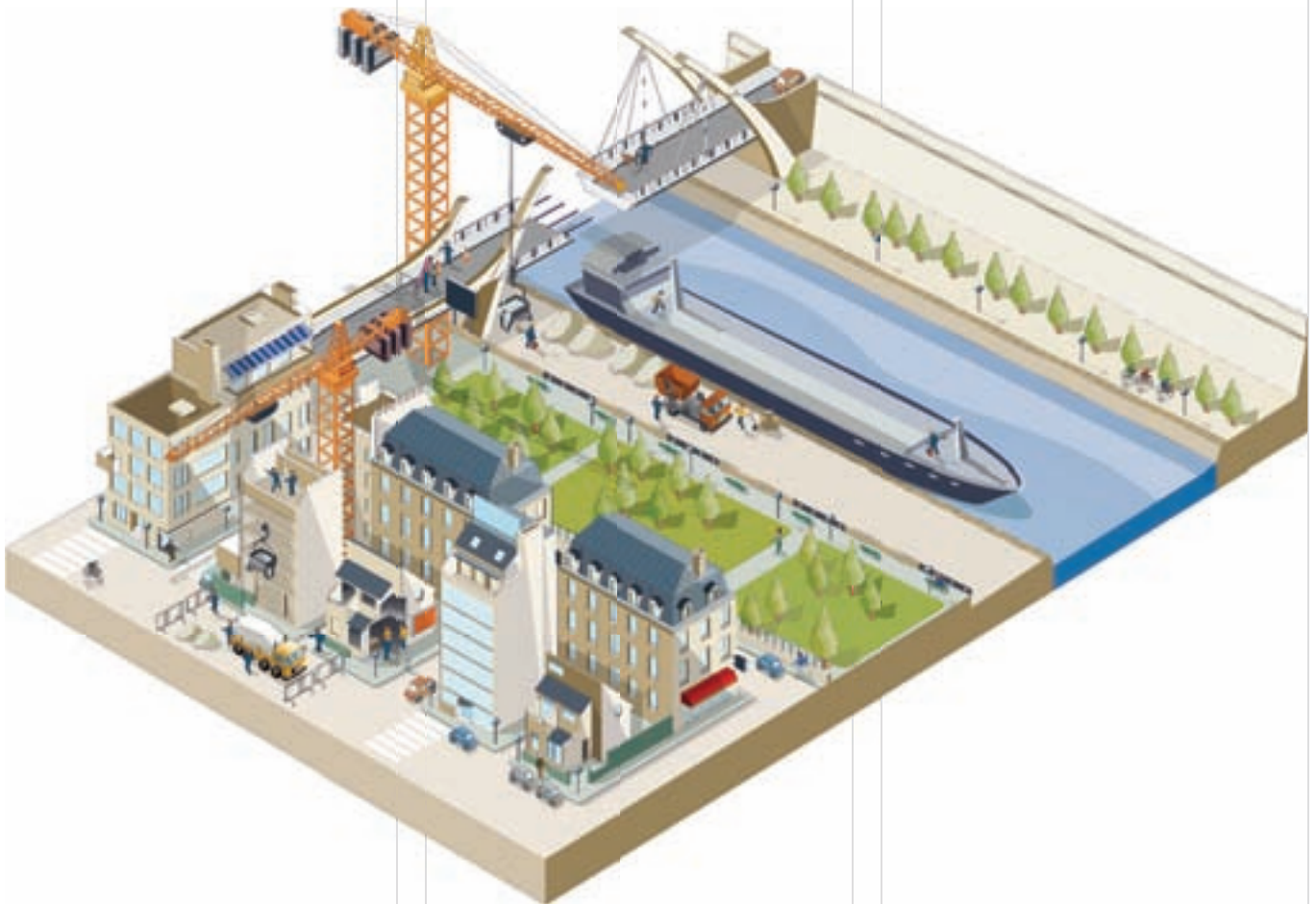
Our products are used for homes, offices, public buildings and infrastructure works like dams. For more on how we serve our customers see pages 50-53.

## Disposal

### Sustainable use and disposal of our products

Our products' biggest environmental and social impact lie in the way they are manufactured, used and disposed of. We are building alliances with the users of the products to increase their overall sustainability.

Lafarge's property and control



Our products are used to build and renovate the homes people live in, non residential buildings and to build the infrastructure, such as roads, bridges and flood defences.

# How a cement plant works

**1 Quarrying and blasting**

The raw materials that are used to manufacture cement are blasted from the quarry.

**2 Transport**

The raw materials are loaded into a dumper.

**3 Crushing and transportation**

The raw materials, after crushing, are transported to the plant by conveyor. The plant stores the materials before they are homogenized.

**4 Raw grinding**

The raw materials are very finely ground in order to produce the raw mix.

**5 Burning and cooling**

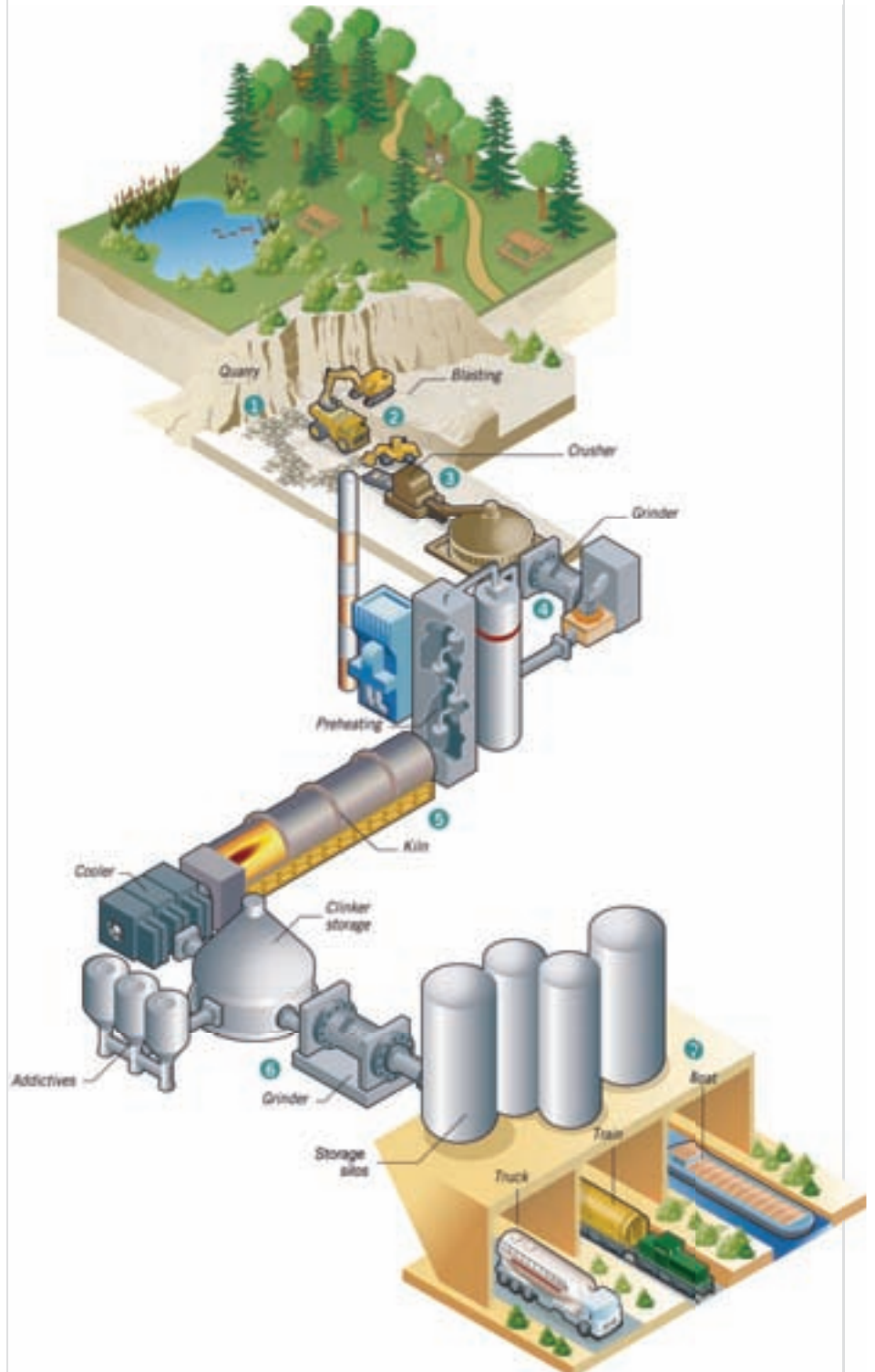
The raw mix is preheated before it goes into the kiln, which is heated by a flame that can be as hot as 2,000°C. The raw mix burns at 1,500°C producing clinker which, when it leaves the kiln, is rapidly cooled with air fans. So, the raw mix is burnt to produce clinker: the basic material needed to make cement.

**6 Finish grinding**

The clinker and the gypsum are very finely ground giving a "pure cement". Other secondary additives and cementitious materials can also be added to make a blended cement.

**7 Storage, packing, dispatch**

The cement is stored in silos before being dispatched either in bulk or in bags to its final destination.



# A quarry lifecycle: from identification to rehabilitation



1 Best practice dictates that from inception through to rehabilitation we choose to act in dialog with the neighbouring local populations, with NGOs and with the authorities. The nature and intensity of the dialog varies. Throughout the life of the quarry it is key to ensuring the best outcomes.

2 Our geologists undertake drilling to obtain rock samples which are used to identify and assess mineral reserves. This is the exploration phase.



3 We acquire or lease the land necessary for efficient, cost-economic access to the mineral deposits that we have identified.

4 An independent evaluation is conducted to assess the likely impact of quarry operations on landscape, water and air quality, biodiversity, and other environmental factors. It proposes measures to reduce these impacts.



5 A planning application contains a description of the planned quarry and installation, the mining plan and the rehabilitation plan. It spells out the potential environmental impacts and proposes means to mitigate them.

6 The public inquiry process leading to quarry approval varies between countries. It usually requires Lafarge to present evidence of economic benefits, to expose the environmental protection measures that will be implemented and to testify for its responsible corporate behaviour. Sometimes because of local planning and approval processes the permission requires us to provide financial compensation to mitigate the residual effects of the quarry.



7 Quarry operations pose different types of problems that are tackled by Lafarge right from the outset. We always budget for work we do to minimize the impact of a quarry on the landscape as part of our operating costs. We work to mitigate the impacts of operations. Because problems which arise can be highly site-specific we work to develop solutions in dialog with people in local communities. As part of our partnership with WWF, we have jointly developed a monitoring tool. Through it we are evaluating progress in the restoration of our sites.

8 Rehabilitation is performed progressively during the quarry exploitation whenever possible. With more than 150 years of experience in quarry rehabilitation, we aim for 85% of our quarries to have rehabilitation plans that meet our best compliance standards by 2010. Our quarry rehabilitation policy was developed in 2001, in partnership with WWF, and since then has been applied on our sites.



# Understanding the industry

Our products are used in buildings and civil works. They are used to build the houses people live in; the offices, shops and factories people work in; the hospitals, schools and infrastructure: roads, railways, airports, bridges, harbours that people use. We supply the construction industry.

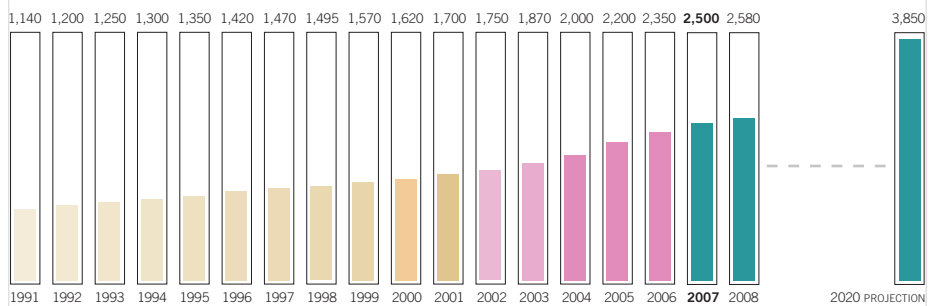
## Economic growth drives demand

Population growth drives demand for our products. It grows as economies develop, particularly as they urbanise. Within developing economies demand for cement grows substantially when national income reaches US\$3,000 per head. At around US\$15,000 per head consumption slows and, once a country's infrastructure is modernised, it may start to decline.

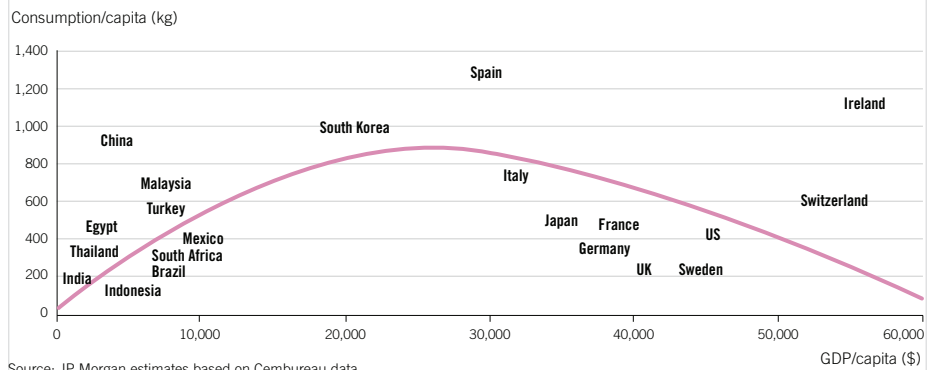
The generally accepted projection of global growth in demand for cement through to 2020 is that it will grow by 50% to around 3,800-4,000 million tonnes. The bulk of this growth will be in emerging economies. At the moment the annual growth in demand in emerging economies for cement is five times that in developed economies. Emerging economies currently account for 81% of world demand for cement, by 2020 this is expected to rise to 87%.

In emerging economies the growth in demand for ready-mix concrete exceeds growth in the demand for cement. This is because propor-

## Average annual growth rate of cement demand: 4.5%/year in the last twenty years (in million tonnes)

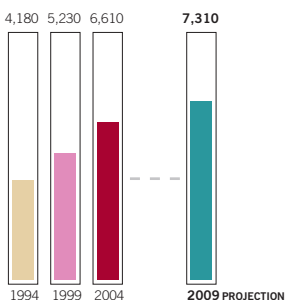


## Cement consumption per capita

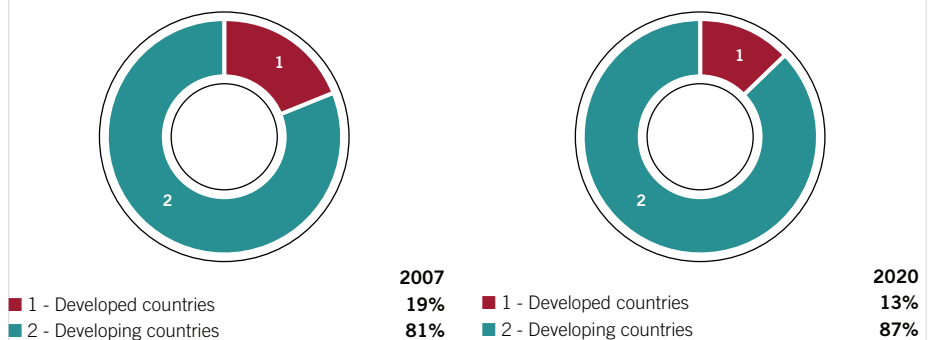


## Average annual growth rate of gypsum wallboard demand: 3.8%/year

(in million square meters)



## Current and 2020 cement consumption (estimate in %)



tionately less cement is being sold in single bags to families or small builders and proportionately more is going as ready-mix to large construction projects. As economies grow and change, so patterns of demand change. Our product range covers all stages of economic growth.

The rate of demand for gypsum wallboard varies significantly depending upon how far gypsum wallboard is used within the local building tradition. So gypsum wallboard demand is expected to grow at 2% per annum between 2006 and 2010 in North America but at 11% per annum over the same period in Latin America.

The cement, concrete & aggregates and gypsum wallboard markets have different levels of consolidation. In gypsum wallboard the top five companies supply two-thirds of the global market. By way of contrast the top five global companies in cement supply only one-fifth of the market, while in aggregates the top five-companies supply only one-twentieth of demand for aggregates.

### Cost structure of our products varies

Our products have significantly different cost structures. Raw materials from quarries, contribute relatively little to the cost of cement, around 10%. This contrasts with ready-mix where materials represent 85% of the cost.

Energy costs are a significant element in the cost of cement and of gypsum wallboard. Energy costs account for 40% of the cement cost structure and for one-quarter of the cost of gypsum wallboard.

Both these products are significantly exposed to fluctuating energy prices.

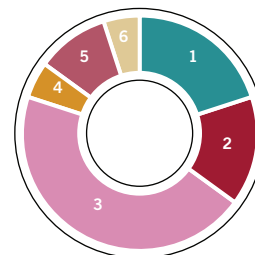
### Split of production cost\*



#### Cement

- 1 - Raw material
- 2 - Labor
- 3 - Fuel
- 4 - Electricity
- 5 - Maintenance
- 6 - Other

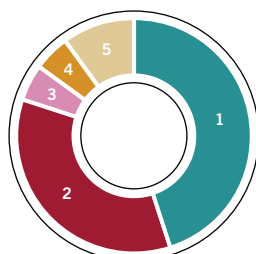
- 10%
- 20%
- 20%
- 20%
- 20%
- 10%



#### Aggregates

- 1 - Mineral costs
- 2 - Extraction
- 3 - Processing
- 4 - Transport
- 5 - Depreciation
- 6 - Other

- 20%
- 15%
- 45%
- 5%
- 10%
- 5%



#### Ready-mix

- 1 - Cement and cementitious materials
- 2 - Aggregates, sand, gravel
- 3 - Other raw materials
- 4 - Labor
- 5 - Other

- 45%
- 35%
- 5%
- 5%
- 10%



#### Gypsum wallboard

- 1 - Paper
- 2 - Gypsum
- 3 - Energy
- 4 - Other variable costs
- 5 - Maintenance and other fixed costs

- 25%
- 10%
- 25%
- 10%
- 30%

Source: Lafarge

\* Production cost is calculated on a cash cost basis, which excludes depreciation, except in the case of aggregates.

This is average data and does not reflect local variations.

# Understanding Lafarge

Here we set out some of the key facts about Lafarge, its history, its strategy and its economics.

## Lafarge history

We began operations in 1833 when Auguste Pavin de Lafarge founded a lime production enterprise in France. Lafarge S.A. was incorporated in 1884. We first entered the market for gypsum products in 1931. Our Aggregates & Concrete Business expanded significantly in 1997 with our acquisition of Redland plc. The acquisition was a novel one for a cement company but set a trend in vertical integration that our competitors have followed.

During 2006 Lafarge negotiated the sale of the roofing division. The sale took place in 2007; Lafarge retains a 35% minority interest in the

ownership holding. In December 2007 Lafarge announced its intention to acquire Orascom Cement which, with a cement capacity of 35 million tonnes in 2008 and 45 million tonnes by 2010, has a leading position in the Middle East and the Mediterranean basin. The acquisition was completed early in 2008.

## How Lafarge is organised

The aim of our organizational structure is to ensure total consistency in our global company while encouraging the exchange of best practices and leaving operating units with

a high degree of autonomy. We have a three-level organization.

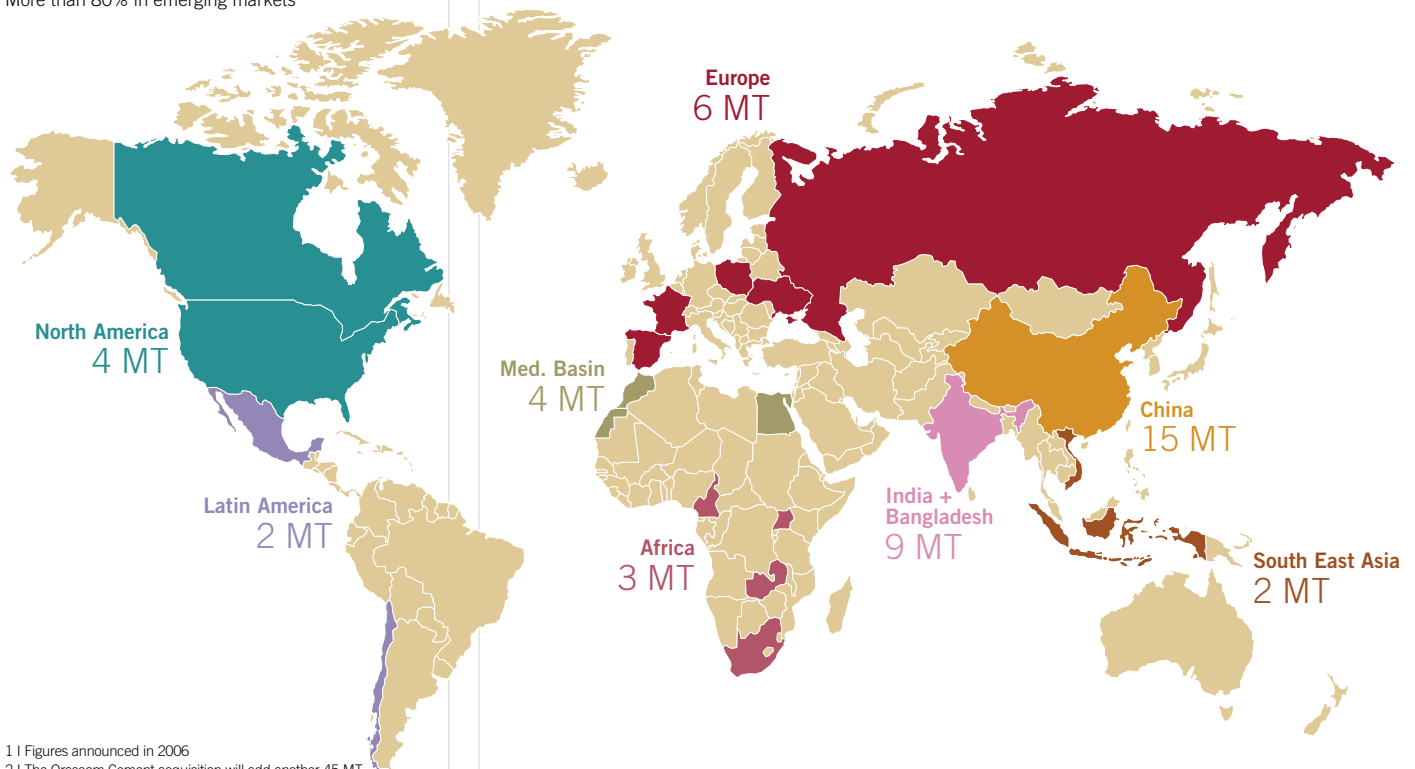
**The corporate level** defines our long-term strategies, Group values and a culture based on high performance.

**The business level** consists of our three divisions Cement, Aggregates & Concrete and Gypsum. They are responsible for enhancing performance and for the long-term success of their respective businesses.

**The business unit** level is the heart of our organization and propels the Group's business. There are 150 business units.

## A program<sup>1</sup> to build 45 million tonnes of new capacities between 2006 and 2010<sup>2</sup>

More than 80% in emerging markets



<sup>1</sup> Figures announced in 2006

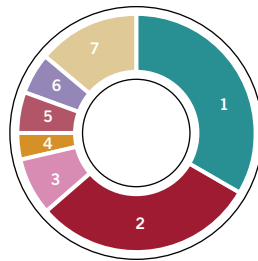
<sup>2</sup> The Orascom Cement acquisition will add another 45 MT





Sales by region (2007) <sup>(1)</sup>

<b>Mature Markets</b>	<b>62.8%</b>
1 - Western Europe	35.7%
2 - North America	27.1%
<b>Emerging Markets</b>	<b>37.2%</b>
3 - Central & Eastern Europe	8.3%
4 - Mediterranean Basin	4.2%
5 - Latin America	5.0%
6 - Sub-Saharan Africa	9.7%
7 - Asia	10.0%



Capital employed by region (2007) <sup>(2)</sup>

<b>Mature Markets</b>	<b>63.8%</b>
1 - Western Europe	33.6%
2 - North America	30.2%
<b>Emerging Markets</b>	<b>36.2%</b>
3 - Central & Eastern Europe	7.7%
4 - Mediterranean Basin	3.7%
5 - Latin America	5.5%
6 - Sub-Saharan Africa	5.5%
7 - Asia	13.8%

1 | Split by business line: Cement 53.7%, Aggregates & Concrete 37.4%, Gypsum 8.8%, Other 0.1%  
 2 | Split by business line: Cement 69.7%, Aggregates & Concrete 21.7%, Gypsum 6.7%, Other 1.8%

### Growth and innovation

The previous section Understanding the Industry explains something of the economic background in which Lafarge is operating. Lafarge responds to the challenges posed through a strategy that focuses development in cement in emerging markets and through value added and innovative products in concrete and gypsum.

At the same time the Group is committed to delivering considerable cost savings through Excellence 2008. It is equally committed to responsible economic, social and environmental practice and in particular to delivering the Sustainability Ambitions 2012.

### Sustainable growth in Cement

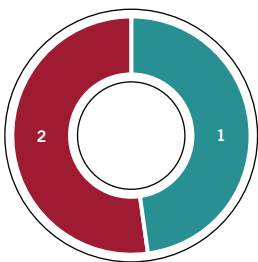
Lafarge is well positioned by acquisition and ongoing internal growth investment to benefit from the growing demand for cement in emerging economies. As can be seen from the map opposite, Lafarge is pursuing an unprecedented internal development program in cement, to build 45 million tonnes of new production capacity by 2010, in more than 20 countries.

The balance of the Group has already changed. In 2007 for the first time more than half of the Group's cement sales by value were in emerging economies. By 2010 we expect two-thirds of the profits of the Cement Business to be realised in emerging markets.

Lafarge has used its proprietary understanding developed through research and development to introduce four international innovative brands of concrete: Agilia®, Artevia®, Chronolia™ and Extensia™. Two of these were launched in 2007.

Each fulfils a particular customer need. So for instance, Extensia™ is a concrete designed for the production of large slabs. A traditional concrete can be used to produce a 25m² slab. Extensia™ can produce a 400m² slab with no steel and without joints that is thinner and more resistant than traditional slabs. This creates value for the customer as it allows surfaces with fewer joints and is easier to place. It does so with the use of less material and less natural resources, and requires less maintenance.

Current penetration of such value added products is roughly 16%. This varies between and within markets. However, we expect the contribution made by these products to our sales to grow to 35% by 2012 and have a long-term ambition of them growing to represent half of all the concrete we produce. We are active innovators in the gypsum wallboard market too, bringing to market new products such as Synia™, PLAtec™ and Pregymax™.



Cement sales by value (2007)

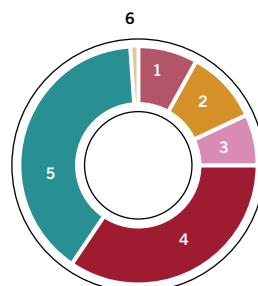
1 - Mature Markets	47
2 - Emerging markets	53

### Value added concrete and gypsum products

Lafarge's strategy consists of more than a shift to match changing geographical patterns of demand. Concrete, particularly in advanced economies, is not just a commodity. It is a product whose flexibility should add value for the user and that should be adapted to meet the particular needs of the particular task that the user is undertaking. Our concrete plants can deliver between 400 and 600 mix designs to suit the needs of the customer.

### Cash value added (2007)

	€ million	%
Sales	17,614	
Cost of goods and services	11,327	
<b>Cash value added <sup>(1)</sup></b>	<b>6,287</b>	<b>100</b>
1 - Taxes paid to governments	550	8.7
2 - Paid to investors for providing capital	652	10.4
3 - Paid to lenders as a return on their borrowings	478	7.6
4 - Retained for growth	2,127	33.8
5 - Paid to employees for their services	2,469	39.3
6 - Community investment <sup>(2)</sup>	11	0.2



Lafarge generated €6.3 billion cash value added in 2007. Our employees were the largest single group to benefit from cash value added. €2.1 billion of cash value added was retained for future growth.

1 | Figure adjusted to take account of estimate for community investment  
 2 | Estimate

SUSTAINABILITY AMBITIONS

Competition policy

# Values and governance

Our values and governance shape the way we work. We apply them systematically at every level of our organization. How a company is run is a key enabler of sustainability.

## Lafarge Way

### What it is

Lafarge's goal is to be the undisputed world leader in building materials, i.e. the best in our industry for all our stakeholders. We are committed to being the:

- preferred supplier for our customers,
- preferred employer for our employees,
- preferred partner for our local communities and
- preferred investment for our shareholders.

Our common values are - courage, integrity, commitment, consideration for others and an overriding concern for the Group's interest. We share clear processes and rules which allow everyone to understand how a decision

is made and who is ultimately responsible. Our *Code of Business Conduct* sets standards of behaviour for all Lafarge employees and officers and those individuals providing goods and services on behalf of the Group. A Group-wide dedicated phone number allows employees to report violations of the Code. We conducted a Group-wide corruption survey in late 2007. The survey covered analysis of risk, anti-corruption training policies and actions taken in response to any incidents of corruption. We will use the results to spread best practice and ensure effective delivery of our commitments. As a building materials company, we

are much less exposed to corruption than companies that have clients in the public sector.

### How to deliver alignment with it

Knowledge and understanding of the Lafarge Way are essential for all our collaborators to operate positively. Its introduction was accompanied by widespread training. Now the Lafarge Way is included in our *Meet the Group* management training for all new entrants, a three day course which includes Executive Committee member participation.

## Shareholders: the owners of our company

### Who and where

Among institutional shareholders, Groupe Bruxelles Lambert held 17.9% of the shares as at 31 December 2007.

#### Shareholders by type (2007)

Institutional (France)	22.5%
Institutional (other countries)	65.4%
Individual	11.7%
Treasury	0.4%

#### Shareholders by geography (2007)

France	34%
United States	22%
Belgium	21%
United Kingdom	10%
Rest of the world	13%

The structure of ownership changed in 2008 as a result of the Orascom acquisition.

### Participation in governance

All registered shares held for a period of two years benefit from a loyalty dividend set at 10% over and above the normal dividend and double voting right with a limit of 0.5% of the total share capital by shareholder. Today the number of voting rights held by each shareholder is unrestricted provided they do not exceed 1% of the rights attached to all shares comprising the Company's share capital. Above this threshold, the number is restricted according to the total number of voting rights held by the shareholders represented at the

meeting. At the 3 May 2007 Annual General Meeting it was agreed to raise this threshold to 5% (until 2011 when it will be abolished) and to waive it should the shareholders participation exceed two-thirds of the voting rights.

### Keeping them informed

Lafarge keeps its investors informed through tools such as regular notices in the financial press, press releases, regular letters to shareholders, the shareholders' information section of the web and through the Shareholders' Consultative Committee. Socially responsible investors (SRIs) are represented on our stakeholder panel. We meet with individual SRIs to discuss our sustainability policies and performance.



The Annual General Meeting of Lafarge in 2007

## Combined Ordinary and Extraordinary Shareholders' Meeting – May 3, 2007

Voting results	
Number of shares with voting rights	172,628,677
Number of voting rights	185,543,910
Number of shareholders present, represented or voting by post	16,518
Number of shares present, represented or voting by post	54,808,283
<b>Quorum</b>	<b>31.74%</b>
Number of of voting rights present, represented or voting by post	59,128,912

All resolutions were approved. The rate of approval for 23 resolutions ranged between 99.77% and 86.87% of voting rights present, represented or voting by post. One resolution was approved by 54.93%. This resolution recommended the approval of an amendment in the by-laws of Lafarge, bringing the limitation on voting rights from 1% to 5%. This limitation at 5% of voting rights will no longer be effective as from 1 January 2011.

## Proper governance

### Our board

Our 15 member board carries out its duties in line with the provisions of the publicly available Directors' Charter. After the acquisition of Orascom Cement it was agreed that from 2008 the board will have representation from Orascom Construction Industries, and also from Groupe Bruxelles Lambert.

### Chairman and CEO

In May 2007 Bruno Lafont, CEO since January 2006, also became Chairman.

### Director independence

As of 31 December 2007, eleven of the 15 Directors were independent. After changes in the board structure that occurred at the 18 January 2008 General Meeting, we will

keep a majority of independent directors on our board. We follow the criteria of the French employers' associations, the MEDEF and AFEP-AGREF, except the recommended 12-year limitation on length of service.

We believe that for a long-term industry such as ours, and to ensure stability serving as a director for a longer period of time brings more experience, authority and also reinforces the independence of directors. The newly created position of Vice-Chairman of the Board is held by an independent director. He guarantees the expression of the independent Directors and chairs the board discussion that takes place to assess the performance and set the remuneration of the Chairman and Chief Executive Officer.

In 2007 the board determined that as from 1 January 2008 at least two-thirds of the audit

committee must qualify as 'independent' in accordance with the recommendations of the AFEP-MEDEF report.

### How the board engages with values and sustainability

The remit for these issues lies with the Strategy and Development Committee. The Senior Vice President, Sustainable Development and Public Affairs made a major presentation on sustainability to the committee at its August meeting. The presentation covered Lafarge's sustainable development strategy and how it is being delivered through the *Sustainability Ambitions 2012*. The Executive Committee approved the *Sustainability Ambitions 2012* in May 2007 and considered a number of sustainability items throughout the year.





*Lafarge is involved with the communities in which the Group is operating*

## Four governance issues

### Competition

In 2007 we adopted a Group-wide Competition Compliance Program. Implementation is assisted by a network of business unit based contacts, training and e-learning. Our objective is to achieve 100% of all significant business units being tested for compliance with our policies by 2010. The figure at the end of 2007 was 35%.

### Risk

Lafarge has a full global system to identify and mitigate corporate risk. It is reviewed by the Board and the Group Executive Committee. In 2007 a Group risk mapping was implemented. It was presented to the Audit Committee of the Board. Major identified risks are duly followed up.

### Human rights

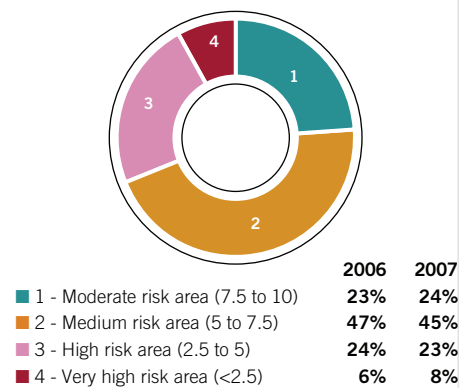
Lafarge supports the Universal Declaration of Human Rights and other international human rights standards (ILO; OECD, UN Global Compact). In 2005 the Group signed an Agreement on Corporate Social Responsibility and Industrial Relations, with the International Federation of Building and Wood Workers, the International Federation of Chemical, Energy, Mine and General Workers' Union and the World Federation of Building and Wood Workers. The Lafarge operational context is complex, very localized and diverse. The human rights issues are also complex and often location-specific. Lafarge emphasises

its corporate Principles of Action and Code of Business Conduct as a primary means of ensuring that human rights are respected throughout the Group. Our Group Principles of Action and Code of Business Conduct include the promotion of equal opportunity and non-discrimination in employment practices; ensuring that freedom of association and the right to organise are respected; guaranteeing that forced, bonded, prison or child labor is not used; ensuring that healthy and safe working conditions are provided; that security of employment is created and that the rights of people in the local communities are respected. Lafarge is acutely aware that the proportion of its business based in countries that are considered to have human rights issues is growing, both as a result of organic growth and acquisition. Ensuring delivery on human rights is therefore an increasingly significant issue for Lafarge.

### Political contributions

Lafarge employees and officers, in their capacity as citizens, may participate in political activities. They must not commit the Group in these activities. In the United States it is illegal for corporations to make contributions to candidates running for Federal Office. Contributions can only be made through a political action committee (PAC). In 2007 the Lafarge North America Inc Cement PAC made 12 contributions to Federal candidates or Federal candidates leadership committees totaling \$24,000.

### Corruption risk and preventative policies. Breakdown of our sales by country-risk according to Transparency International\*



\*Perception index (countries rated from 1 to 10)

### Breakdown of activities in countries of concern regarding human rights (2007)\*

	Sales breakdown	Workforce breakdown
Not free	4%	20%
Partly free	15%	16%
Free	81%	64%

\*Based on Freedom House's *Freedom in the World 2007* Index, which rates countries on their levels of civil and political rights.

Production control panel at the Diwei cement plant of Lafarge in China



## Sustainability management and influencing role

Our progressive approach to managing and improving sustainable development helps enhance our stakeholder relationships and our overall business performance.

### Organization and management systems

#### Our structure

Our Group-wide Sustainable Development and Public Affairs organization exists to promote good, transparent sustainability performance through:

- listening to, understanding, anticipating stakeholders' expectations and questions;
- developing sustainability framework, policies and KPIs;
- ensuring that the Group and its employees respond appropriately at local and global levels.

The team consists of eleven people, including posts dedicated to climate change and sustainable construction. Key to the concept is that those with responsibility for the environment in each one of our businesses have been brought together in a single team. We seek seamless continuity between what we say in head office and what we do in the field. As a result of the change we have a truly multifunctional team dedicated to improving sustainability performance. In the recently revised management structure the function reports to the Executive Vice President Strategy, Business Development and Public Affairs who is a member of the Executive Committee. Sustainability management is governed by the

Group's Executive Committee, which approves Group policies and targets and meets annually with our Stakeholder Panel. The Sustainable Development Operational Committee formulates and implements Group policies, meeting at least twice a year. This committee was established to integrate sustainability into daily operations better. It is chaired by the Senior Vice President, Sustainable Development and Public Affairs, and includes senior operational executives in each business line, as well as senior executives from Group functions (Research & Development, Social Policies, Communications).

#### Following the Sustainability Ambitions

Our Sustainability Ambitions 2012 provide our road map for dealing with the key challenges we face. To achieve them requires understanding, engagement, and application from business units and individuals across the whole Group. Each of the Sustainability Ambitions has a champion whose responsibility is to guarantee that each business line follows the Ambitions and to encourage and measure

progress towards the goal. The performance results are closely measured and monitored; please see pages 4 and 5 for full coverage of the Sustainability Ambitions.

#### Members of Lafarge Executive Committee

- Bruno Lafont**, Chairman & Chief Executive Officer  
**Jean-Carlos Angulo**, Executive Vice-President, Co-President of the Cement Business  
**Isidoro Miranda**, Executive Vice-President, Co-President of the Cement Business  
**Guillaume Roux**, Executive Vice-President, Co-President of the Cement Business  
**Thomas Farrell**, Executive Vice-President, Co-President of the Aggregates & Concrete Business  
**Gérard Kuperfarb**, Executive Vice-President, Co-President of the Aggregates & Concrete Business  
**Christian Herrault**, Executive Vice-President, President of the Gypsum Business  
**Jean Desazars de Montgailhard**, Executive Vice-President, Strategy, Business Development and Public Affairs  
**Jean-Jacques Gauthier**, Executive Vice President, Finance  
**Eric Olsen**, Executive Vice-President, Organization and Human Resources



School children  
visiting the  
rehabilitated quarry  
in Sandrancourt,  
France



### Making it real at a local level

Achieving our sustainability goals requires engagement at site level. This is not just a matter of general principle. The performance of each site is integrated into our collection data processes. To take the example of the Cement Business, each plant is monitored on its performance against the following factors and plant managers have access to the data of all the plants.

- Energy consumption/T clinker
- Quantity of raw materials used/T clinker
- CO<sub>2</sub> emissions/T clinker

- SO<sub>2</sub> emissions/T clinker
- NO<sub>x</sub> emissions/T clinker
- Dust emissions/T clinker
- Water consumption
- Fuels breakdown – including biomass
- Recycled materials
- Waste generated and disposed of

In addition, all plants have access to the database, where Best Practices are gathered. Training tools are available, and in the various training programs the Business runs, specific

modules on Sustainability are being introduced systematically.

Each site is subject to a four yearly environmental audit (see pages 36-37). Each site is responsible for fostering positive relations with local stakeholders (see pages 54-57).

The Group's businesses have also revised working patterns to integrate sustainability more fully. So for instance the Vice President Environment (Cement) is now fully integrated in the process of preparing capex proposals for the Cement Division Capex Committee.



## Gaining advantage from sustainability performance

Not only is a serious and detailed engagement with sustainability issues the right thing to do but Lafarge derives measurable benefit from the sustainable agenda it follows.

Many companies cite winning and retaining a licence to operate as a key benefit of operating sustainably. Lafarge is acutely aware of the importance of this aspect of the sustainability

agenda. To take just one aspect of our operations, Lafarge extracts 450 million tonnes of minerals a year and it must gain government permits and local approval for further extraction. Yet in our view there is much more to the matter than this. A key part of the sustainability agenda is innovation to meet customer need and innovation that improves the environmen-

tal performance of our own operations and of our customers' use of our products. Here there is a confluence between the commercial and the sustainability agendas. These matters are dealt with more fully in the Customers section (see pages 50-53) and in the Climate Change section (see pages 28-35).

## Identifying and working with stakeholders

### The panel

Since 2003, Lafarge has invited nine individuals representing a diverse range of stakeholder groups and sustainability issues to serve as 'critical friends' to Lafarge and recommend performance improvements. The stakeholder panel normally meets twice a year to debate and make recommendations on a number of topics. The Panel receives regular information from the Group. Its terms of reference are on our website. In 2007 the panel met in Edinburgh, Scotland. Panel members toured the Dunbar Cement Plant and entered into dialog with Lafarge on a number of matters related to the Sustainability Report 2006. Due to the activity surrounding the Orascom

acquisition the meeting of the panel with the Executive Committee of Lafarge scheduled for 14 December 2007 was held over to the earliest mutually convenient date in 2008. The themes for that meeting were climate change, health and safety, human rights, industrial ecology, sustainable construction and three controversial topics that Lafarge has been involved in, either directly or indirectly, in 2007 (Indian lime quarrying, marine aggregates in Brittany and a labor controversy concerning a former sub-contractor in South Korea, all of which are covered elsewhere in this report). Several panel members engage directly with Lafarge's operational managers

through partnerships (WWF and CARE), the social agreement with our international unions, and our European Works Council.

### Other influences

The stakeholder panel is typical of the open and positive dialog we aim to establish throughout the Group's operations. A full account of the methodology and commitment of our engagement with local stakeholders can be found in Relations with our communities (pages 54-57). Some of the results of the detail of our dialog with SRIs are outlined in Comparability of performance (page 63).

## Using our influence within the industry

Lafarge takes the view that it can only fulfil its sustainability mission successfully if it plays a full part and gives a lead within the industry.

The clearest and most public example of this attitude is the Cement Sustainability Initiative (CSI) of the WBCSD. Lafarge was one of three companies that founded the initiative in 1999. The membership has now grown to 18 companies representing 27% of global cement production, with members coming

both from developed and emerging markets. The CSI provides a practical, shared model for grappling with key sustainability issues that face the cement industry.

Lafarge has similarly taken a leading role in WBCSD's Energy Efficiency in Buildings project, currently providing the co-Chair of the project. Here we are using our influence within the building industry to help move forward thought and action of the vital and complex issue of sustainable construction.

Lafarge was also the sole representative of our industry on the European High Level Group on Competitiveness Energy and the Environment, which concluded its work during the course of 2007.

We believe that taking this positive approach to engagement benefits Lafarge, the industry and society as a whole.

*Bruno Lafont visiting  
Nigeria, block of  
classrooms built and  
furnished by local  
Lafarge cement unit  
Ashakacem PLC*



## Public Positions

### Public affairs organization

Ultimate responsibility for the public positions of the Group lies with the Chairman and CEO. On a day-to-day management basis responsibility lies with the Senior Vice President, Sustainable Development and Public Affairs, who reports to the Executive Vice President, Strategy, Business development and Public Affairs, member of the Group Executive Committee.

Within Europe, our Public Affairs network of approximately 20 correspondents from our business units in Europe meets three to four times a year, coordinating the Group's positions at national, European and international levels as well as conveying them to the trade associations.

In the United States the Environment and Public Affairs Committee serves a similar function to the European group. It meets on a monthly basis with the active participation of the Senior Vice President, Sustainable Development and Public Affairs.

In other countries the position varies. Some business units have a specific person dedicated to managing Lafarge's public policy engagement. China is a good example of this. It has a dedicated public affairs officer reporting directly to the CEO of the Chinese Cement operations.

### Lafarge's objectives and positions

Through the Group's public affairs and lobbying activities we seek to:

- Raise understanding of our activities and issues;
- Anticipate stakeholders' expectations and regulatory changes. Where we believe that changes are required we call for them, sometimes through voluntary programs. We advocate effective implementation and enforcement of regulations by authorities to prevent competition distortions;
- Demonstrate responsible sector leadership, notably by promoting more environmentally friendly technologies and socially progressive practices.

### More responsible lobbying

In our view, responsible lobbying requires compliance with three major principles:

**Transparency:** Hence we publish our policy positions on an annual basis.

**Dialog:** We meet regularly with stakeholders and engage them in discussion. Wherever it is relevant we organise site visits so that stakeholders can gain insight into reality on the ground.

**Sustainability:** Our lobbying activity is fully aligned with our sustainability efforts. This is reflected in our organization as both are under

the responsibility of our Senior Vice President Sustainable Development and Public Affairs. We are sure that it is in the Group's interest to influence the adoption of high-quality environmental, social and technology standards and to call for strict enforcement of regulations. Being clear and open is the key.

### Promoting positive positions through trade associations

Lafarge recognises the benefits of participating in trade associations. Lafarge is a member of associations at an international, regional, national and local level. Lafarge is a member both of associations whose prime purpose is to represent the building materials sector (for example, the Chinese Cement Association, the National stone sand and gravel association in the USA, Cembureau and Eurogypsum in Europe) and more broadly to represent private companies (e.g. the World Business Council for Sustainable Development at international level or the AFEP in France) Wherever Lafarge is a member, we try to take a lead in encouraging engagement with external stakeholders, debate and the promotion of a positive and progressive position on the issues relating to companies and our industry. We believe that any other attitude or position is ultimately self-defeating.

*Local communities  
in the Chhatak  
cement plant area,  
Bangladesh*



We try to take a lead in encouraging engagement with external stakeholders, debate and the promotion of a positive and progressive position on the issues relating to companies and our industry. We believe that any other attitude or position is ultimately self-defeating.

## Main public positions

### **The revised EU-ETS (emissions trading scheme on GHG) directive<sup>(1)</sup>**

Lafarge supports the EU-ETS, one of the most effective ways of reducing industrial GHG emissions. We consider that the new proposal is an improvement on several points.

It could be improved further. Since free allocations are to be replaced by auctioning (up to 100%), the current proposal will deeply modify the competitive environment for energy intensive industries including cement. This impacts significantly our manufacturing costs within the EU, but has no effect on non European competitors. Transportation costs from non EU countries to the EU will be more than offset by this future increase in our production costs. The draft directive could therefore generate carbon leakage, from potential relocation and from added CO<sub>2</sub> due to transport of imported products. The proposal should address this issue by:

- setting the list of sectors impacted as soon as possible and using criteria which will take into account this deep modification of the economics of the European cement industry and the increase of production costs compared to international transportation costs;

- ensuring that energy intensive industries, including the cement sector, are subject to an equalisation system, pending the conclusion of an international agreement likely to ensure a level playing field.

Lafarge considers the cement industry is also part of the solution. Our materials can be and are being used in sustainable construction. Efficient regulation to reduce CO<sub>2</sub> emissions should focus primarily on buildings' ecological footprints rather than just the manufacturing of building materials.

CO<sub>2</sub> emissions must be tackled on a global scale. As part of CSI, we are developing a cement sectoral approach consonant with EU-ETS for cement companies from developing and developed countries. Such a sectoral approach could be used as a basis for a future international regime.

### **Access to natural resources**

Lafarge has long experience of responsible quarrying and the rehabilitation of quarries. Our approach is to make the protection of nature and the development of extractive activities compatible. Based on this experience and recognising that access to quality mineral resources is a major issue in many countries, we consider that legislation (e.g.

Natura 2000 in Europe) should be an instrument of protection but should not be used to freeze the exploitation of new deposits. We are also in favour of applying the "one stop shop" concept to the granting of exploitation permits.

### **Waste**

The use of waste as an alternative fuel or raw material is the keystone to our commitment to industrial ecology and sustainable development. However, we consider that all activities concerning waste must be carried out by trained professionals and, above all, within a strict regulatory framework to ensure the operators' credibility.

In line with these principles, we promoted the following positions on the revised waste framework directive: the maintaining of strict criteria to decide on when a waste ceases to be a waste, a reinforcement of the provisions specific to hazardous waste, the necessity of a permit to exploit under the Integrated Pollution Prevention and Control (IPPC) procedures and the regulatory recognition of pre-treatment operations as recovery operations.

<sup>1</sup> | Actually released in January 2008 but nonetheless dealt with here

# Building on stakeholder feedback on our 2006 Sustainability Report

Lafarge sought an external perspective on its sustainability reporting right from the start. Since 2003 we have benefited from the comments of our formal stakeholder panel.

We were gratified by the welcome that the panel gave to the new structure of our 2006 report, particularly the Establishing understanding and the Big issues sections. The panel are critical friends. They provide challenge. The table sets out the main challenges from the individual and collective panel comments and how we have responded.

SUMMARY OF COMMENT	LAFARGE ACTION
To be effective and transparent in the use of our political influence to raise industry standards	We set out our approach to managing this issue in Public Policy positions. This includes a fuller explanation of our positions and our processes
To encourage employee engagement to foster employee participation rights and involve local trade unions, especially in environmental compliance, safety, anti-corruption as well as on the Group-wide occupational health program	We have covered this matter throughout our Values and governance, Employees and Health and Safety sections
To elaborate workers' participation and rights including subcontractors in health and safety committees To elaborate on systematic occupational health and safety training	We address these issues in Health and safety, these topics now have a dedicated section of the report
To address the Group's major impacts on local communities, especially in southern countries and to develop effective community investment indicators	We address this topic both in the Relations with our communities and in the Emerging economies sections. We will consider the question of indicators as part of achieving our Sustainability Ambition in this area
To look at how Lafarge can translate sustainability into a value enhancement for customers To look at how Lafarge services low-income customers	We address these issues in our Understanding Lafarge, Customers and Emerging economies sections
To be clear how common standards are assured in the Group-wide occupational health program	This is work in progress. Our approach is outlined at the end of our Health and safety section
To be clear how the HIV/AIDS and Malaria program is prioritised	We have given a fuller account of our current programs. Further progress towards our 2010 Sustainability Ambition target in this area will be given in future reports
To ensure as part of Lafarge's growth strategy that all sites undergo external environmental audits as part of the routine due diligence process and that upgrades to global best practice standards are fully costed into the firm's acquisition strategy	We have given full coverage of this issue in our Managing our environmental impact section. All acquisitions are made on the basis that the plant acquired will be brought up to Lafarge global standards
To extend the outlook for CO <sub>2</sub> beyond 2010 To review the technical possibilities of reducing volumes of primary resources and limiting the industry's contribution to climate change while accommodating an anticipated 80% increase in cement demand	We have taken these factors into account in the preparation of our Climate change section. We remain focused on achieving our 2010 targets and are working on setting our post-2010 targets
Report more on alternative raw materials	This matter is particularly addressed in the Sourcing and Raw Materials section
To report more on the reduction of persistent pollutants	Data published this year is a first step to better reporting our progress on this matter
To clarify Lafarge's engagement with and progress on Sustainable Construction	We have done this by covering Sustainable Construction fully in the Climate Change: Challenges and solutions section of this report



# Opinion of our stakeholders on the 2007 Sustainability Report

Our mission is to serve as “critical friends” who challenge Lafarge’s sustainable development strategy and reporting practices, suggest improvements and form each year an opinion on Lafarge’s accountability. We highlight below key areas of progress made during 2007 and remaining challenges for Lafarge both in sustainable development performance and in its sustainability report. However, we do not verify the data or deliver any kind of assurance on performance.

## Communication

The 2007 sustainability report is informative and accessible. We welcome evidence that a wide range of corporate social responsibility initiatives at Lafarge are becoming increasingly integrated within a common set of corporate values that are driven from the top. We also note clear signs of progress over the past few years, with scope for further improvement. For example, Lafarge has made considerable advances in its commitment to environmental protection, though we continue to have strong concerns regarding Lafarge’s reporting on persistent pollutants, which is not yet as clear and transparent as other aspects of reporting. The section on local stakeholder relations is much improved, but needs to go further. Indeed, better communication by Lafarge would help the company to demonstrate its ability to anticipate local problems. One example is the Brittany sands extraction proposal, where studies presently being carried out should be subjected to appraisal and, ideally, conducted in participation with democratically-accountable local organisations and other stakeholders that have a high degree of local legitimacy. The project should proceed only if it is not going to cause significant damage to other activities that are central to the local economy, such as tourism and fishing. More generally, local stakeholder challenges are likely to increase, especially with the Orascom Cement acquisition. More examples of stakeholder dialogue at the regional and national level would therefore be useful as evidence that groupwide good practices are translated effectively at all levels. Some of us feel that Lafarge is not reporting sufficiently on training of its non-managerial staff; we would like to know how the Group promotes and implements skills training for production workers and how it contributes to better employability, given the need to restructure and dismiss staff, which led to 4,846 redundancies in 2007.

We commend Lafarge’s treatment of the G3 version of the GRI Guidelines and the NRE law, as well as its detailed response in this year’s Report to the specific comments we had made last year. We particularly welcome Lafarge’s move to share draft unaudited quantitative data with us in advance of publication, which had been one of our requests.

## Climate change challenge

We strongly welcome Lafarge’s ongoing commitment to cutting GHG emissions and addressing sustainable building and construction. With its global reach, Lafarge is in a prime position to positively influence the way construction develops across the globe.

We appreciate that Lafarge has, at our urging, emphasised sustainable construction following last year’s lack of coverage of this subject. That said, we note that the focus remains overwhelmingly on the energy embedded in the constituent ingredients of concrete,

rather than on the use of buildings while in operation. Insofar as building use is widely estimated to account for 85% of energy consumption, this is where buildings have their main energy and environmental impact. In order to position itself more strongly as a global provider of sustainable construction solutions, Lafarge therefore needs to refocus itself on the period in which buildings are in operation.

Having said this, we understand that all of Lafarge’s efforts to streamline production and make it more sustainable are an ongoing process. Indeed, as cutting GHG emissions involves many industry players and areas beyond the core business of the company, we would like to see more engagement from Lafarge as not only producer / contributor / influencer but also Lafarge as partner and collaborator. This implies, for example, the building materials supplier collaborating with architects and other business partners. It also means collaboration beyond the traditional core business to produce new products and services that enable the introduction of buildings that are efficient and optimal from a local sustainable development point of view. The materials provider cannot simply stand back and leave action to address the ecological footprint of buildings to other industry players. When Lafarge supplies materials to build a football stadium in South Africa, is the company involved in a discussion of ways to make that construction and surrounding transport infrastructure more sustainable and versatile in being adaptable for local development needs?

We are aware that, as the world’s single-largest cement producer, Lafarge has direct influence over fully 0.3% of global CO<sub>2</sub> emissions. This shows the importance of the company’s achievement in having already reduced emissions per unit of cement produced by 16% from a 1990 baseline, and it places continued importance on the commitment to try to meet its target of 20% reduction by 2010. We understand that Lafarge’s expansion in countries outside of Europe makes this target a challenging one, but as a Panel we consider it vital that Lafarge continue to clean up the non standard plants that it acquires. We are, however, aware that as the world’s demand for cement increases, the company’s achievement in cutting CO<sub>2</sub> emissions per unit of production is being outpaced by an ever-growing total volume of production. How best to respond to this raises a range of questions that the Panel would like to examine in future. These include the possibility of urging Lafarge to consider entering into a programme of carbon offsetting.

## Growth in emerging markets

As Lafarge expands its presence in rapidly-industrializing developing countries, it must not lose sight of its commitments on sometimes sensitive issues, such as upholding human rights, cultivating strong local stakeholder relations, and fighting corruption.

We welcome Lafarge’s commitment to bringing all acquired plants worldwide in line with Group standards. An ongoing problem for this industry sector, and one where it can play an important leadership role, is in dealing with bribery and corruption. This issue continues to be a severe problem in the building and construction industry, with diverse players and many SMEs involved. This is where we give the strongest encouragement to Lafarge as an international leader in developing its leadership role, catalyzing action through industry associations and voluntary initiatives such as the UN Global Compact. The commitment to supplier audits and reference to Global Compact principles in supplier contracts need to be taken seriously.

The Panel was heartened to see the question of Human Rights placed on the agenda of its last meeting. Next year’s report should include an analysis of the consequences of the Orascom acquisition, in particular outlining clearly in which countries the ex-Orascom assets are located, and how Lafarge will ensure that Human Rights are respected at local level in these countries. In addition, the Group should support local managers in implementing the Code of Conduct. This could be done with the help of a third party monitoring and reviewing process.

## Progress on commitments

Sustainable development is clearly more integrated into the core activity of the Group, as evidenced by our most recent meeting with the Lafarge Executive Committee. We welcome this opportunity to see the first progress report against the Sustainability Ambitions 2012, and encourage Lafarge to pursue its efforts. In the context of expanding growth, particularly in emerging countries, Lafarge should, more than ever, ensure that the best standards are applied across all subsidiaries.

### MEMBERS OF THE PANEL

- Marion Hellmann (Building and Wood Workers International)
- Jean-Paul Jeanrenaud (WWF)
- Philippe Lévêque (CARE)
- Karina Litvack (F&C Asset Management)
- Cornis van der Lugt (UNEP)
- Alastair McIntosh (Centre for Human Ecology)
- Manfred Reuer (European Works Council)
- Livia Tirone (Architect)
- Simon Zadek (AccountAbility - not commenting the report)

## BIG ISSUES



Recycling polystyrene foam



Entrance to the Mombasa cement plant, Kenya

### SUSTAINABILITY AMBITIONS

Quarries with rehabilitation plan, biodiversity

## Sourcing and raw materials

We source our materials from both inside and outside the company. We aim to do so sustainably. Quarries and their operation and rehabilitation are important issues.



Breakdown of our suppliers by type of activity (2007)

1 - Raw materials	27.3%
2 - Transport services	20.6%
3 - Utilities	10.2%
4 - Industrial Products & Consumables	10.4%
5 - General Supplies & Services	10.2%
6 - Plants & equipments	9.5%
7 - Industrial Services	10.0%
8 - Products for Resale	1.8%

Note: Reporting covers 74 business units or 94% of the Group's spend



Amounts spent on external purchasing by geographical region (2007)

1 - Europe	43%
2 - North America	25%
3 - Asia	15%
4 - Africa	11%
5 - South America	6%

### External Suppliers The function and what is sourced

Lafarge sources most of its raw materials from its own cement, aggregates and gypsum quarries. Everything else: fuel, services, packaging, machinery are brought in. In 2007 the Group made 9.2 billion euros purchases, precisely the same level as in 2006. Lafarge's spend on external purchases is not concentrated in any single market as can be seen from the pie-chart across. We try to buy products as locally as practical, except for our national, regional or worldwide agreements for strategic commodities such as heavy mobile equipment or tires.

### Contributing to Lafarge's sustainability goals

How we procure 9.2 billion euros purchases has impacts on Lafarge's overall sustainability. Until 2006, many of the actions associated with the Purchasing function were coordinated at the business unit level through the Purchasing Performance Plan (PPP). This plan, intended to drive purchasing initiatives across various product lines and geographies, was the responsibility of a centralized Group Purchasing organization. There was no direct reporting line of resources in the business units or specific responsibility to





(Top) Team meetings at the Ostrowice gravel pit, Poland  
(Left) Swierki quarry, Poland

adhere to this plan. In late 2006, a change in focus occurred in the centralized Group Purchasing organization. That change, aimed at leveraging the worldwide spend of Lafarge better, took a new approach to driving change in the business. Rather than coordinate via proposed initiatives, the function reorganized to a more standardized country and product line approach. This included direct reporting lines into the centralized function with specific Purchasing action plans and responsibilities. As such, the PPP was dissolved and a new focus, based on the new organization, was instituted.

2007 was a year of change as a new organization was put into place. Specific actions that occurred involved several social audits, the inclusion of sustainable development selection criteria in several worldwide and North America suppliers selections, and the communication of the company's expectations regarding persistent pollutants to our worldwide refractory suppliers.

### Principles into effect: supplier audits

Supplier audits increase the effectiveness of our policies and their implementation. As an example, the first supplier audit we carried out

for the year 2007 was on a Romanian cement bag manufacturer. The audits follow a standardised format, are carried out by Intertek and are followed by formal written follow-up. Where we judge performance to be deficient we agree a time limited action plan with the supplier. We reserve the right to terminate the contract in the event of serious deficiencies. To date we have not had to use this power. In 2007, we conducted six audits, all of which led to an agreed action plan for further improvements.

### Future progress with suppliers

Looking forward in 2008, we will focus on two primary issues: inclusion of the UN Global Compact language in all contract templates as a means of communicating our expectations to our suppliers and the growth of sustainability selection criteria in additional supplier selection processes around the globe.

### Our quarries

Limestone, aggregates and gypsum are the base of our products. We source 92% of these key natural raw materials from over 800 quarries that we operate. Quarries are a time-intensive investment. Obtaining permission

to open a quarry can take up to ten years and our experience is that this time is growing as authorities institute increasingly rigorous licensing and approval processes. Over and above the cost of land and mineral rights, the plant and equipment costs for a new quarry range from around 2 million euros for a small quarry to over 45 million euros for a very large quarry.

The life of a quarry depends upon the local circumstances and nature of the deposit. The life may vary from as little as 10 years to over 100 years. This means that we have a long-term relationship with the local community through to the post-operative rehabilitation of the quarry.

Given the weight, expense and the environmental impact of transporting rock and aggregate, the quarry must be near the processing facility and near its market.

### Quarrying in a sustainable manner

Quarrying has social, economic and environmental effects. From initial plan to final rehabilitation our quarries must be planned, developed, operated and rehabilitated in dialog with the local community.

As the raw material is a non-renewable resource that cannot be replaced, the more

**Good practices in quarries**

Hope is a limestone quarry operating in the Peak District National Park in England. Restored land has been used for a variety of purposes including a nature reserve and a golf course. The national Park authority is concerned about landscape aspects of the quarry. As a result the top cliffs are being in-filled to form an irregular grass covered slope.

Val D’Azergues is a quarry near Lyons, France. Natural vegetation would be grassland and shrub. Amongst the birds the red-backed shrike and the stonechat are important resident species. Our restoration aims to maintain open grassland and shrub. The area is checked every five years by a specialist to ensure that the habitat remains favourable to birds. There is occasional brush removal to maintain the habitat.

Bamburi is a quarry on the Kenyan coast. It has a long-term, dedicated restoration project. It has become renowned for the extent to which forest has returned to what was once bare rock and because the initial biodiversity has been restored. It is now a nature reserve and part of the quarry is a visitor centre with nature trails that contributes to the economically important Kenyan tourism industry.

The quarry at La Vega, near Caracas in Venezuela, was surrounded by countryside when it began but by the time it became redundant was in a built up area. Lafarge decided to restore it including a landscaped area, subsidised housing and a school.

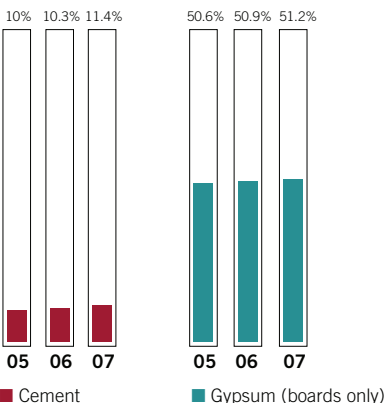


**Quarries with a rehabilitation plan**



**Use of alternative materials**

(as a percentage of material consumed)



efficiently it is exploited and used, the more sustainable the quarry will be. Using the geotechnical, hydrological and hydro-geological studies made at the planning stage of the quarry enables us in association with stakeholders and local authorities to develop a quarrying plan that will ensure maximum efficiency in extracting the deposits.

All quarries have a visible impact. We use landscaping such as tree planting to reduce the visible impact and nuisance of our quarries.

The quarry must be operated in a way that minimises noise, vibrations and dust. A quarry has significant transport impacts. These must be managed effectively. This sometimes requires direct investment, for instance the building of by-passes to allow lorries to drive round local settlements. The quality and volume of water run-off also needs to be managed.

**Quarry rehabilitation: new life for old quarries**

Lafarge puts as much effort into planning for the quarry after it ceases its active life as it does into putting a new quarry into operation. In partnership with WWF in 2001 we established a quarry rehabilitation policy. This requires a plan that must be monitored

annually and be reviewed periodically to take account of new regulations, new techniques and new opportunities for final use. We have a database covering quarry rehabilitation methods, good environmental practices, examples of application for all Group’s businesses and international environment network contacts as well as internal contacts for sharing best practices.

A good rehabilitation plan must be built on engagement with local stakeholders. Because of the complexity and the demands of the standards and because we regularly acquire new quarries, it is unlikely that we could reach 100% at any point in time. Our aim is to have 85% of quarries with a rehabilitation plan by 2010. The end 2007 figure was 75%.

**Making progress on biodiversity**

Lafarge is committed to biodiversity and to the rehabilitation of our quarry sites. As part of our partnership with WWF, we have jointly developed a biodiversity index. It helps monitor and manage the ecological evolution of our sites. Through our biodiversity program, business units can identify risks and opportunities in partnership with WWF and other nature conservation organizations;



The Arasmeta cement plant, India



communicate with stakeholders, employees and other partners interested in biological diversity conservation; and participate in research, awareness and education programs. An independent panel was established in 2006 to support and advise Lafarge on its biodiversity strategy. We have committed to screen all our quarries against the criteria by 2010. At the end of 2007, some 38% of our quarries had been screened. Of the screened quarries so far 250<sup>(1)</sup> have been shown to have significant biodiversity stake according to the criteria we have agreed with WWF.

### Using alternative resources: focusing on industrial ecology

Using raw materials from sources other than quarries helps increase the sustainability of our product. However the extent to which we can use alternative materials varies between products. Both in Cement and in Aggregates & Concrete the overwhelming majority of our raw materials will continue to come from quarries. Whenever possible, we substitute for natural resources generally with by-products from other

1 | This represents 81% of the quarries screened so far, but it would be premature to extrapolate this ratio to the whole of our quarries since it is based on a set of sites that is not statistically representative.

## A controversy in Brittany

Sourcing resources presents tough choices. Brittany's sub-soil is poor in rounded sands while need for housing and infrastructure is increasing strongly. In less than seven years current resources will be depleted. This is why Lafarge began to explore the feasibility of extracting sand off the coast in 2001. The launch of this research was accompanied by meetings with all concerned parties. Following the official processes the issue is being considered by a commission chaired by the prefect of Morbihan. Depending on this decision, extraction would begin in 2012 at the earliest.

Lafarge committed not to proceed if there is any negative environmental impact. Our position is fully set out at [www.granulatsmarins.fr](http://www.granulatsmarins.fr).

Some local populations are concerned about this project.

A local group called *Peuple des Dunes* was formed to oppose the sand extraction. Their views are set out at <http://peuplestdunes.blog.com>

## A controversy in India

Lafarge and Cementos Molins of Spain have invested in a bold project: a cement plant in Bangladesh fed from a quarry in the Indian state of Meghalaya. The process of seeking permissions commenced in 1997. Permits were obtained for the quarry operation from all relevant Indian authorities, including the MoEF (Ministry of Environment and Forest, Government of India) and operations started in July 2005. However in 2007 MoEF ordered quarry closure until Lafarge obtained the newly required authorization to operate in a forest area. Lafarge complied, and made a new application in front of the Supreme Court of India. In November 2007, Lafarge was granted a temporary permit to resume operations and the cement kiln in Bangladesh could be restarted.

industries or with scraps from construction demolition sites. In our Gypsum Business, alternative gypsum now accounts for over half of the gypsum used for manufacturing plasterboard. In our Cement Business, substituting various recycled waste materials such as blast furnace slag and pulverized fly-ash as raw feed or as addition to clinker conserves natural resources (19.5 million tonnes in 2007), reduces the cost of cement production and contributes to the reduction of CO<sub>2</sub> emissions.

In some areas we are seeing the use of crushed, demolished concrete as a substitute for virgin aggregates. Because of its physical properties this cannot be used in all circumstances but its use increases resource efficiency and preserves natural resources. Another significant development is the increasing recycling of gypsum plasterboard from demolition sites.

This is not just an ad-hoc response. We have developed our response within an industrial ecology framework. Natural ecosystems are in equilibrium and thus sustainable, provided human activity does not break the cycle. Industrial Ecology aims to replicate the biosphere, optimising the use of every type of resource (inputs, outputs and stocks), particularly by fostering the use of waste as alternative resource. Cement production is by nature a huge consumer of

non renewable resources (minerals and fossil fuels). Using these resources sparingly is key to the sustainable development of the cement industry. Characteristics inherent in the cement process allow the replacement of non renewable raw materials and fossil fuels by biomass, waste and industrial and domestic by-products of human activity. So by being active in Industrial Ecology the cement industry can materially contribute to sustainable development. It saves non renewable resources. It helps the community by offering a sound recovery solution for waste. Replacing fossil fuels mitigates CO<sub>2</sub> emissions, either by using CO<sub>2</sub> neutral biomass or by using waste which would have been disposed of with additional greenhouse gas effect. It helps maintain competitiveness while the cost of fossil fuels is increasing sharply. The direct substitution of fossil fuels in the process results in a full recovery of the energy content of the waste.

Lafarge pioneered Industrial Ecology in the mid seventies and decided at the end of the nineties to consider Industrial Ecology as a whole complementary activity to the cement core business. The Cement Business has developed professionalism, expertise and dedicated organization both centrally and within the business units. In 2007, Lafarge recovered more than 7.7 million tonnes of biomass, waste and by-products.



*Employees in the control room of the Chongqing cement plant, China*

**SUSTAINABILITY AMBITIONS**

Reduction of CO<sub>2</sub> emissions

# Climate Change: challenges and solutions

Climate change is a term used to describe the alterations in the prevailing patterns of weather and temperature that have occurred over the last century. Lafarge believes all necessary action should be taken to cap global average temperature increase at 2°C and strongly committed to the reduction in CO<sub>2</sub> emissions back in 2001. Being part of the solution to the challenge means playing our part in the transition to a viable low-carbon economy. In this section we explain the progress we have made to date, the challenges we face and the way ahead.

## What is the issue?

### Greenhouse gases and climate change

Greenhouse gases, such as carbon dioxide and methane, trap some of the sun's energy in the atmosphere, warming the land and the ocean. The greenhouse effect is a natural process. Without it, Earth would not be warm enough to support life.

Climate change is attributed to increased concentration of greenhouse gases within the atmosphere. The Intergovernmental Panel on Climate Change (IPCC) says that it is at least 90%<sup>1</sup> certain that this increased concentration is driven by emissions of greenhouse gases resulting from human activities rather than natural causes.

Lafarge believes that all necessary action should be taken to cap global average temperature increase at 2°C. Even this degree of change has significant economic and environmental consequences. The UK government's Stern Review estimated the economic cost of inaction on climate change as 5% of

global GDP each year. In contrast, the costs of action – reducing greenhouse gas emissions to avoid the worst impacts of climate change – can be limited to around 1% of global GDP each year.

### The built environment and climate change

The main CO<sub>2</sub> emitters – burning primary energy – are in order of importance: power generation, transport, industry and manufacturing, buildings and others. However, from the energy user's perspective, the order of importance becomes: buildings, transport, industry and manufacturing and others.

Currently 37% of the world's energy is being consumed in buildings. In developed countries as much as 70% of energy generated by power plants is being used by occupants of buildings<sup>2</sup>.

The amount of energy used by buildings is growing both in absolute terms and as a

proportion of the total energy consumed. If levels of consumption are left unchecked then buildings will account for more final energy use than transport, industry and manufacturing combined by 2050.

What is the balance of energy use across the life of a building? Within the current stock of buildings the most energy is consumed by use of the building. In the illustration given on the opposite page over four-fifths of the consumption of energy in the life of the building comes from its use and only one-eighth from the production of the building materials. It is perfectly possible with already available technologies to design buildings which are less energy intensive to operate. This is shown by the example given on the right of the illustration.

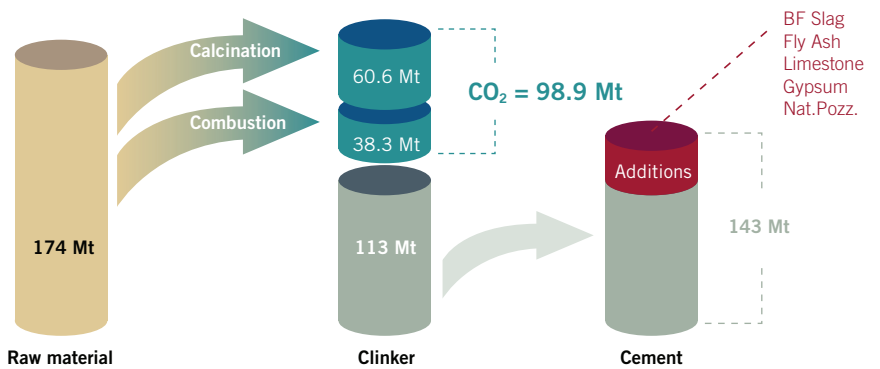
Therefore fulfilling our commitment to finding a solution to climate change requires us both to reduce emissions related to the production of our products and to work with others to influence the way our products are used and make the outcome more sustainable. This is often referred to as sustainable construction. The

<sup>1</sup> | Source: IPCC Climate change 2007: The Physical Science basis Summary for policy makers Paris Feb 2007

<sup>2</sup> | WBCSD Pathways to 2050

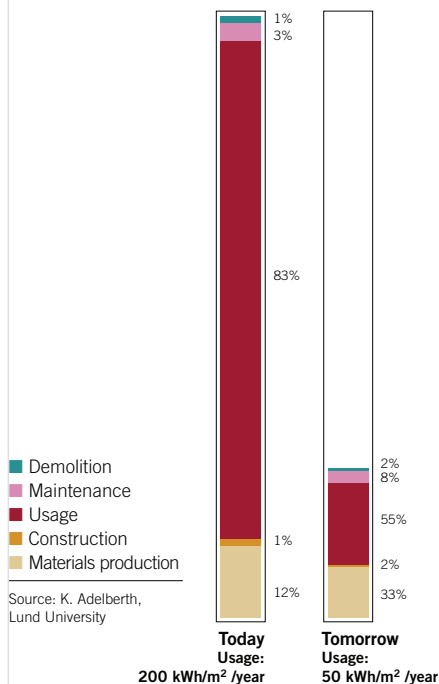


**Lafarge CO<sub>2</sub> Emissions in 2007**  
 (Only non biomass waste fuels taken into account)



The combustion process often uses high carbon containing fuels i.e. coal or petrol coke (carbon content is 85 %) and high viscosity liquid fuel (carbon content is 70%)

**Energy balance in a building's life cycle**  
 (50 years)



cement industry accounts for 5%<sup>3</sup> of manmade CO<sub>2</sub> emissions. Consequently we must continue to reduce the energy intensity of the manufacturing process. We can also make an impact by producing products that are more resource and energy efficient in their application. All this must be done against a background of growth of key world economies resulting in an increasing demand for construction materials. As a consequence, the global production of cement in 2030 is projected to grow to roughly five times its 1990 level with close to 5 billion tonnes worldwide. This means that the emissions of the global cement sector are likely to increase.

**Broader impacts of construction industry**

Energy use is just one aspect of a broader set of environmental questions related to the construction industry. The construction sector is responsible for 37% of energy use, 40% of CO<sub>2</sub> emissions, 40% of resources consumed and 40% of waste. It also represents 10% of the world's GDP and 28% of employment<sup>4</sup>.

3 | The Cement Sustainability Initiative, released by the World Business Council for Sustainable Development on March 19, 2007 (www.wbcsdcement.org)

4 | Source OECD

Environmental program at the Silver Grove gypsum plant, USA





*Lafarge eucalyptus plantation program for alternative energy which will be used in the kilns of the Mombasa cement plant; villagers weeding the eucalyptus plants, Kenya*

## Using our influence meeting the climate change challenge through sustainable construction

### Understanding sustainable construction and its implications for Lafarge

Sustainable construction is an approach and a mindset that reduces the environmental impact of buildings over their whole lifecycle while maintaining the social and economic benefits. Different construction situations require different solutions. The overall challenge is to ensure the best answer in each case taking into account the whole life cycle of the building or infrastructure concerned.

The key question for Lafarge is how we can minimize emissions, energy use and natural resource consumption profitably...

...while providing products of consistent quality, strength, durability, acoustic performance and fire resistance; that are affordable, available and multipurpose...

...so as to provide comfort, health and safety over the life cycle of a construction, contributing to the challenges of sustainable construction.

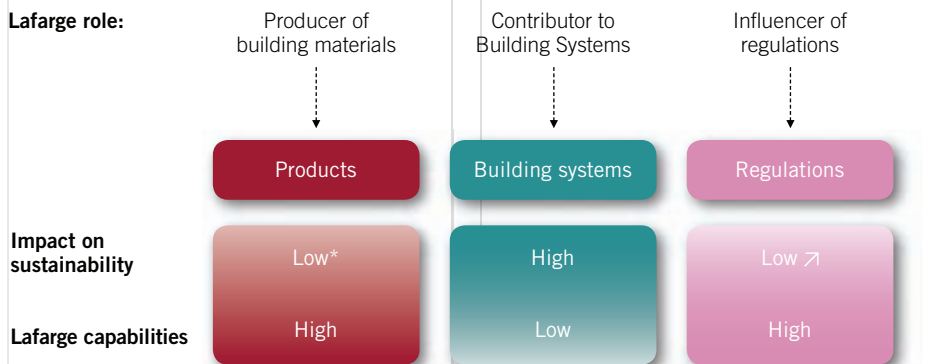
Lafarge has a part to play in the debate as a producer of building materials, as a contributor to building systems and as an influencer of building regulations.

### Progress on sustainable construction within Lafarge

2007 was a year of considerable progress for Lafarge on sustainable construction. Lafarge defined its strategy to address the challenge of sustainable construction. To this end Lafarge set up a cross-functional steering committee for sustainable construction.

The strategy has four elements:

### Lafarge's position in the value chain



\* impact on sustainability of all building products is lower than that of building systems and quality of erection

- To develop an understanding of sustainable construction and what the main challenges relevant for Lafarge are;
- To raise awareness within the Group about what is at stake in sustainable construction;
- To act where Lafarge has the most impact, for instance including environmental assessment criteria in R&D programs;
- To initiate or participate in national/international projects that contribute to more sustainable construction.

### Deepening our understanding of sustainable construction challenges

Effective action can only be built on sound intellectual foundations. The cross-functional steering committee gave consideration to four key issues. These comprise:

- An overview of sustainable construction and what is at stake for Lafarge;
- The pros and cons of concrete;
- Thermal comfort;

- How changes in thermal regulations will impact the way buildings are built.

While every effort needs to be undertaken to reduce building materials' embodied energy, the main conclusion of our analysis is that we should concentrate more fully on construction systems. A building is dynamic and not static. Strong interaction exists between the envelope – or façade – the design, orientation, occupancy, materials, combination of materials, climate and so on.

We can see from the accompanying graph on page 31 that a building that has a higher level of embodied energy can, if designed with energy efficiency in use in mind, end up being more energy efficient over its whole lifespan. This is why we focus now our work on life cycle analysis with the aim of:

1. Assessing the impact of the various materials over the building's lifespan
2. Exploring how a building's environmental footprint can be reduced in different climate zones and through different construction systems.

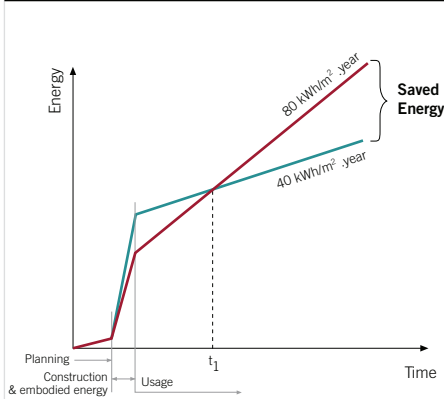


The village of Lam Kruet rebuilt after the tsunami of December 2004, Indonesia



2007 was a year of considerable progress for Lafarge on sustainable construction. Lafarge defined its strategy to address the challenge of sustainable construction.

### Building's energy use over time



### Raising awareness in the Group

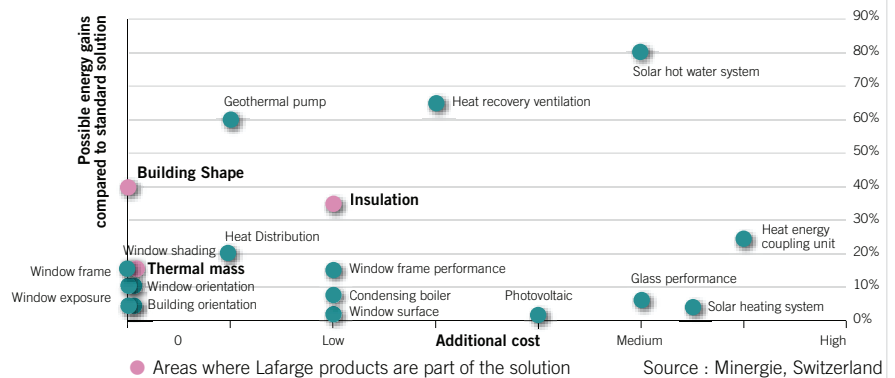
In addition to widespread circulation of the cross functional steering committee's work all Divisions have shared the insight and strategy with their sales and marketing functions and strongly encouraged them to raise the issue with their customers.

The top 150 managers have participated in a sustainable construction workshop. Lafarge University is developing sustainable construction training modules that target business unit managers. A sustainable construction module is now integrated into the Meet the Group orientation seminars designed to bring together management recruits from around the world, give them an overview of the Group's ambitions and challenges, and inform them of Lafarge's management rules.

### Environmental assessment criteria in R&D programs

To reduce products' environmental footprint, Lafarge has decided to include environmen-

### Measures to reduce energy use in buildings



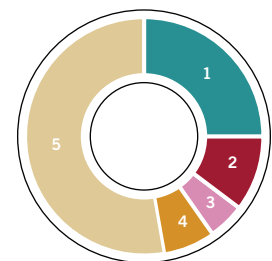
tal indicators in its R&D programs and new product development systematically. As can be seen from the accompanying chart our R&D program already has a significant sustainability component.

The environmental indicators relate to primary energy, resources, air emissions, water emissions and solid waste. This enables researchers to benchmark products' variants against measurable environmental indicators throughout the product development process. Only research on products that have a better or equivalent ecological footprint will be pursued. We will go on to extend consideration to entire life-cycle of the products and the constructions that are used in the R&D program extending environmental considerations to include production, performance, combination with other products, maintenance and recyclability.

To date Lafarge's Research and Development function has been active in each of the elements of the lifecycle:

- further optimising our processes to reduce heat consumption;

- designing low CO<sub>2</sub> clinker and cements;
- optimising concrete formulas to improve their benefits to the customer while reducing their CO<sub>2</sub> content;
- studying the behaviour and performance of concrete in different modes of construction.



### Lafarge R&D contribution to sustainable development (% of total R&D budget)

1 - Reduction of CO <sub>2</sub> and energy	25%
2 - Natural resources	10%
3 - Health & safety	5%
4 - Comfort and quality of life	7%
5 - Not related	52%



School of Information Technology and Engineering, University of Ottawa, Canada

## Participating in national and international sustainable development projects

The challenge of sustainable construction exceeds the reach of any one company. By its nature sustainable construction requires a response that is international, crosses industry sectors and that engages business, government and civil society. Lafarge participates in a large number of initiatives together with national/international organizations and NGOs.

Lafarge co-chairs, together with United Technology Corp. and the WBCSD, the initiative "Energy Efficiency in Buildings" (EEB). This project brings together all the actors in the value chain: investors, regulators, architects and engineers, contractors, material and equipment suppliers, users, and maintenance and service industry. The aim is to produce a roadmap to reach out to the vision of "a world where buildings consume zero net energy", i.e. buildings will need to produce as much energy as they consume.

The process involves stakeholder dialogs and forums to seek ideas and opinions, using market research to understand the barriers to energy efficient buildings and how to overcome them. Finally, the EEB project will deliver in 2009 a call

for action to the industry. A global assurance group has been formed to advise and validate the project.

Within the WBCSD, Lafarge is founder and core member of the Cement Sustainability Initiative (CSI). Founded by three companies in 1999 the CSI now brings together 18 major cement producers accounting for 27% of global cement production. CSI is actively promoting sectoral approach for the cement sector: an industry-wide CO<sub>2</sub> emissions management system where cement manufacturers' intensity performance (CO<sub>2</sub> per ton of product) is measured against defined targets. The objective is to set emerging economies on a dynamic of CO<sub>2</sub> performance improvement and to contribute, with cement industry leadership, to the future establishment of a global carbon market. The CSI does not operate in a vacuum. From the start it has been built on strong stakeholder engagement and dialog worldwide.

The CSI strategy parallels Lafarge's determination to make progress particularly in emerging economies which account for about 80% of cement production and consumption.



### PANEL

**ALASTAIR McINTOSH**  
Visiting Professor of Human Ecology,  
Centre for Human Ecology /  
University of Strathclyde, Scotland

Last year I emphasised the importance of Lafarge taking a strong industry lead in developing and lobbying for sustainable building products and solutions. This year I want to flag up three other issues.

First, some of us on the Panel would like to see Lafarge's reporting on persistent pollutants made more robust. When mercury emissions at one particular plant were drawn to my attention, I was promptly given the information that I asked for. But in general, more detailed reporting would be welcome. I would also like to see an independent expert on our Panel with specialist expertise in the area.

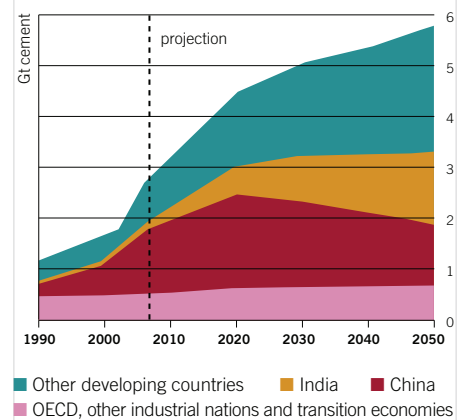
Second, Lafarge's proposal to extract marine sands off Brittany may or may not prove to be acceptable. Whichever proves to be the case, it is vital that the environmental impact assessment is undertaken in a manner that can be accepted as thorough and impartial by democratically accountable local organisations.

And third, I was very impressed at a recent Lafarge executive meeting to see close integration of the values behind Lafarge's commitments to environment, human rights, anti-corruption and health and safety. At one point, I played devil's advocate and asked Bruno Lafont why the company bothers with such costly initiatives. He said, "We do it because it gives us competitive advantage ... and because it is part of our values." His answer combines practicality with moral authority. Such leadership is vital to the social and ethical cohesion of an enterprise like Lafarge.



*Hypergreen, a concept of a mixed-use, environmentally responsible tower building, designed for the world's mega-cities*

### Cement production in industrialized and developing countries



Source based on US Geological Survey, International Energy Agency, European Cement Association

## Future action should continue to be framed in a global sectoral approach to climate change.

Lafarge is a founding member of the United Nations Environment Program (UNEP) Sustainable Building and Construction Initiative (SBCI), which aims to provide stakeholders with a common platform to promote the adoption of sustainable construction practices and to promote benchmarks for sustainable building. Lafarge is a co-founder of the “Fondation Bâtiment Energie”, a French fund that finances public R&D projects. Its aim is to achieve a reduction of energy consumption - and their associated greenhouse gas emissions – in existing and new buildings by a factor of four.

### Working with others to find solutions and influence public policy

Future action should continue to be framed in a global sectoral approach to climate change. A blue print for the future is provided by the 2007 report jointly commissioned by WWF and Lafarge *How to turn around the trend of cement related emissions in the developing world?*

This report looked at the opportunity that might be offered by each of:

- more efficient use of cement;
- further expansion of the use of additives and substitutes to produce blended cements;
- further improvement of the thermal efficiency of kilns;
- improvement of the electrical efficiency of kilns;
- further increase in the use of biomass, and finally
- development of carbon capture and storage.

The combined effect of all these measures could potentially allow for estimated 2050 levels of cement consumption to be met while reducing the CO<sub>2</sub> emissions from the global cement industry compared to the business as usual trend. This will also rely upon further technological and research work by the industry, further investment and judicious and consistent public policy in all the major economies, developed and developing alike. Most probably this will involve new interna-

tional policy instruments for construction to allow a low CO<sub>2</sub> path for the sector and its reflection in market based instruments at the national and international levels such as the sectoral approach we promote with the WBCSD Cement Sustainability Initiative. Lafarge is committed to working as partners with the EU, trade associations and national governments to build the right set of public policies, industry commitments and emissions management systems to meet the challenge posed by carbon dioxide within the industry.



## How CO<sub>2</sub> is emitted in the cement making process

Our Cement Business accounts for 98% of our CO<sub>2</sub> emissions. The cement making process necessarily entails the release of carbon dioxide. In order to make cement limestone is combusted to produce clinker. The simple formula is limestone (CaCO<sub>3</sub>) plus heat combustion results in clinker (CaO) and carbon dioxide (CO<sub>2</sub>). Decarbonated additives are then mixed into the clinker to make cement. Carbon dioxide comes 60% from embedded carbon dioxide in the limestone, and 40% from the fossil fuels used in the combustion process.

## Where we have control: reducing the carbon footprint of production processes

### Our Sustainability Ambitions

In establishing our WWF partnership in 2000 we set our current targets for CO<sub>2</sub> reduction. By 2010 as compared to 1990 we aim to

- cut our worldwide net CO<sub>2</sub> emissions per tonne of cement by 20%;
- cut our absolute gross emissions in the Cement Business in industrialized countries by 10%.

These targets are within the framework of the WBCSD Cement Sustainability Initiative of which we are a founder member.

### Our action on combustion

We are improving our CO<sub>2</sub> emission performance by less carbon intensive combustion. This comes from introducing new plant with best available technology and upgrading old cement plants. In China we have achieved a 32% reduction in our specific heat consumption (amount of energy per ton of clinker) between 1990 and 2006 in this way leading to a 20% reduction of specific net CO<sub>2</sub> emissions.

### Our action on alternative fuels

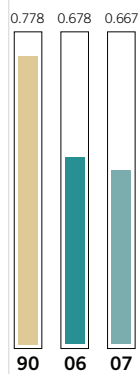
Replacing fossil fuels mitigates CO<sub>2</sub> emissions, either by using CO<sub>2</sub> neutral biomass or by using waste which would have been disposed of with additional greenhouse gas effect. Biomass energy sources, such as palm kernel shells or rice husks, are of particular importance because they are renewable energy. In Brazil, in 2007, our kilns have achieved 26% substitution of fossil origin energy by the use of vegetable biomass and a total of 42% substitution when including waste recovery.

### Our action: CO<sub>2</sub> savings from decarbonated additives

Use of more decarbonated additives such as fly ash, a by-product of electricity generation, and blast furnace slag, a by-product of steel manufacturing, in the cement is a way to offer our customers a larger range of products satisfying different usage values; it also reduces

### Specific gross CO<sub>2</sub> emissions

(tonnes of CO<sub>2</sub>/tonne of cementitious product)



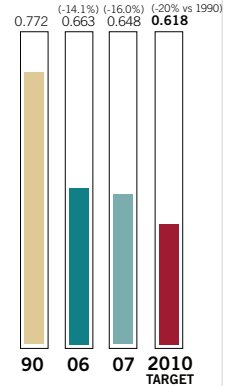
### Group's cement plants gross CO<sub>2</sub> emissions

(millions of tonnes)



### Specific net CO<sub>2</sub> emissions

(tonnes of CO<sub>2</sub>/tonne of cementitious product)

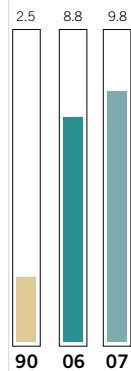


■ Emerging markets ■ Industrialized countries

In European Annex 1 countries (EU 27 + Russia, Ukraine and Turkey) production of cement has increased faster (+ 5,9%) than our ability to reduce the specific gross emission /t cement (-0,6%) between 2006 and 2007. In North America, production of cement has been decreasing (- 2,5%) while our specific gross emissions / t cement were stabilised.

### Part of energy from alternative fuels

(%)



### Fuel mix evolution in the Cement Business

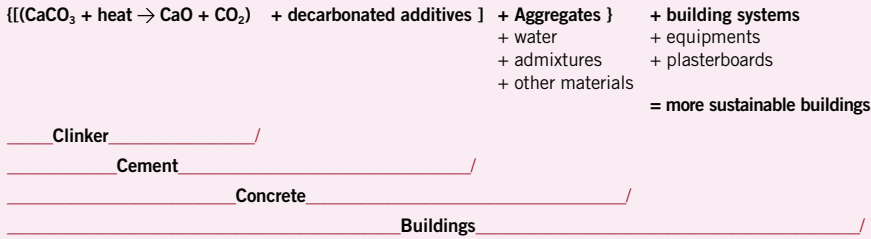
	2006	2007
Coal	44.9%	45.5%
Coke	28.1%	24.3%
Oil	6.1%	4.5%
HVF**	0.4%	1.6%
Gas	11.7%	11.3%
Biomass	2.1%	2.1%
Waste	6.7%	7.7%
Others	0.0%	3.0%

\*\*HVF: High Viscosity Fluids

the amount of clinker needed and hence the energy intensity of the product. In India we have achieved a 34% CO<sub>2</sub> reduction per tonne of cement in this way between 1990 and 2007. Our ability to implement this further and to

spread to other countries depends upon the product standards laid down for concrete and cement. We are making representations to governments on the benefits of decarbonated additives.

## Taking a broader approach



The issue of CO<sub>2</sub> and cement needs to be framed in the whole lifecycle from the sourcing of the raw materials through to the construction, use of buildings and end of life. Concrete can contribute to decreasing the cooling and heating energy consumption of a building throughout its lifecycle and, as a highly resilient material, using concrete can contribute to extending the life of the building.

### Our action: Clean Development Mechanisms

We have developed Clean Development Mechanisms (CDMs) in line with the framework laid down by the Kyoto Protocol. Already three CDMs have been registered in Malaysia, India and Morocco. In 2006 we established a CDM project in Malaysia, the first of its kind to be registered by the cement industry. It works by substituting a certain amount of imported coal with palm kernel shells, a local biomass alternative. Palm kernel shells now account for over 5% of the energy used in the heating process of the plant's kilns during the production of cement. By substituting palm kernel shells for coal, Lafarge is able to reduce CO<sub>2</sub> emissions by more than 60,000 tonnes a year – the equivalent of planting four million trees in one year alone. We are developing further CDM projects.

### Our products that deliver solutions

Our products can provide solutions with a higher carbon efficiency because we optimise product, production process and usage performances as regards carbon emissions.

For instance, we design more carbon efficient products by providing specific properties, like much higher strength which means :

- a smaller volume to fulfil the same requirement;
- lower energy expenditure to be applied;
- a longer lifespan;

- more effective at delivering the performances required for an energy efficient building.

An example here would be Ductal®. This product has been developed as a ultra high performance fibre reinforced concrete. One of its most outstanding performances is a highly ductile behaviour, meaning it can be stretched or bent without breaking. As the table below shows – established on a real example of construction – it is significantly less carbon intensive than alternative solutions.

Extensia™ was specially designed for concrete flooring applications, by nature subject to heavy traffic and storage loads, and it offers increased resistance compared with conventional concrete and better performance in terms of abrasion, flexion and traction. This allows a reduction in slab thickness compared to conventional concrete. With a lower quantity of raw materials employed and no need for steel mesh or steel fibers, an independent study reveals that Extensia™ has lower CO<sub>2</sub> emissions associated with the production of concrete flooring compared to a standard solution. This topic is covered more fully in our Customers and solutions section pages 50-53.

### Carbon Capture and Storage

In the longer term, Lafarge is working with industrial and scientific partners on the feasibility of CO<sub>2</sub> concentration for capture and storage. These are potential long term contributors to climate change.

### Comparison of bridge beams (example of 30-meter span, 2 lane bridge)

Standard solution: steel girders with concrete slab (basic solution widely used)

Ductal® innovative structure (new solution)

Criteria	Ductal® solution % of the basic solution	Factor of improvement
CO <sub>2</sub> emissions	47%	Emissions divided by 2.1
Primary Energy used	50%	Consumption divided by 2.0
Quantity of raw material used	65%	Reduced by 1.3



## PANEL

**LIVIA TIRONE**  
Architect

Concrete is an extremely versatile construction material and, when used in the right way, becomes an essential component in sustainable construction. Concrete has qualities that can be very beneficial during the lifetime of buildings (longevity, structural stability and thermal inertia...), although these qualities will only have a positive effect, when the composition of all construction materials that constitute the building, is adapted to the specific local climate conditions. With industrial activities rooted in so many different climate regions, Lafarge is in a very privileged position to define the right construction solutions for each specific climate region they operate in. With the best available dynamic simulation software, used by the most experienced and competent specialists to define specific construction solutions that achieve the best, climate adapted, energy environmental performance results, Lafarge will be able to define which relevant building components providers to partner with in order to contribute to mainstream sustainable construction solutions. To go further and reach the concept of providing solutions for buildings that consume zero net energy (that produce as much energy as they consume), it will be necessary for Lafarge to get many more construction sector actors to commit – utilities and electricity grid managers, communication (intelligence) technology providers, renewable energy systems producers, among others still. Following this road is challenging for Lafarge and very positive for the local communities they operate in.

**SUSTAINABILITY AMBITIONS**

Sites audited environmentally, dust emissions, NOx emissions, SO<sub>2</sub> emissions, persistent pollutants

# Environment: delivering improving performance

We aim to give leadership in the environment. We set ourselves clear sustainability targets.



Quarry rehabilitation in France

SUBJECT	WHAT IS THE ISSUE?	AMBITION	PERF.	PROGRESS IN 2007	KEY FACTS AND EXAMPLES
<b>Environmental audit</b>	Ensuring that our sites are working optimally and testing compliance with Group standards	Have 100% of our sites audited environmentally within the last four years	84%	Maintaining high level of audit; sites audited within the last four years included 88% for Cement, 83% for Aggregates & Concrete and 100% for Gypsum	We continue to make progress in this area
<b>NOx</b>	NOx, substances generating acidification, eutrophication, and photochemical pollution	Cut our NOx emissions in our cement plants by 20% over the period 2005-2012	-8.5%	Good progress, well on track	In Europe, we have already installed 24 gas treatment facilities for NOx, and 11 more are under construction in 2008. Capital invested is close to €26M
<b>SO<sub>2</sub></b>	SO <sub>2</sub> , substances generating acidification, eutrophication, and photochemical pollution	Cut our SO <sub>2</sub> emissions in our cement plants by 20% over the period 2005-2012	-11.8%	Good progress, well on track	Major gas treatment installation have been installed in Trbovlje (Slovenia – see page 39) and in Dunbar (UK). The investments represents €40M. These two actions will make a considerable contribution to progress
<b>Dust</b>	Dust causes an environmental nuisance	Cut our dust emissions in our cement plants by 30% over the period 2005-2012	-13.7%	Very good progress, well on track. In 2007, the dust emissions 2005 baseline was raised by 4% to take into account corrections in the Russian sites' data	Considerable efforts are made in old plants acquired in recent years, New dust filters have been set in Russia, in Ukraine, in Greece, in France, Venezuela and Ecuador. In China alone, where we operated about 50 kilns, dust emissions have been reduced by 57% by investing in new equipment, revamping existing equipment and shutting down inefficient lines
<b>Persistent pollutants</b>	Persistent pollutants relate to trace elements such as metals or volatile organic molecules that can be detected at the main stack	By 2010 have a baseline for persistent pollutants in our cement plants for 100% of our kilns and reinforce our best manufacturing practices to limit emissions	Progress made towards 2010 goal  49,3% of kilns analyzed	Good progress, well on track 106 kilns analyzed (49.3%) Accumulated Dioxins/ Furans: 61 ng TEQ/T CK  Cumulative mercury emissions: 3.95 T/ year*	Comprehensive figures for dioxins, furans and mercury published for first time

For our CO<sub>2</sub> performance see tables on page 34

\* extrapolated from the 49.3% spot stack analysis



Quarry restoration, Volos, Greece



## PANEL

**CORNIS VAN DER LUGT**  
UNEP

As the company expands its capacity in developing countries, I would welcome more examples of involvement by Lafarge in Clean Development Mechanism (CDM) projects under the Climate Change Convention (UNFCCC). The commitments to environmental audits, reducing CO<sub>2</sub>, NO<sub>x</sub> and SO<sub>2</sub> emissions, and addressing POPs are important and progress reporting on these crucial. Along with these, I would like to see more on the “how”. Use of alternative fuels is one example. Working with other industry partners in collaborative work on building energy efficiency is another. Similarly, I would welcome more examples of how a leading industry player is going beyond business as usual and supporting sustainable development locally through CDM projects. This engagement by large corporations in more developing countries is something I look out for.

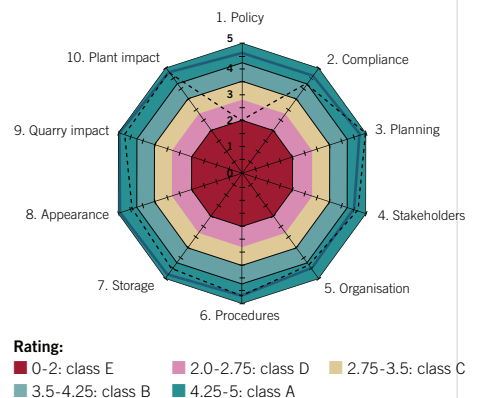
### Delivering improvement through environmental audit

Lafarge has an environmental audit system with independent input that is applied to all of our major sites. Our Sustainability Ambition here is to have all of our sites audited within the last four years. This is a significant challenge since we have close to 3,000 sites worldwide and are growing by acquiring plants. Except where a plant is being audited for the first time, how successful the plant has been at implementing previous audit recommendations is fundamental to the audit. Each audit systematically rates the performance of the site against agreed criteria. The spidergraph illustrates the results of a site audit plotted out. The dotted line shows the score of the site, for which performance is rated on a 1-5 scale. On the basis of the audit result the site draws action plans for future improvement. The outcome of the audit is an action plan for improvement. Environmental audit is not therefore a one-off event but a consistent and constant process to raise standards.

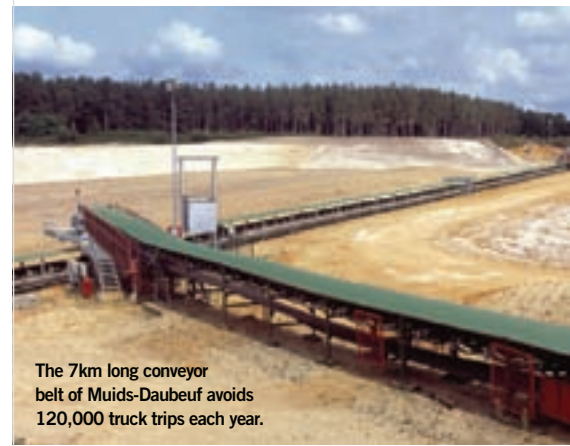
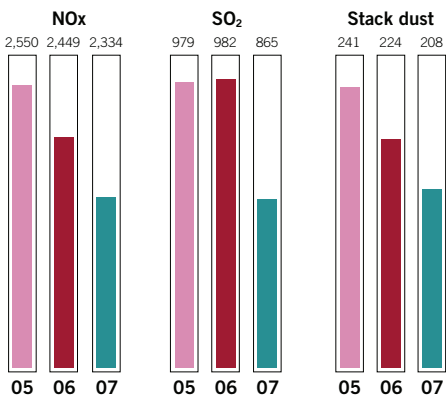
### Areas covered in cement plant environmental audits include:

- NO<sub>x</sub> emissions
- Dust at the main stack
- SO<sub>2</sub> + Total organic compound (TOC) emissions
- Dust at auxiliary stacks
- Other emissions
- Fugitive dust
- Waste generated
- Water
- Waste reused in the process

### Plotting the output of an audit



**NOx, SO<sub>2</sub>, Stack dust emissions**  
(grammes/tonne of clinker)



**Reducing dust and SO<sub>2</sub> emissions in China**

In China, between 2005 and 2007, we closed down 16 old, poorly performing kilns, (representing 1.5 MT capacity) and brought on stream four brand new kiln lines with 4.5 MT capacity. The new plants use up-to-date technology. In so doing, we rejuvenate the production facilities and contribute strongly to reducing emissions. For instance, average dust emissions were cut by a factor of two. In coming years, we already have planned further closures of existing plant and the installation of several new lines.

**Investment to reduce NOx and SO<sub>2</sub>**

Nitrogen oxides (NO and NO<sub>2</sub> commonly known as NOx) and sulphur dioxide (SO<sub>2</sub> sometimes also referred to as SOx) are generated by the combustion process at high temperature. The NOx reduction program requires an even effort in all our plants, and the investments required are significant and are a function of the number of kilns we operate. Through our Sustainability Ambitions we are committed to reducing our NOx emissions per tonne of clinker by 20% over the period 2005 to 2012. We aim to go beyond many national regulations. This requires one-off capital investment and increases operating expenses.

SO<sub>2</sub> forms during the combustion process. Sulphur is prevalent in raw materials, primarily from the quarry. The level of sulphur in the raw materials varies considerably between sites. Consequently the level of SO<sub>2</sub> emitted by our plants varies considerably too.

Through our Sustainability Ambitions, we are committed to reducing our SO<sub>2</sub> emissions per tonne of clinker by 20% over the period 2005 to 2012. When it happens, it requires high capital investment and increases operating expenses.

**Curtailling stack dust**

Making cement releases dust. If not properly controlled this can be a significant environmental nuisance for our neighbours and our employees. Where we acquire existing plant, we frequently find that dust is a particular problem and that we need to act to bring the plant up to our standards. Newly acquired plant therefore often raises our average dust emission levels until we fix the issue. Our aim is to improve Lafarge's performance on dust. Already dust is subject to stringent regulations, but we aim to go beyond these regulatory levels.

Our Sustainability Ambition commits us to cut emissions in our cement plants by 30% over the period 2005-2012. 60% of our kilns emit less than 50mg/Nm<sup>3</sup>.

**Getting to grips with persistent pollutants**

Persistent pollutants such as dioxins, furans or mercury can be found in very small quantities in the emissions of cement plants. In line with WBCSD Cement Sustainability Initiative and working with WWF, Lafarge has committed

as part of Sustainability Ambitions 2012 to act on persistent pollutants. By 2010, this commitment involves a combination of creating a more complete database and reinforcing our Best Manufacturing Practices.

Our first commitment is to have completed the measurement of persistent pollutants in all our kilns by 2010. At the end of 2007, we had data from 106 of our 215 kilns worldwide. Our second commitment is to implement Best Manufacturing Practices to reduce emissions of our top emitters by 2010 and to integrate into standard management practices the lessons that we have learnt.

**Stewarding our water use**

Lafarge has reduced the amount of water it consumes per unit of output. 2007 saw a further step forward as we instituted a more thorough system for identifying the source of the water we use, and how used water is disposed of. This fuller data will enable us to improve our stewardship of the whole water cycle and to deliver further improvements in future years.

Recycling concrete



### Reducing our transport impact

Our transport activities represent a relatively small part of our total carbon and environmental footprints. Nonetheless we are involved in a number of initiatives to mitigate the impact of transport.

A good example is the 9 million euros investment at the Muys-Daubeuf gravel pit near the river Seine. Here the installation of a 7km long conveyor belt and use of existing docks has eliminated 120,000 truck trips and 9,600,000km driven each year.

In Canada and the United States we are conducting pilot studies using different forms of biodiesel.

### The issue of waste

Making cement creates very little waste. The same is true of our Gypsum Business. Nonetheless we monitor the amount of waste we create. In 2007 waste disposed of as a percentage of total production was 0.7% for Cement and 1.1% for Gypsum.

We ensure that we dispose of the waste created responsibly and in line with regulatory requirements.

### Water use in our processes

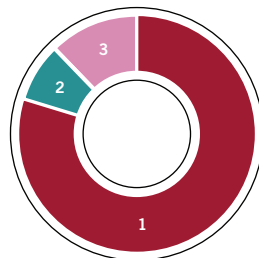
BUSINESS	WHAT WATER IS USED	PERFORMANCE	COMMENTS
Cement	Cooling machinery	343 l/t in 2007 (compared to 379l/t in 2005). 4 million m <sup>3</sup> saved per year	Our water consumption is decreasing regularly due to : - an increase in the number of closed circuits for recycling the water used to cool machines; - a gradual replacement of wet or semi-wet clinker processes by dry process, whenever a kiln line has to be revamped.
Aggregates	Used to clean aggregates	Total volume is based on an estimation	When we need to use water in our quarries, we seek to reduce the environmental impact of its use and disposal. Wash water is left to settle in large earthen ponds. The pond is gradually filled with the silty material while clean water filters down into the soil. Eventually the pond is totally backfilled and colonisation by indigenous plants happens quickly.
Ready mix concrete	Used as an ingredient of concrete	Total volume used estimated at 12 million m <sup>3</sup> on the basis of an average 280 l/m <sup>3</sup>	Normally, all wash water is recycled into the process. If not, effluent must be neutralized before discharge to lower the pH.
Gypsum	Used as an ingredient of plasterboard	Total volume used in the Business: 8,375,000 m <sup>3</sup> Increase in efficiency over 2001: Plasterboard: 8.40% l/m <sup>3</sup> Paper: 0%	We recycle more and more process water in plasterboard plants, but the major part of water is evaporated when drying the boards. The consumption increased significantly in one of our paper mills, which needs to be renovated.

### Examples of investments to meet our Environment Sustainability Ambitions

Acquired by Lafarge in 2002, Trbovlje plant is located 50 km east of Ljubljana, Slovenia, in a narrow valley. Cement manufacture began at Trbovlje in 1876. The current plant was some 30 years old. The limestone of the quarry is rich in sulphur.

The local impact was aggravated by emissions from a nearby power plant. Lafarge invested 9.7 million euros for a wet scrubber to cut the emissions by 90%. As a by-product on this gas treatment, gypsum is produced. It is recycled into the cement, after dewatering and drying. Waste water discharge (typically 1 m<sup>3</sup>/h), is introduced in the kiln circuit to be evaporated.

We installed a 30 million-euro wet scrubber at our Dunbar plant in Scotland. The scrubber went operational in late November. The plant is under commissioning. The total impact of the investment on SO<sub>2</sub> reductions will be measured in the first half of 2008.



### Environmental and safety investments (amounts committed)

(millions of euros)

■ 1 - Cement	118
■ 2 - Aggregates & Concrete	12
■ 3 - Gypsum	18
<b>Group:</b>	<b>148</b>





*Cement plant in Zambia surrounded by a golf course*

## Emerging economies: a two-way traffic

Emerging economies are increasingly important both within the global economy and also to Lafarge. We seek a relationship of mutual benefit.

### The growing significance of emerging economies in our industry and in Lafarge

As a country's economy grows, so too does its need for homes, schools, commercial and industrial buildings, and modern infrastructure. This means increased demand for our products, particularly for cement. Today 81% of demand for cement comes from developing economies<sup>1</sup>.

This is expected to increase to 87% by 2020<sup>2</sup>. By 2010 we expect two-thirds of Lafarge's current operating income to come from developing economies.

#### Challenges faced

Operating in emerging economies offers a diverse but related set of challenges to Lafarge: What does it mean to live out Lafarge's values and traditions in this society? How can Lafarge help meet growing demand in a sustainable

way? What approach should we take to social and cultural issues? From a business perspective quite often electricity and fuel supply for our plants is an issue and the need to master logistics is key. Our approach must be to take all these issues into account as each of our businesses is primarily a local business.

#### Investing in emerging economies

Lafarge is growing in emerging economies both by acquisition and the construction of new sites. The economic and environmental efficiency of the acquisitions varies. Some acquisitions have low efficiency and poor environmental practices; others are state-of-the-art sites with good environmental performance. In all cases our objective is by good management

and capital investment to bring all our sites up to Lafarge global standards. Some of our most modern and most efficiently operated plants are to be found in emerging markets.

In terms of investment Lafarge has a program to build 45 million tonnes of new cement capacity between 2006 and 2010. More than 80% is located in emerging markets out of a total investment of 3.4 billion euros. Among the projects coming to fruition in 2008 are ones in Cameroon, Chile, China, Ecuador and Zambia. As well as capital investment, developing, upgrading and retaining the skills and resources of our workforce and of the local community are a vital element of success both in emerging and developed economies.

<sup>1</sup> | Information from: JP Morgan. <sup>2</sup> | Information from: Lafarge.



Site team at the site of extension of the Otavalo plant, Ecuador

By 2010 we expect two-thirds of Lafarge's current operating income to come from developing economies.

### Benefits to and from emerging economies

Emerging economies benefit from Lafarge's investment, from the application of our international standards and our technical expertise. We trust that the way we do business, our sensitivity to customer needs, our commitment to innovation, our values and our positive engagement with stakeholders also benefit the emerging countries that we operate in. Yet we are the first to recognise that the flow of benefits from our engagement in emerging economies is not all one way. Besides contributing to our bottom line, emerging economies provide opportunities for creating rewarding partnerships. They allow access to a stream of new management talent who can be recruited into the company.

For instance in China, Lafarge has benefited from its collaboration with Chinese contrac-

tors. Here the advantages have included lower-cost equipment delivered within a shorter time frame, meeting our standards in terms of environment protection, safety, energy efficiency and product quality and highly efficient teams who will work abroad on Lafarge projects to construct ready-to-operate cement plants. Our relationship with China has also benefited our research and development team. They have been collaborating with the country's most prestigious universities and institutions gaining from their technical excellence and engaging in research into cement and concrete. We are engaged with the Chinese government on the issue of sustainable construction and energy efficiency in buildings. Lafarge was selected as one of the most influential brands on the China Construction Energy Savings Forum organised by the Ministry of Construction.

Another Lafarge initiative in India is the provision of mobile clinics



## How we operate: Three case studies

Following the precedent set in last year's report (China, Zambia and Mexico), we here profile three contrasting emerging economies that Lafarge has operations in and look at the ways in which Lafarge has contributed to sustainable development in each.

### India: a significant, sustainable growth

#### The market context

India is the second largest cement market after China. India is experiencing annual economic growth of around 8%. The annual demand for cement is growing at approximately 10%.

#### Lafarge's history and strategy in India

Since entering India in 1999, Lafarge has emerged as a significant player in the eastern part of India, with a market share of 20%. There Lafarge is investing 144 million euros in new cement capacity. Lafarge Boral Gypsum India, a joint venture, has built a plant and now has a 20% share of the plasterboard market.

#### Standards and performance

Lafarge's growth in India is built on uncompromising standards. All manufacturing sites are ISO 9001, ISO 14001 and OHSAS18001 compliant. Our Cement Business in India has an excellent record of performance on CO<sub>2</sub> emissions. India also has one of Lafarge's Clean Development Mechanisms under the Kyoto Protocol framework. Registered in 2007, it involves the Arasmeta plant replacing clinker with fly ash thus enabling a 23,000 tonne per annum saving of CO<sub>2</sub>. Our quarries in India have an extensive restoration process with 1.5 million trees being planted.

#### Innovation and training to meet customer needs

Lafarge has set out to engage with its customers and to meet their particular needs. Who are these customers? Mainly they are private individuals and small builders. Some 95% of

the cement sold is sold in 50kg bags, 70% of it to individual homebuilders. Sales are via a dedicated network of over 3,000 authorised dealers and sub-distributors.

Lafarge has developed strong brands *Concrete* and *Duraguard*, which are formulated specially for local building practices and environment. These help homebuilders fulfil their aspirations of durable and aesthetic construction. Lafarge's contribution goes beyond product innovation. We recognised that there was a need for technical information and expertise as much of construction practice in India is far from being ideal. Moreover, the level of understanding of homebuilders of science of homebuilding was also very low. We established a Home Building Centre in Kolkata. The purpose of the centre is to offer information, advice and services to those setting out to build their own homes. Among the resources available are a professional database covering everything from plumbers to engineers, a library of relevant literature and pre-drawn up house plans. Homebuilders can bring their plans and see a 3-D view of their future house and ask for the advice and opinion of experts on architectural styles and building materials. This saves time and money and leads to better homes being built. Not everyone who would like to use this service can get to Kolkata. So we established a mobile centre, a toll free help line and an interactive website which make these solutions available outside the main cities.

#### A supportive community presence

"Give a man a fish and feed him for a day; teach a man to fish and feed him for a lifetime" goes an old Chinese saying. Lafarge has embraced this motto wholeheartedly with its unique Project Employability. A model case study in public-private partnership, Lafarge conducts training courses for masons along with Institute of Engineers (a government of

India enterprise) in order to improve their construction skills and hence earn more. A key part of the program deals with safe construction practices, even extending the core value of Lafarge to masons. The course is done with audio-visual aids and classroom training. The masons who pass the program get certificates and a construction grade helmet. Lafarge tops up the program in partnership with Life Insurance Corporation (the largest government owned insurance company in India) by giving a special insurance cover for the masons against accident and fatality.

Training and skills are themes reflected in our voluntary community engagement, most noticeably in our masonry training for unemployed youths and computer training for girls. Both these activities are centred round our cement plants. We have committed to train 600 youths by 2008 and ensure that 25% of successful candidates find on-campus employment with builders/contractors. The Education and Research Institute, a highly respected Indian NGO, has nominated this initiative as one of India's top five illustrations of Corporate Social Responsibility.

Lafarge is facilitating the training of 1,500 girls in ten schools near our sites. The course is conducted in line with Indian government school curricula and it supplements classroom learning.

#### Skills benefit to the Group

India is a net exporter of talent to other parts of Lafarge. As of 31 December 2007 over 50 Indian engineers and officers are working in plants and technical centers in North America and South East Asia, contributing to the two-way traffic between Lafarge and the emerging economies it operates in.

### Ecuador: building positive local relationships following acquisition

Lafarge acquired the cement plant at Otavalo, high in the Andes, in 2005. In spite of a 22% increase in production capacity over two years resulting from optimised processes, the plant is operated at full capacity and a new line is being set up. Lafarge is investing \$113 million in the project. The plant lies in an area where, apart from Lafarge, there is little industrial activity.





## PANEL

**KARINA LITVACK**  
F&C Asset Management

There is no doubt about Lafarge's commitment to curbing its GHG emissions, yet its rapid growth in emerging markets is fast making an irrelevance of its annual improvements per tonne of cement. This calls for a bolder approach, one that acknowledges the need for stabilisation and ultimately carbon neutrality, without compromising competitiveness.

This will require three things:

- 1) a commitment to engage at industry and political level to secure regulatory, fiscal and trade measures that enable aggressive progress, yet level the playing field. Lafarge has moved on this, but its EU climate policy stance this year has fallen short;
- 2) faster ramp-up in R&D to slash average group emissions per tonne – its progress in India proves big leaps are technically possible; and 3) a corporate commitment to stabilisation that could involve a financial top-up via offsets, insofar as physical emission cuts fail to keep pace. This is the toughest ask. If Lafarge set itself a long-term goal of achieving carbon neutrality, while committing in the interim to stabilising its emissions by de-coupling them from production growth, it would send a strong message that it is serious about solving Climate Change. By funding quality offsets, it would create a financial value for its unabated emissions that could drive further R&D. How aggressively these targets and timelines are set would depend on what it can negotiate with policy makers, fellow cement manufacturers and customers, so as to ensure that its financial sustainability is safeguarded alongside the physical sustainability of the planet.



The area is inhabited by a number of different Indian and Mestizo communities. These communities rely mainly upon agriculture and to a lesser extent on arts and crafts. Previously they had had limited effective contact with the plant or its operations.

Lafarge has followed a number of different routes to establish a long lasting and constructive relationship with the neighbouring communities. Lafarge has established agreements with the communities. Under these agreements Lafarge:

- Established a liaison committee with local communities. Lafarge funds development projects through the committee. Local people present the proposals. Lafarge and the representatives of the local community decide about funding and monitor delivery.
- Provides medical assistance from which 2,000-3,000 inhabitants benefit.
- Generates local employment: Lafarge is contracting people from the communities to reforest its land and to maintain the logistic assets of the quarry and the plant.
- Lafarge is providing expert advice and products to help rehabilitate agricultural land.

The story of Lafarge's presence in Ecuador is therefore not just one of investment to meet growing demand but of setting out to build better, mutually beneficial and long lasting relations with the local communities.

### South Africa: working positively in a society in transition

Lafarge entered the South African market in 1998 when it purchased Blue Circle South Africa. Ranking as the country's third largest cement producer, Lafarge also holds leading positions in aggregates and ready mix concrete markets and in gypsum business.

In 2007, construction started of a second production line with a capacity of 2,000t/day in Lichtenburg, and a grinding plant with a capacity of 1Mt in Randfontein to meet the

increasing demand given strong economic growth and as the country prepares to host the FIFA World Cup in 2010.

The company is involved in a project to provide environmentally-friendly housing, at low cost that is accessible to low-income families in the Ivory Park township of Johannesburg. The so-called Eco-City takes its name from the not-for-profit organization that created the concept in conjunction with WWF.

In July 2006, Lafarge announced a R1.1 billion (120 million euros) Broad-Based Black Economic Empowerment (BEE) deal, in line with the South African Government's policy to transform the country, redress past racial inequalities and broaden the country's economic base. A "broad-based enterprise" has an empowerment shareholder who represents a broad base of members such as a local community or where the benefits support a target group, for example, black women or people living with disabilities. Shares are held via direct equity, non-profit organizations and trusts. Lafarge was one of the first international companies to undertake such a deal.

Under the agreement, Lafarge sold 26% of its mining and 10% of its manufacturing activities in South Africa. An empowerment consortium now holds 75% of the stake and Lafarge's Historically Disadvantaged South African (HDSA) employees 25% in an Employee Share Ownership Trust. The consortium is led by two joint lead partners, Peotona Group Holdings and Motjoli Resources with 40% of the shares. Peotona Group Holdings is an investment company wholly owned by women. Motjoli Resources is an entirely black-owned mining company with 40% female shareholders. An Education Trust and communities close to Lafarge's quarries will hold respectively 53% and 7% of its shares.

By participating in the South African Government's Black Economic Empowerment policy, Lafarge affirmed its commitment to South Africa and its communities.



**SUSTAINABILITY AMBITIONS**

Female senior managers, training, HIV/AIDS and malaria

# Employees: the people who make it happen

A high-performing, skilled workforce is key to Lafarge's success.

**The Lafarge workforce**

At year-end 2007 we had 77,721 employees<sup>1</sup>. China is the country where we have most employees, followed by France and the USA. The challenge for us is to develop and apply Group-wide standards while respecting the inherent localness of the businesses. We must recruit, develop and train motivated and skilled employees if we are to stay a successful business.

**An engaged workforce to ensure delivery**

Lafarge's success is built upon a workforce that is engaged with our operational and sustainability objectives at business unit level.

**Building on Leader for Tomorrow**

Last year we covered the Leader for Tomorrow (LFT) program. Following it each business unit was set the challenge of devising a plan of action of its own to improve on the results. Lafarge Ciments France chose a program of action to improve the quality and results of its annual employee appraisal interview process. The training centred upon the purpose of appraisals and how the appraisal cycle works. The aim was to give training to some 360 individuals involved in giving appraisals. The training was positively received and achieved a 90% satisfaction rating.

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**Information and consultation**

2007	Information	Consultation
Health & safety	76%	50%
Operational Changes	79%	54%
Compensation & benefits	29%	19%
Others*	63%	61%

\*Business performance, HR & employment related areas, environment

A workforce can only be fully engaged if it is in fully informed and consulted. We track major engagement with the workforce both in terms of consultation and the sharing of information. A lot of information is continuously given on health and safety and operational changes. We define consultation as a formal request to a staff representative body for their opinion (Works Council, Trade Unions etc.). We consult even in instances where this is not required by local law.

**Diversity**

Lafarge has chosen to concentrate in particular on women in the workforce and has set as one of its Sustainability Ambitions achieving 15.2% of senior managers being women by 2008. The Lafarge workforce is drawn from more and more nationalities. For example in the members of BU Executive Committees population, there are people from no

<sup>1</sup> This does not include employees from Orascom Cement, whose acquisition was completed on 23 January 2008



(left) Employees at the Pasir Gudang cement plant, Malaysia  
(right) Employees at the Sugar Creek cement plant, USA



## Examples of best practices

Individual business units continue to promote innovative training. For instance, in 2007 Lafarge North America created a flexible and innovative Supervisors Development Program. The program's objective was to improve plant performance through more effective use of the talent and capabilities of supervisors. China developed several programs: taking into account the target to double the capacities, they developed a specific program in Chinese to find a way to develop young technical graduates and engineers to support newly merged plants (CPDP program) and to retain them ; another specific program with the objective to help to change mindset : the cement plants recently acquired were state owned enterprises and we have to help the managers to change behaviour, to become responsible, proactive and understand performance.

### Women within the Group

%	06	07	Target 08
Boards of directors	6.7	6.7	
Senior executives	4.9	5.5	
Senior managers	10.0	12.2	15.2
Managers (all categories)	18.6	19.5	
Employees	16.6	17.7	

### Breakdown of training courses received in 2007

(%)	
23.5%	Technical training
45.5%	Health & Safety training
4.0%	IT training
7%	Language training
20%	Management and other training

less than 51 nationalities. The very fact that Lafarge has a multi-national workforce is also a significant resource for Lafarge. At the end of 2007 Lafarge had 577 employees who had been expatriated.

### A skilled workforce to deliver quality

Lafarge's success and the sustainability of its products depend upon the skills of its workforce.

### Training and Skills development

Without a high skills base a company is not sustainable in a competitive market. As a first step towards managing and increasing the skills of our employees globally we set ourselves the Sustainability Ambition of being able to report on training at a business unit level using the criteria set out in the GRI G3

guidelines by 2007. Broadly we have achieved this objective through our annual social survey. In total in 2007 more than 1.8 million hours of training were reported to us through this mechanism. Almost half of the training hours delivered were on health and safety, showing the high premium that Lafarge puts on operating safely and achieving its health and safety Sustainability Ambition. Lafarge University, created in 2003, continues to make a significant contribution.

### Average training time per year and per employee

(in hours)	2006	2007
Managers	37	41
Non-managers	23	25



## BIG ISSUES



Employee at the Atlanta cement plant, USA

### Comparison of minimum salaries/statutory salaries

	Lafarge minimum salary	Sector minimum salary	Statutory minimum salary (base 100)
Chile – Aggregates & Concrete	187	100	100
China – Cement (Beijing BU)	115	100	100
Jordan – Cement	373	313	100
Romania – Gypsum	205	113	100
South Africa – Aggregates & Concrete	263	208	100
Ukraine – Cement	196	174	100
United States – Gypsum	370	205	100
Thailand – Gypsum	132	100	100

Examples taken from different continents.

### A proper reward: our terms and conditions

Our workforce must be fairly rewarded and cared for. This includes good remuneration but there is more to it than that.

#### Remuneration and share ownership

Lafarge offers highly competitive salaries when compared with other companies of a similar size. Lafarge benefits are often more generous than those offered locally, helping the Group to attract, motivate and retain skilled employees. Since as early as 1961, Lafarge has operated an active employee share ownership program so that all employees can share in the benefits of our economic performance. The programs are generally repeated at two to three year intervals. The most recent program was in 2005 and involved 46 countries. At the end of 2007, Lafarge employees owned 1.6% of our share capital and 2.83% of our voting rights. Currently we have 31,310 employee shareholders, out of our total workforce of 77,721.

#### Restructuring

Restructuring is part of our business. Where we grow by acquisition it is sometimes, though not always, the case that we buy plant that has

been overmanned in the past, part of bringing it up to modern efficient standards means that a smaller workforce is required. Our business units make their best efforts to reduce the impact of change by applying our employment policy and restructuring guidelines.

In 2007 14 business units made headcount reductions of more than 5% compared to 17 business units in 2006.

#### HIV/AIDS + malaria

Lafarge employs 6,250 people – 9% of the workforce – in 10 Sub-Saharan African countries. These are among those worst hit by the AIDS epidemic.

Lafarge has been committed to the fight against HIV/AIDS since 2000. In 2007 some 1,388 employees, dependants and community members were offered free medical care under Lafarge programs, with 500 receiving anti-retroviral treatment.

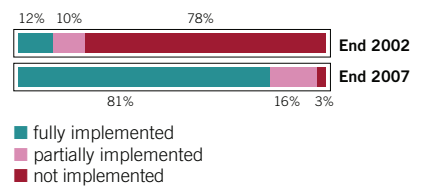
However malaria is also a serious threat to public health. Lafarge is responding to this need too. Our anti-malaria program began in 2006. In 2007 Lafarge provided malaria treatment for 17,500 employees, dependants, sub-

### Job evolution

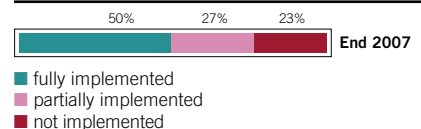
	2006	2007
Hirings	5,046	5,535
Resignations	5,176	4,430
Retirements	806	879
Redundancies	3,982	4,846
Deaths	114	175
Balance	-5,032	-4,795

contractors and community members. Our Sustainability Ambitions commit us by 2010 to extending from sub-Saharan Africa to the other major developing countries where we operate best practice in combating HIV/AIDS and malaria. We made progress towards this goal in 2007 including the appointment of an independent auditor to audit quality of our current sub-Saharan programs.

### Sub-Saharan HIV roadmap actions



### Sub-Saharan Malaria roadmap actions



## A dispute in South Korea

From September to December 2007, the Group Head office in Paris was picketed by four ex-employees of one of our former contractors (Woojin) in South Korea. These workers were part of a group of 33 employees of Woojin, all of whom were offered jobs by other contractors of Lafarge Halla Cement (LHC), our subsidiary in South Korea, when Woojin ceased its activities in March 2006. The conflict started as the workers considered that Lafarge had a responsibility in the termination of the contract and therefore had to offer them jobs with improvements in working conditions (salaries, working hours) and freedom of union membership. In different steps and different ways LHC tried to dialog with them and to find a solution locally. Despite this, the former employees initiated legal proceedings against Lafarge in South Korea. On appeal (16 March 2007), all of the claims were dismissed. In May 2007, an agreement was signed whereby LHC undertook to do its best to find jobs for the six former Woojin employees before the end of August with one or another of its subcontractors. The steps taken by LHC resulted in three job offers. Two individuals accepted. The other workers came to Paris. LHC proposed detailed job offers and in addition, through concern about the living conditions of these four individuals for 18 months, offered financial assistance and payment for their return tickets to Korea. These offers were once again refused and the three workers returned to Korea on December 25. No further requests have been made by them. In a difficult economic context, LHC will continue to reflect on the organization of the work in its plant and its quarry and therefore the relationships with its subcontractors. In order to find the best solutions within the framework of operational constraints and economic imperatives of LHC, the Group has invited the international federations, IBB and ICEM to be part of this analysis.



### PANEL

**MARION HELLMANN**  
BWI

Lafarge invests more and more in countries that are considered to have human rights issues. But as far as human and trade union rights are concerned, the company needs to consider some points in order to live up to sustainability requirements.

First, the Group should report on which countries it is investing: are human and trade union rights recognised and applied in these countries? Secondly, Lafarge should explain how it promotes human and trade union rights in these countries at plant and work site level including at subcontractors and their employees.

Finally, the Group should find a better mechanism to support individual managers in plants, in order to avoid situations like the South Korea conflict. For instance, the implementation of the Code of Conduct and of the Human Rights policy is done at business unit level and would rather be done by the Group. Furthermore, the Human Rights policy of the Group should be completed with an independent verification mechanism.

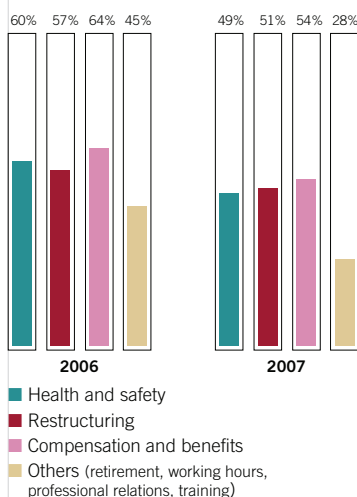
### Delivering human rights in the workplace

A key part of delivering sustainability for Lafarge lies in respecting and delivering core labor standards in the workplace. Lafarge endorses the Universal Declaration of Human Rights and is committed to observing the core conventions of the International Labor Organization in its operations. We screen our major sub-contractors and suppliers according to their own commitments and reporting standards as well as the strict application of Human Rights' principles. We third party audit some of our suppliers.

### Working with unions

At Group level, 67% of the employees are represented by elected representatives or trade union representatives. A total of 78% of Lafarge's workforce was covered by collective agreements in 2007. In some countries where the Group is present, collective bargaining is

### Percentage of employees covered by collective agreements on specific questions



organized at sector level (and not always on an annual basis). An agreement on the Group's approach to social responsibility and international labor relations was signed in September 2005. The signatories to the agreement, Lafarge and three international trade union federations, met three times in 2007. In March 2007, a meeting was specially dedicated to health and safety. In September and December, the meetings were focused on a dispute surrounding employees of a former Lafarge contractor in South Korea (see above) in order to find a solution and to learn from this conflict.

### Sub-contractors

Outsourcing represents around 32% of the equivalent of the Group workforce; the most significant function where outsourced employees are used is transport. The production figure mainly relates to the construction of new plant and capacity. A significant part of the BUs (almost 45%) have contracts – at local level – with subcontractors that require them to respect fundamental social rights.



### Breakdown of outsourced employees in 2007

1 - Production	23%
2 - Maintenance/Cleaning	18%
3 - Transport	37%
4 - Safety/Guarding	15%
5 - Others (catering, IT, accounting, etc.)	7%

## BIG ISSUES

Safety equipment.  
Puerto Montt  
project site, Chile



Work at height  
at the Stouffville  
Sand & Gravel  
operation, Canada

### SUSTAINABILITY AMBITIONS

Safety, comprehensive Group-wide occupational health program

# Health & Safety: a commitment to world class standards

We are committed to carrying out our business in a way that is safe and healthy. Two of our Sustainability Ambitions, those to do with safety and with occupational health provision, reflect this commitment.

## Safety: shooting for a world-class goal

We have set ourselves the long-term goal of being world class in terms of our health and safety performance. We are already number one in our sector but we want to be ranked amongst the best industrial groups. What does this mean in practical terms? It means a low total injury frequency rate that is sustained long-term over time and over all units. It means a low level of occupational health incidents. It means having our contractors work to the same standards as our employees. It means low off the job injury rates too. It means "zero" fatalities. Achieving our goal means we will be recognised by NGO's and the business community to be world leader. We are not there yet. Our Sustainability Ambition 2012 was to halve the 2005 lost time injury rate to 1.55 by 2008. Since such good progress was made in 2007, the Executive Committee agreed to set a tougher target for 2008 of 1.39.

## How we have organised ourselves to make progress

### Underlying principles

There are two elements to a sustained improvement in safety performance. One is having the right policies and procedures in place, rolled out across the Group, with performance measured,

monitored and learned from. Where necessary this needs to be backed by investment. In 2007 we invested 43 million euros in safety related capital investment such as Working at Height. The second is an engagement of hearts and minds and a mobilization of all those involved to deliver the improvements.

### Our roadmap

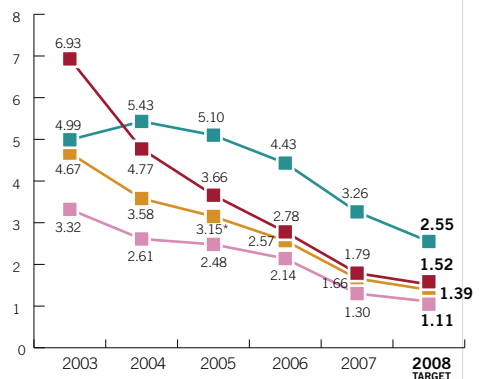
We began to take concerted action to improve our performance in 2006 through our Health and Safety Roadmap. Four actions have been key to our progress. The first is the highest level commitment through our CEO becoming Health and Safety sponsor for the whole Group. The second is changing the organization and implementation of health and safety. We established a Group level Health and Safety organization. That was accompanied by a common Health and Safety policy with common rules. Each business unit has an annual safety plan. Performance against the plan is reviewed on a quarterly basis. When the policy was issued it was signed by all employees on a site by site basis. The third has been to give health and safety a common image and hence greater visibility across the Group with visible leadership from managers and a full program of training. Finally, and underlining the great emphasis that we place on health

and safety, managers' variable pay is now linked to Health and Safety performance.

## The tools we use to get the job done

Initially our program concentrated on the reduction of fatalities and severe incidents. This involved rolling out a number of key Group

## Lost time injury frequency rate Evolution by business line



Legend: Cement (pink), Aggregates & Concrete (red), Gypsum (teal), Group (orange)

\*3.15 includes the 9 employee fatalities we suffered in 2005. For our Sustainability Ambitions (see pages 4-5) we used 3.09 as the 2005 base, which did not include fatalities. However, our newly set target for 2008 of 1.39 includes fatalities.



Standards: Working at Height Group Standard, Personal Protective Equipment Group Standard, Reporting and Investigation Group Standard, and Contractor Safety Management Group Standard. In addition we issued an advisory on the safety of mobile equipment. Besides this we amended our processes, building in a Serious Event Review process so that analysis and learnings when we had a serious incident could be shared worldwide.

## Employees and contractors

When we began our roadmap activities the lost time injury frequency rate for our own employees was considerably in excess of the rate for our suppliers. Both have reduced. The rate among employees has however reduced more quickly and by 2007 the rates were broadly on a par. Our employees are closely involved in health and safety committees. Round the world we know from our annual survey that 73% are represented in a committee. In terms of OHS training we take full responsibility for training our own employees. Over 45% of the training hours delivered around the Group in 2007 were health and safety related. In some markets contractors provide staff already trained to Lafarge standards; where this is not the case, we ensure that staff receive such training before they begin to work on site. We are systematically extending detailed health and safety requirements into our contracts as they are being renewed.

## The way ahead

Our current target for reducing the lost time injury frequency rate ends in 2008. Consequently in 2008 we will be engaged in setting a new and more stretching target for the future. Our road map for 2008/2009 sets out a full program of activity to deliver continu-

ing improvement. We will be seeking more thorough implementation of our standards, a stronger alignment of Health and Safety with our Human Resources processes and to enrich and improve the skill set of our Health and Safety professionals worldwide. We plan to issue and roll out three new Group Standards: Energy Isolation Group Standard (a robust process to ensure machinery cannot be turned on if anyone is working on it), Confined Space Entry Group Standard and Occupational Health Group Standard. We will amend and launch a revised Group Health and Safety Management System. In 2007 we had a total of 32 fatalities, 9 fatalities among our employees, 17 among our sub-contractors and 6 among third parties. While this was an improvement on previous years the only acceptable annual figure is "zero" fatalities. We will continue to work towards this goal.

## Occupational health

An effective workforce is a healthy workforce. Lafarge operates in countries ranging from those with comprehensive health provision provided by the state to those with no public health provision. Therefore our ambition is to establish by 2010 a comprehensive Group-wide occupational health program with regular medical examination. In 2007 we worked on identifying the best product on offer on which to base a harmonised global occupational health system.

Our health and safety program provides a template for the development of the Group-wide occupational health program. We made significant progress on the issue of crystalline silica regarding compliance with new statutory standards in EU and US and harmonizing to a Lafarge minimum standard in the rest of the world.

## Breakdown of illnesses prompting applications for legal recognition as occupational illness in 2007

	Recognized illnesses	New cases	Cases pending
Respiratory or pulmonary conditions	0	5	14
Asbestos-related conditions	0	10	10
Silicosis	1	3	3
Chronic bronchitis	0	0	0
Dermatitis	0	1	12
Burns	0	0	0
Hearing impairment	0	10	48
Sight impairment	0	11	11
Vibration syndrome (hands, arms etc.)	4	3	16
Backache, hernia, lumbago	0	4	4
Other	2	5	32



## PANEL

**MANFRED REUER**  
European Works Council, Lafarge

To begin with, it is very valuable that a member of the European Works Council takes part in the Stakeholder Panel. The EWC is quite focused on the issue of Operational Health and Safety and it has set up a dedicated working group.

Over the last years Lafarge has made a tremendous effort on this aspect; several ideas have been developed to reduce accidents and the new policy goes even further. Lafarge has been able to significantly reduce all types of accident. The issue of health and safety is really part of Lafarge priorities and the company has been working on it very closely with partnering firms and suppliers. Fatal accidents are reported from all the divisions in all areas, but some areas would require more financial resources to meet the standards that the group set. For example this is the case for renovation of old buildings, of silos and of old production units. Lafarge should not neglect the corporate image as well and the impact of health and safety matters on its reputation.



*Durban's beachfront walkway made with Artevia®, South Africa*

**SUSTAINABILITY AMBITIONS**

Customer relationships

# Customers: building relationships, meeting needs

One of our goals is to be preferred supplier for our customers. We seek to convey our sustainability visions

## Our commitment to customers

Our commitment to customers is stated clearly in the Lafarge Principles of Action: *“Our mission is to provide the construction industry with products, systems and solutions that are the most reliable, innovative and cost effective”*. These are fine goals but how do we set out to realise them in today’s markets? To understand our strategy it is necessary first to say a little about the nature of the markets we serve and the expectations that our customers traditionally have of us.

### The nature of our markets

The nature of our markets varies. In developed markets we sell our products primarily on a business-to-business rather than on a business-to-consumer basis. In emerging economies we sell much more on a business-to-consumer basis and consequently we have closer contact with the end-user. In both cases most customers buy only enough to cover their current needs and consequently Lafarge rarely has a significant order backlog.

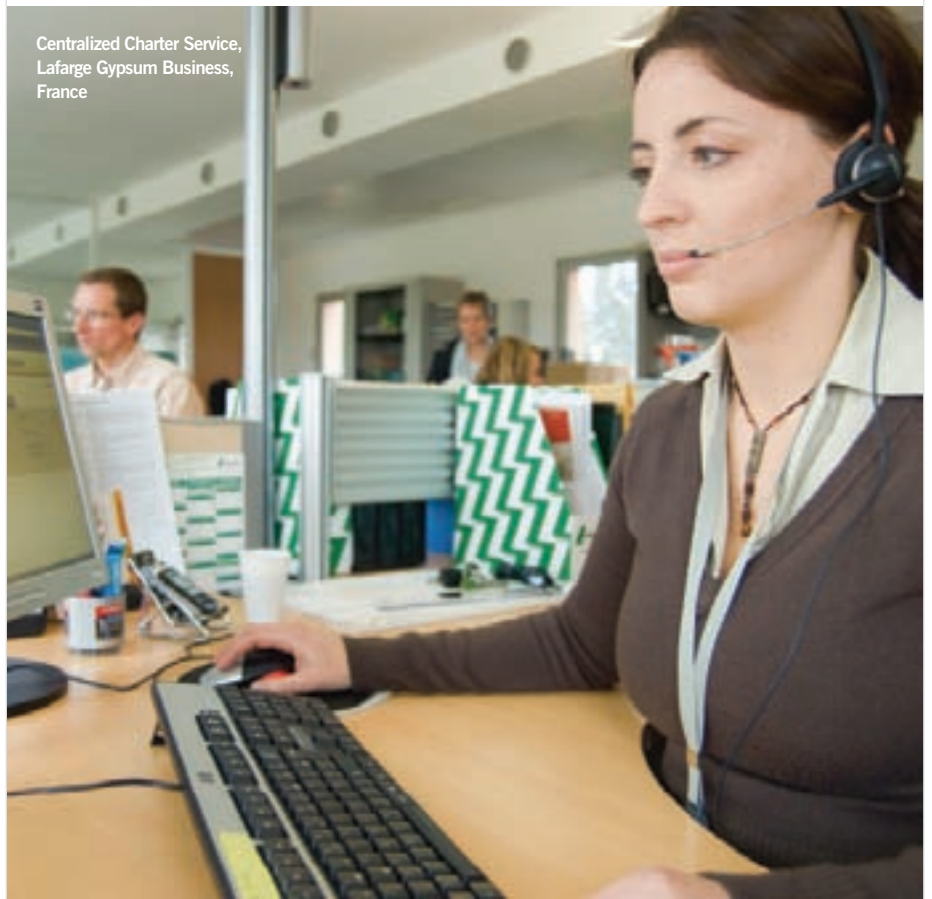
Our products are in bulk and costly to transport. In addition, concrete must be delivered within a few hours of production. This means that our markets are above all local markets. We have a few multinational customers who

buy through local contracts all around the world. Globally the gypsum market is the most consolidated. 80% of the wallboard worldwide market is supplied by seven firms. Historically the cement market was fragmented. Consolidation began in Europe in the 1970s and the United States in the 1980s. In 2006 the world’s top five producers had 20% of the global market, with Lafarge supplying roughly 5% of the world market. Concrete and aggregates are in the very early stages of consolidation. Each market reflects the state of development of its economy and the nature and structure of its construction industry.

Chronolia™ concrete pilot project, France



Centralized Charter Service,  
Lafarge Gypsum Business,  
France



“Our mission is to provide the construction industry with products, systems and solutions that are the most reliable, innovative and cost effective”

## What are customers’ expectations of Lafarge?

While the structure of the customer base is complex and varied, our customers have some common needs. Price is important but so too are consistency, reliability, durability, technical support and solutions, and customer service: they expect us to help them develop their own business. The demand for value added products is growing significantly.

Our customers’ product expectations relate to:

- durability;
- health and safety, during construction and in use;
- effect upon the environment;
- ease of application and minimisation of waste;

- and, in the case of buildings, creating a comfortable and attractive place to be;
- services such as system designs, response to tender, on-site delivery, training, technical assistance, tailor-made products.

We strive to ensure that our products and services are reliable and consistent. In all business lines we are increasing the effort we expend in listening to customers and in developing products to match particular needs and build product differentiation.

Customers benefit when we eliminate ‘hidden costs’. This includes making the order process simpler with accurate, timely billing. Equally it can mean the development of products that





The Harilaos-Trikoupis bridge, Greece



### PANEL

**JEAN-PAUL JEANRENAUD**  
WWF

Lafarge has progressed well in biodiversity conservation and site restoration in 2007. Its biodiversity panel (including WWF) published a guide on quarry restoration and finalized a long-term index, to help Lafarge improve quarry biodiversity. WWF recognizes this valuable innovation and encourages its promotion within the Lafarge Group and the conservation community.

Also in 2007, Lafarge's global CO<sub>2</sub> emissions increased substantially, resulting in the weakening of reductions registered previously in industrialized countries to as low as 4.5% below 1990 levels (versus 8.3% in 2005). Lafarge's current growth strategy should not be a barrier to achieving the 10% reduction for industrialized countries by 2010; the improved performance in terms of CO<sub>2</sub> reduction per tonne of cement produced (16.0% below 1990 levels) demonstrates that positive results are possible. WWF calls on Lafarge to do more in developing countries – in particular those in which CO<sub>2</sub> emissions are growing fastest, such as China - to reverse the emissions growth trend triggered by growing cement demand. Following WWF's 2006 recommendations, the slight improvement in reporting on persistent pollutant emissions still leaves room for significant progress. For instance, the data presented is combined over two years and no information given on previous years. Reporting could be further improved to facilitate benchmarking in the sector, along the lines of the WBCSD-Cement Sustainability Initiative's requirements. After 8 years of partnership, WWF remains convinced that this collaboration can continue to catalyse major improvements within Lafarge's sector, and hopes that Lafarge will continue to demonstrate a growing commitment to sustainability.

**Our industry has often been thought of as a commodity based industry in which the customer and the customer's preferences are not top priority issues. We believe that this view is profoundly misconceived.**

are easier and quicker to use, thereby reducing construction time and so the customers' labor costs. Products must meet and exceed local regulatory requirements. They must be adapted to meet market needs. This can be in terms of adaptation for a specific use or the quantities in which they are available. We cater both for firms responsible for major works like the Olympics and for individuals in developing countries who want small quantities of cement for simple household improvements.

#### Setting sustainability ambitions for customer relationships

Our industry has often been thought of as a commodity-based industry in which the customer and the customer's preferences are not top priority issues. We believe that this view is profoundly misconceived. Our strategy for growth is built around value-added products that fulfil customer needs while making our own company more successful. This strategy is part of what will make and keep Lafarge sustainable.

Understanding our customers' satisfaction with our products and services is key to the strategy. That is why we have committed that by 2008, 100% of our significant business units will carry out an annual customer satisfaction survey. In 2007 our Businesses had made very good progress with Cement achieving 83%, Aggregates & Concrete 55% and Gypsum 61%.

One clear message arising from the surveys was the importance of good delivery and logistics to securing customer satisfaction in an overheated market. We will be seeking to improve our performance in this area.

Effective billing and invoicing impact customer satisfaction and economic efficiency. Consequently we committed that by 2008 100% of our significant business units will have implemented OTIFIC (on time, in full, invoiced correctly) in their operations. By 2007 we had achieved 70% in the Cement Business, 55% in the Aggregates & Concrete Business and 100% in the Gypsum Business.



Innovation to match customer need is key. We aimed to achieve 1 billion euros per annum from the sale of new products (defined as those developed since 2003) by 2008. By 2007 we had achieved 1.1 billion euros, exceeding the target one year ahead.

Sustainability accounts for more than half of our research investments, which have increased by 22% in the last two years.

These ambitions are representative of our determination to grow through alignment with customer need.

### Meeting need sustainably: Innovations in cement

We have a full range of cements within the Group. Dust-free technology, the starting point for **Sensium**® cements for mortar and concrete, was first perfected in Japan following three years of research and required a further two years of work by Lafarge's Research & Development teams in Lyons and the technical and marketing teams at Lafarge Ciments. This took into account the needs expressed in a survey of more than 1,500 construction industry professionals. The Sensium range now offers a product that is cleaner, easier and more efficient to use, so fulfilling customer need.

Lafarge India is the highest consumer of cementitious products, such as fly ash and slag, in the Group. Its blended cement products include as much as 34% fly ash and 65% slag. This reduces the amount of CO<sub>2</sub> emitted and facilitates the disposal of industrial waste.

In order to meet customer demand for a premium priced cement Lafarge launched **Concreto** in 2004. Concreto offers superior strength, workability and an attractive lighter colour.

Innovation covers not just the product itself but how it is presented. In the United Kingdom

for instance, innovative, tear resistant plastic packaging has given **Mastercrete Original** a verified shelf life of four months, double that of mainstream paper packed product. This has reduced waste and delivered a 10% cost saving for the merchant and end user. The reduction of waste improves sustainability and helps reduce overall CO<sub>2</sub> emissions.

### Innovations in concretes

The Group offers over 500 different concrete formulas to meet differing customer needs. Here are some key examples of concretes that are playing their part in the drive to meet current customer needs.

**Agilia**® is the first self-placing, self-levelling concrete. The concrete can flow into the smallest nooks and perfectly matches any shapes. The advantage for the user is that its fluid texture eliminates the need to vibrate the concrete to make it spread regularly. This results in time and money savings for the builder. It cuts down on the amount of physical labor needed to lay the concrete. It lessens noise pollution.

**Ductal**® is a high-performance, fibre reinforced concrete. The advantage for the user is that it is fluid and easy to pour. When it is set it is highly ductile and can be stretched or bent without breaking. It has compressive resistance six to eight times that of traditional concrete and flexural strength ten times that of traditional concrete. It is highly resistant to corrosion, abrasion or shocks.

**Artevia**® is a range of decorative concretes mainly for outdoor use. The advantage for the user is that it adapts excellently to complex shapes and it is quick to install, thus saving time and money. Once installed it has a low maintenance requirement while being highly resistant to wear and tear.

**Extensia**™ enables construction of surface areas of up to 400m<sup>2</sup> without joints, compared to 25 m<sup>2</sup> with conventional concrete. The advantage for the user is that it has fewer cracks and so lower maintenance costs. It has the environmental benefit of requiring a lower quantity of raw material and eliminating the need for auxiliary steel mesh or steel fibre.

**Chronolia**™ offers the same flexibility of use as a conventional ready-mix concrete but develops high mechanical resistance soon after pouring. Formwork can be removed four hours after pouring rather than 12-20 hours as with traditional concrete. The benefits to the user are clear: the number of daily cycles of form setting can be doubled, resulting in considerable time saving and productivity gains. This is particularly advantageous where development is taking place on city centre or other high-value land.

### Innovations in gypsum wallboard

**Synia**™ is the first plasterboard to have four tapered edges. It took four years of research to develop the product. Synia™ sheets are ideal for ceilings and high partitions because they offer the customer ease of fitting thus savings on installation time. Once painted or wallpapered the seams are invisible to the naked eye.

**PLAtec**™ made to measure sheets offer the user simplified installation along with the ability to obtain high-quality decorative elements and finishes. It also avoids waste from off-cuts.

**Pregymax**™ is a plasterboard with a layer of thermal-acoustic insulation. This offers thermal efficiency and noise abatement benefits to the users of the buildings where Pregymax™ is selected, therefore contributing both to CO<sub>2</sub> emission reduction and comfort improvement.





*(top) River derivation project of the Rawang River, village of Desa Kuala Garing, Malaysia. Prevention program from flooding by Lafarge  
(bottom) Village residents near the Chhatak cement plant, Bangladesh*



**SUSTAINABILITY AMBITIONS**

Local stakeholder relationship management

# Relations with our communities

As a global company, we aim to live up to our responsibilities wherever we are. Working with local stakeholders is integrated into our Sustainability Ambitions.

**Local stakeholder relations: dialog, thought, action**

All over the world, local stakeholders have increasing expectations from us on the way we operate our business and the way they benefit from our presence. Their expectations become a requirement for us and have been integrated into our Sustainability Ambitions. Throughout the Group we have thousands of experiences of good practices. We want to leverage this capital by embedding it in our organization. We aim to interact with local stakeholders in a timely, orderly, proactive and transparent way and to contribute to their well being and to the economic and social development of the local communities surrounding our operations.

We have given priority to local stakeholder relations incorporating the issue into our

*Sustainability Ambitions 2012.* We are committed to having a training package on local stakeholder relationship management adapted to the respective divisional organizations by 2008. This will be a key tool in leveraging the experience we already have. We made progress towards this goal in 2007 through a benchmark study conducted by the consultancy First and 42nd of 11 global companies and their innovative and best practices in social engagement. The results of the survey are being used to increase the effectiveness of our own programs.

**Existing systems**

Lafarge has a number of areas where local stakeholder relations are managed systematically. Taking the example of the Cement Busi-

ness in 2002 it instituted a global performance methodology called Advance. Local stakeholder management is included in Advance as one of its five key pillars.

The purpose of this pillar is to draw and build upon existing good practice and to systematise it. The system is underpinned by training of newly appointed managers and supported by the provision of standard documentation and processes.

The keystone of the system is an annual assessment carried out by the business unit team and at plant level using common assessment tools. This delivers a thoroughgoing analysis of local circumstances. On the basis of this analysis business units and plants are encouraged to build an action plan focused on the main topics, which ensures actual effectiveness.





Young woman of the local community in Nigeria near a Lafarge cement plant

Visiting the newly open slag grinding plant in Bassens, France



Throughout the Group we have thousands of experiences of good practices. We want to leverage this capital by embedding it in our organization.

Regular and continuing dialog with the local community is central to the methodology. Local meetings are the basic tool to achieve this end. For instance, in the Latin American region, nearly 50%\* of plant managers organize this on a monthly basis. The key to success is an outward facing mind-set and a determination to be a positive and transparent neighbour.

### Application in North America

Our Cement Business in North America provides a good example of the methodology being applied with rigour. It ensures that annual stakeholder audits, based on the Lafarge Advance program, are performed on all North American cement plants. The audits are comprehensive including a review of:



Silver Grove gypsum wallboard plant, USA

- Documented and implemented public affairs plan
- Specific plan for each stakeholder
- Open house
- Charitable giving program
- Media relations program
- Plant specific brochure
- Wildlife Habitat Council participation
- Plant specific newsletter
- Key messages fact sheet
- System for handling complaints
- Crisis communication plan

From the results, plants where action for improvement is required are identified. The annual repetition of the exercise enables Lafarge Cement in North America to track improvement on a year-on-year basis. Every third year an independent auditor is involved.

**Examples of action**

The following section includes three examples of local stakeholder engagement from around the Group. They have been chosen as examples that show real live engagement with stakeholders is not always straightforward but when got right is always rewarding, both for the community and the company.

**Silver Grove, Kentucky USA: Improving community relations and environmental performance**

The announcement that Lafarge was going to build its largest, state of the art wallboard facility on a disused rail yard in Silver Grove, Kentucky was warmly welcomed. Initial press and community relations were good. However an extremely difficult plant start-up led to stakeholder relations slipping down the agenda.

During this time, due to production issues, extensive piles of waste and stockpiled gypsum built up. As the raw material dried it spread in high winds. Local residents affected by the dust contacted the local media.



**PANEL**

**PHILIPPE LÉVÊQUE**  
Executive Director of CARE France

As the Group is more and more established in emerging countries, especially with the acquisition of Orascom, the “base of the pyramid” approach should be structured at Group level, and the report should explain which solutions Lafarge will implement in order to meet poor customers’ needs. New issues are arising with the company’s growth in emerging countries, such as education, (how to recruit skilled people), but also health, subcontracting, transportation costs, construction, etc. Local actions do exist, but the report gives no idea on the Group global vision and on the existence of guidelines. Furthermore, there is no information on how the Group considers conciliating the objective of low production costs in these countries with the commitment to respect social and environmental standards. About relations with communities, Lafarge uses the Advance program to create a cartography of local stakeholders, but it is not enough. The Group should publish the results of assessments, explain how the management is involved in the assessments, develop an action plan in order to improve these results. Moreover, the Group should change up from a strategy which minimizes risks and ensures license to operate to a strategy where local communities are involved in sustainable development.



We have given priority to local stakeholder relations incorporating the issue into our Sustainability Ambitions 2012. We are committed to having a training package on local stakeholder relationship management adapted to the respective divisional organizations by 2008.

TV coverage followed and regulatory and legal issues developed. Plant management recognised that public trust could only be restored on the basis of good environmental performance and compliance and in active dialog with Silver Grove's community leaders. With the full commitment of a dedicated staff, the plant worked day by day to rebuild the community's trust. In partnership with town officials, business owners, residents, regulators, and other community stakeholders, they developed an environmental program to control all elements of off-site exposure.

As the environmental programs served to elevate the plant beyond the compliance requirements, the door was open to rebuilding the community image. Rebuilding an image in the community takes time. The site took advantage of the vast resources of green space and worked to develop a leading wildlife program.

The plant was first recognized for its commitment to environmental stewardship and increasing native biodiversity by achieving Wildlife Habitat certification in 2005. In 2006, the site received international recognition for contributions to wildlife habitat and environmental education with Corporate Lands for Learning certification for site-based education programs. In recent years, the wildlife habitat committee, made up of employees and family members, has partnered with the local schools, colleges, and scouts to accomplish numerous habitat enhancement projects, including:

- Constructing an outdoor classroom for wildlife education and events with local science classes
- Restoring storm-water retention ponds into stocked fish ponds
- Planting native species of trees, plants, wildflowers and grasses
- Instituting a pollinator program including bees and butterflies
- Improving the habitat for the bird population

By identifying, recognising, and rectifying initial mistakes, we have been able to work with our community stakeholders to be a better neighbour and partner in the community we share.

**Nigeria: resettling communities**

AshakaCem has been operating for about 30 years. The area of Nigeria where operations are based is poor. Over many years the company had difficulties with two sets of poor communities who occupied company leased land. Their plight received press coverage and generated accusations that Lafarge was not fulfilling its obligations to these communities.

In the case of the community settled near our quarry it was a significant issue that the people often encroached into the active quarry area searching for water or with their livestock. There were further safety issues for the community living by the Maiganga coalfield. During 2006-2007 Lafarge relocated both sets of communities investing around 2 million euros in the move. The new provision far exceeds the minimum required by Nigerian law. The new provision includes: 152 homes housing over 2,000 people, five places of worship, five boreholes for drinking water, two schools providing for 270 children and two dispensaries. The government has taken on responsibility for running the dispensaries and schools. This is an example of a major investment that has improved the lives and life-chances of hitherto marginalised, local stakeholders as well as an example of fruitful collaboration between private business and local authorities.

**Lafarge Chongqing, China: helping a growing city to solve its sludge problem**

In China, the rapid development of Chongqing, a municipality with 32 million inhabitants, has led to rising demand for clean water and created an increased stream of wastewater. The water reservoir of the Three Gorges



Visit of a classroom built by Lafarge Cement Business in Nigeria, Ashakacem

dam, downstream of Chongqing, would have been threatened by Yangtze Jiang River water quality if the pollution stream was not sorted out. Conscious of this important challenge, Chongqing Municipality launched an ambitious program of wastewater treatment. That's where Lafarge Chongqing came in. Lafarge Chongqing recognised it could be part of the solution with its experience of waste co-processing and using sludge as a fuel. It offered the use of its cement kilns to the government for disposal of sludge generated by the wastewater treatment plants. After analyses, expert commissions, industrial tests and reports that demonstrated the efficiency of sludge co-processing, Chongqing Municipality has taken up the offer and decided to include Lafarge in the sludge disposal master plan with positive mutual environmental and economic benefits.



# What we considered in writing this report

We acted in line with external advice on best practice and responded to stakeholder comment in writing our report

## Our reporting tradition

In our sustainability reporting we always aim to report clearly and completely. We respond to developing, external agendas. We seek to make each year's report an improvement on the last.

## Last year's report

We made major changes to the structure of our report last year.

The aim of the changes was to assist reader understanding and increase the transparency of our reporting. In particular, we opened our Sustainability Report 2006 with the Establishing Understanding section. This gave the context that we work in: the processes used to make our products, the structure of our industry and key facts about Lafarge.

The new Big issues section profiled five major sustainability issues that we face.

We are pleased that our Stakeholder Panel opened their comments on the report by welcoming these changes. We note their suggestions for further improvement.

## Preparing ourselves for Sustainability Report 2007

### Reviewing our processes

Once our Sustainability Report 2006 was published all those involved in producing and assuring it met together. We noted the successes that we wished to replicate. We challenged ourselves to strengthen the Sustain-

ability Report 2007 by the rigorous application of external reporting standards, stakeholder feedback and benchmarking.

We describe the work involved below.

### Stakeholder comment

Our Stakeholder Panel comment on our report collectively and individually. We analysed all the comments made.

Our analysis shows thirty substantive comments. The majority refer to environment and management issues. Sometimes different panel members had commented on the same issues.

The Stakeholder Panel thought that we should give separate, detailed coverage to sustainable construction and our relations with local stakeholders. Both are fully covered in this report. A summary of all the comments along with our response is given on page 22.

### Ernst & Young assurance

The assurance process generated a detailed road plan for us to strengthen our data systems over coming years. The rotation of the business units audited in detail by Ernst & Young helps us to establish a fuller understanding of the importance of good sustainability management throughout Lafarge.

### Benchmarking our report

We benchmarked our report against the contents of the reports of the other CSI core members: Cemex, CRH, Holcim, Italcementi, Portland Valderrivas, Taiheiyō and Titan. This

exercise showed us that the quality of sustainability reporting in our sector is improving rapidly. Some of our competitors reported on transport and waste management in their reports. Lafarge had not previously reported on these issues but does so for the first time in this report.

### GRI G3

In addition to a full on-line 2002 version GRI index, we included coverage in our Sustainability Report 2006 of how we took the GRI principles into account in producing the report.

To ensure that we made best use of the new G3 guidelines we constructed a GRI G3 analysis of our 2006 report. This identified data gaps and places where we could improve our data. We also benchmarked ourselves against companies with the Application Level GRI A+ to identify best practice, particularly in presentation of the data.

GRI is about more than just performance indicators. We carried out a rigorous analysis of the proposed structure and contents of our report against the Reporting principles for defining content and the Reporting principles for defining quality. This helped identify ways in which we could improve the report. We have made this available on-line along with our detailed GRI G3 index.

This year's report is self-declared application Level B. We have put in place a process to enable us to reach application level A+ in future years.



Two of the  
nine Kliptown  
Freedom Towers,  
Johannesburg,  
South Africa

In our sustainability reporting we always aim to report clearly and completely. We respond to developing, external agendas. We seek to make each year's report an improvement on the last.

A full GRI G3 index and a table showing how we used the GRI G3 principles can be found at [www.lafarge.com](http://www.lafarge.com).

#### **UNEP/SustainAbility/Standard & Poor's Global Reporters 2006**

The biennial Global Reporters survey has done much to improve reporting standards. The publication of Global Reporters 2006: Report Assessment Methodology enabled us to analyse our own 2006 report and set goals for improvement.

This was a complex task. Each of the twenty-nine criteria in the methodology generated at least one step we could take to improve our reporting. In total we identified sixty specific actions for improving our reporting as a result of the exercise. The bulk of them related to governance and management, customers and our interface with local stakeholders. The familiarity with the methodology that we gained informed our overall approach to the report.

#### **Sustainability Ambitions 2012**

Our Sustainability Ambitions 2012 were approved towards the end of the process of compiling our 2006 report.

We have used them fully in shaping our 2007 report. We have sought to make clear the centrality of the ambitions to our day-to-day management of sustainability.

We have positioned the specific coverage of

them next to our CEO letter to show the importance we set upon them. All of the sustainability ambitions are reported upon in our Big issues section.

Each contributor to the report was directed to think through their contribution in the light of the relevant ambitions.

#### **AA1000**

Much of what we have covered above has involved detailed analysis and benchmarking. We have used the AA1000 tests of materiality, completeness and responsiveness to help set the overall orientation and tone of the report and to ensure we have got the balance of contents right. We trust that our report does give the readers the information they need on the subjects that matter and show we are responding to stakeholder comment, external trends and standards.

#### **Following through**

We ought to add that in this year, as in all previous years, we have learnt simply from the process of compiling and writing the report. Whether it was a matter of creating new sections, being able to give fuller performance data or expanding coverage on topics such as Values and governance and Sustainability management and influencing role we learnt to think through the subjects more deeply. Some of this learning is incorporated into this report, all of it will inform our reporting in future years.

## Reporting methodology

The data in this report is generated by systems that have been used within the Group for several years. They are subject to ongoing improvements.

### Reporting standards

Common environmental reporting standards (Group Environmental Reporting V3.4) drawn up in 2004, were reviewed in depth in 2007 to ensure their alignment with the Sustainability Ambitions 2012. In the Cement Business, the environmental indicators are defined in the Business Reference System. Each site shares the BRS® and operating data is collected through the technical reporting system. In the Aggregates & Concrete Business, environmental data is collected at the business unit level based on the Group Environment Reporting V3.4 definitions. The scope of data reported and the definition of the indicators are tailored to the specificities of each activity (aggregate, readymix, asphalt) Gypsum data is collected through the Gold management system. The Group has developed social reporting standards over the last five years. In 2007, we carried out an in-depth revision of the standards to take into account the requirements of the new Global Reporting Initiative G3 guidelines. Our health and safety management systems have been developed taking into account the guidelines on health and safety management systems in the workplace.

### Reporting perimeter

Environmental reporting covers all the business units and their industrial production sites under the Group's business control throughout the world. All data is reported 100%, whenever the company is consolidated.

Using the following protocols:

Reported CO<sub>2</sub> emissions relate to the direct emissions from the Cement Business. In accordance with the CSI guidelines, to assess the CO<sub>2</sub> emissions reduction between the 1990 baseline and the reporting year, the 1990 perimeter is reconstructed each year. Newly acquired plants that are reporting their CO<sub>2</sub> emissions for the first time as part of the Group and existed in 1990 are included in the baseline, their CO<sub>2</sub> emissions in 1990 are collected or estimated and added to the baseline. Plants that are sold are removed from the baseline. Shutdown of kiln lines does not lead to any change in the baseline.

For dust, SO<sub>2</sub>, and NO<sub>x</sub>, emission measurements are not always reliable or available. In this case, we use standard emission concentrations based on the site's kiln process. When reliable measurements are available, estimates are replaced with measured values.

With regard to the targets for reduction of dust, SO<sub>2</sub> and NO<sub>x</sub> emissions, the 2005 baseline reference is recalculated every year. The perimeter of the 2005 baseline is updated based on the reporting year's perimeter and following the same approach as for CO<sub>2</sub> emissions baseline: newly consolidated sites which existed in 2005 are included in the 2005 baseline, greenfield plants erected after 2005 are consolidated from the inauguration date, and plants or lines sold to third parties is excluded from the 2005 baseline. The data entered in the 2005 baseline corresponds to emissions

measurements, if available and reliable, or is estimated based on the same standard emission factors as for the reporting year. For SO<sub>2</sub>, as it is, by large, linked to the raw material quarry, when analyses subsequent to 2005 prove that the emission level is significantly lower than the standard emission factor, the 2005 emissions are adjusted to reflect the analyses. In 2007, the dust emissions 2005 baseline was raised by 4% to take into account corrections in the Russian sites' data.

Lafarge continues to acquire complete ownership or an equity interest in existing sites from other operators. These new sites are never fully in line with Lafarge Standards. As a rule, we allow three years starting from the acquisition date to meet our criteria. Indicators are reported whenever criteria are implemented and in all cases the 4<sup>th</sup> year. During this period, we implement the appropriate management and data collection systems to ensure coherence with the Group reporting standards.

In the Aggregates & Concrete Business, environmental reporting covers its three activities ready-mix, asphalt and aggregates. New business units are gradually included in the perimeter. In 2007, reported data corresponded to some 82% of the Business' turnover.

In the Gypsum Business, a site is integrated in the reporting perimeter the year following its start up or its acquisition. Our social reporting is based on voluntary declarations by the human resources departments of the Group's business units. For the 2007 report,





Melaphir quarry  
in Swierki, Poland

85 business units participated, covering 89% of the total Group workforce.

### Consolidation and control

Environmental data is consolidated and controlled within each business line and is then consolidated at Group level.

The Cement Business's CO<sub>2</sub> indicators have been independently verified since 2001.

In CO<sub>2</sub> emissions reporting, biomass amounts to zero everywhere, in agreement with WWF.

Social data is consolidated and controlled by the Group's Social Policies Department

Ernst & Young provides independent assurance over the CO<sub>2</sub>, dust, SO<sub>2</sub> and NO<sub>x</sub> reported progress, on environmental audit, the quarry rehabilitation indicator, female senior managers and safety.

### Methodological limits

Environmental and social indicators can have methodological limits because of:

- the limited availability of the data needed for calculations;
- the qualitative nature of some of the data, which can be open to interpretation
- the practical methods for collecting and recording such data.

This is why for some indicators, we have specified the definitions and methodologies used and, where applicable, the associated limits and margins of uncertainty.



Construction site of a grinding station  
in Puerto Montt, Chile



# Comparability of performance: how do we measure up?

It is important not only that we track our policy and performance against previous years but that we look at our performance against peer companies, learn from the comparison and set ourselves more stretching targets.

## Benchmarking WBCSD Cement Sustainability Initiative

To assist stakeholders' and analysts' need for easily comparable data we have benchmarked our performance against competitors who are members of the WBCSD Cement Sustainability Initiative. Benchmarking can be found on pages 64 and 65. The data was compiled by Ernst and Young.

Companies evaluated include founder members and participating members of the WBCSD Cement Sustainability Initiative. Benchmarking is based on the information published for 2006, and for 2007 when available.

All comparisons must be considered taking into account differences in each company's scope and reporting perimeters. The table on page 64 gives an overview of such factors, which sometimes limits the relevance of such comparisons.

## SRI rating agencies

We are pleased that we continue to be highly rated by many SRI ratings agencies. While high ratings are gratifying what we find most useful is the insight that the questions asked by the ratings agencies give us into what are the matters of growing concern in sustainability. The information that the agencies gather from public sources also help us to assess how effective we are being in communicating our sustainability ambitions, policy and performance.

## Evaluation by SAM (DJSI Index)

In 2006, Lafarge had an overall score of 63%. Lafarge exceeded the average scores in all three dimensions: economic, environmental

and social. Lafarge achieved the best scores for environmental and social reporting of any company in its group. In the economic dimension Lafarge's best score was in the corporate governance element where we came just short of the leader.

Yet in 2007, Lafarge was no longer placed in the Dow Jones Sustainability Index. Why was this? Principally, because DJSI considered that the progress on NOx, SOx and Dust emissions was not sufficient over the last few years. Over the period 2001-2006, respective emissions were still reduced by 11%, 32%, and 25%. In fact, our indicators reflect the fact that we have grown significantly by acquiring facilities with low environmental performance in emerging countries. Progressing continuously, we are upgrading them rapidly.

## Evaluation by Vigeo

Vigeo rates Lafarge as achieving "very positive results" in the domains of business behaviour, community involvement, environment, human resources and human rights. The only domain that Vigeo does not describe as "very positive" is governance. Vigeo's shares are held 27.96% by French labor unions and 27.16% by large listed companies. Lafarge owns 1.02% of the Vigeo equity.

## Evaluation by Innovest

In its Intangible Value Assessment Innovest gives Lafarge a AAA rating. Innovest said that the Group had a sector leading robust sustainability strategy and initiatives to mitigate other key environmental, social and governance risks (such as greenhouse gas emission levels), which would enable it to obtain strategic profit opportunities both in the short and long-term.

## Evaluation by Storebrand

Lafarge is one of five companies judged best in class in Storebrand's analysis of the Construction Materials sector. Lafarge is the most highly rated company in the social ratings aspect of the analysis. Lafarge leads in the Products and Services sub section of the environmental ratings aspect and the Business Partners, Community Involvement and Labor Relations section of the social ratings aspect.

## Evaluation by FTSE4Good Environmental Leaders Europe 40 Index

This index is designed to identify European companies with leading environmental practices. These are defined as: "...the companies that are doing more to manage their environmental risks and impacts whilst reducing their environmental footprint." The index includes only those with a "best practice" environmental rating than 5. Lafarge is the only cement company included in the index.

## Evaluation by Global 100 Most Sustainable Corporations

The Global 100 most Sustainable Corporations is a project initiated by Corporate Knights Inc with Innovest. Companies in the index are selected on the basis that they "they have displayed a better ability than most of their peers to identify and effectively manage material environmental, social and governance factors impacting the opportunity and risk sides of their business". Lafarge is the only cement company included in the index.

There are many other evaluations done by professional agencies, banks, NGOs and others. We cannot list them all. We thank them for their interest in and attention to our company.



# Benchmarking our performance

A comparison of our performance with other Cement Sustainability Initiative members and participants

Companies give readers of reports performance data. Yet the data can be hard for nontechnical readers to understand because it lacks context. The most frequently given context is that of the company's current year performance against previous years. We have given this throughout the report. Readers however also ask: "How are you performing against other companies in the sector?" These pages give this data for key Cement Sustainability Initiative indicators against a number of peer companies.

The data has been assembled by Ernst & Young. In all cases it relates to the company year ending in 2006. The data is taken either from the company's report or it has been calculated from publicly available sources. We are unable to make a comparison on the basis of 2007 data as, at the time of publishing this report, not all the other companies had published 2007 data.

In each case we give a comment upon the benchmarking comparison for 2006. We note how and whether Lafarge's own performance improved in 2007.

We trust that this assists the reader's understanding and improves the transparency of our report.

## Overview of differences in scope

Company profiles (Base year 2006)

	Turnover (M€)	Employees (Number)	Production (Mt)	Production capacity (Mt)	Countries (Number)	Emergent market countries (%)
CSI Core Members	Cemex	13,857	54,635	98	98	> 50
	Cimpor	1,639	5,924	20	24,115	9
	CRH	18,737	79,560	14		26
	Heidelberg	9,234	45,958	80		50
	Holcim	14,916	88,783	141	197,8	70
	Italcementi	5,854	22,868	64	70	19
	Lafarge	16,909	71,000	143		70
	Portland Valderrivas	1,446	2,974	14		7
	Titan	1,568	5,891	16		11
CSI Participants	Siam Cement	5,516	20,000	27	55	5
						100%

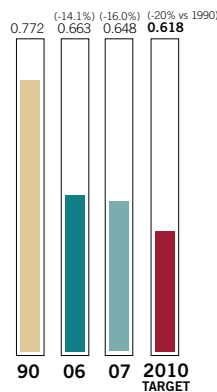
**CSI Core members:** Taiheiyō was excluded from benchmarking because no data was made public and readily available in 2006. The latest set of publicly available data is for Fiscal Year End March 2006.

**CSI Participants** Only Siam Cement is included throughout. All other companies did not report on a sufficient number of relevant indicators in 2006, notably with regards to environmental performance, and were thus excluded from comparisons with other companies except when stated otherwise.

## CO<sub>2</sub> emissions

### Specific net CO<sub>2</sub> emissions

(tonnes of CO<sub>2</sub>/tonnes of cementitious product)

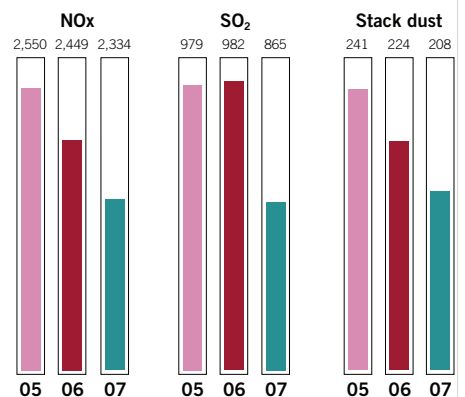


Nine companies disclosed data against this indicator. Seven companies were able to compare this against a 1990 baseline. Lafarge had the second best record in absolute terms and ranked third in terms of the reduction of emissions against the 1990 baseline used for this indicator. In 2007 Lafarge continued the trend of improvement against this indicator.

## Other main atmospheric emissions

### NO<sub>x</sub>, SO<sub>2</sub>, Stack dust emissions

(grammes/tonne of clinker)

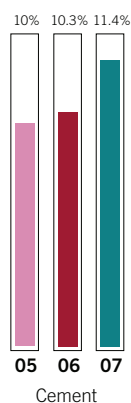


Ten companies reported in 2006 against these indicators. Lafarge has the highest emissions of SO<sub>x</sub> and NO<sub>x</sub>. In 2006 Lafarge reported its emissions at 100% coverage; only two other companies applied the same level of coverage. In 2007, Lafarge saw improvements in all three indicators with a reduction of 8.5% in NO<sub>x</sub>, 11.8% in SO<sub>2</sub> and 13.7% in stack dust emissions compared to 2005.

## Raw materials and fuel substitution ratios

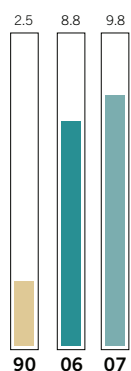
### Use of alternative materials

(as a percentage of total material consumed)



Cement

### Part of energy from alternative fuels (%)

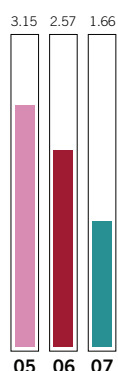


Ten companies reported in 2006 against these indicators. Lafarge ranked fourth in terms of alternative fuel rate and third in terms of alternative raw material rate. In 2007, Lafarge readjusted the 2006 alternative fuels performance after the update of its alternative fuels classification and group perimeter. Performance in 2007 improved.

## Health and Safety

### Group lost time injury frequency rate

(Number of lost time accidents by millions of hours worked)

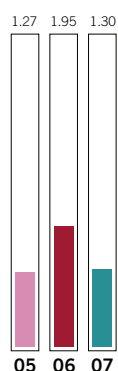


Nine companies reported their lost time injury frequency rate in 2006. Lafarge was ranked second, up from fourth in 2006. Lafarge's performance against this indicator improved significantly in 2007, which led to a revision of the 2008 target from 1.55 to 1.39.

3.15 includes the 9 employee fatalities we suffered in 2005. For our *Sustainability Ambitions* (see pages 4-5) we used 3.09 as the 2005 base, which did not include fatalities.

### Group fatality rate

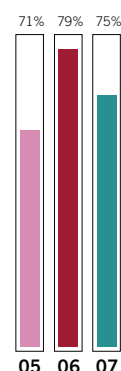
(Number of fatal accidents per 10,000 employees)



Six companies reported their performance against the Group fatality rate in 2006. Lafarge was ranked last in this group. Two companies had a group fatality rate of zero. Lafarge continues to aim for a zero fatality rate and its performance against this indicator improved in 2007.

## Local impacts

### Quarries with rehabilitation plan



Seven companies reported in 2006 against this indicator. Lafarge was placed fourth in this group. The apparent fall in this indicator in 2007 was due to the adoption of tighter standards for rehabilitation plans.

# Indicators and correspondence tables

		2006	2007					
Activity	UNIT	GROUP	CEMENT	AGGREGATES & CONCRETE	GYPSUM	GRI G3		
<b>Activity</b>								
Sales	billion euros	16.9	17.6	10.3	6.6	1.6	EC1	
Breakdown of sales by business	%			53.7%	37.4%	8.8%	EC1	
Total headcount*	number	79,215	77,721	45,481	24,167	8,073	LA1	
Breakdown of 2007 headcount by business	%			58.5%	31.1%	10.4%	LA1	
Annual production	unit of product			148.40 million tonnes of cement <sup>(A)</sup>	42 million m <sup>3</sup> of concrete 259 million tonnes of aggregates	715 million m <sup>2</sup> of wallboard <sup>(B)</sup>		
<b>Management</b>								
Lafarge internal environmental management systems	% of sales	78%	66%	68%	56%	100%		
Of which ISO 14001 certified systems	% of sales	36%	34%	56%	9%	25%		
<b>Environment</b>								
Total energy consumption	million tonnes of Oil Equivalent	11.9	11.9	11.1	0.2	0.6	EN3	
Water consumption (plasterboard only for the Gypsum Business)	L/unit of product			343 L/tonne of cement	280 L/m <sup>2</sup> of concrete	6.00 L/m <sup>2</sup> of wallboard	EN8	
% of sites equipped with water recycling system	%	61%	72%	73%	72% <sup>(C)</sup>	60%		
Use of alternative raw materials (plasterboard only for the Gypsum Business)	% of total raw materials consumed			11.4%		51.2%	EN2	
Waste disposed of	% of total production			0.7%		1.1%	EN22	
NOx emissions <sup>(1)</sup> ✓	g/t clinker			2,334			EN20	
SO <sub>2</sub> emissions <sup>(1)</sup> ✓	g/t clinker			865			EN20	
Stack dust emissions <sup>(1)</sup> ✓	g/t clinker			208			EN20	
Quarries with a rehabilitation plan <sup>(2)</sup> ✓	%	79%	75%	71%	76%	88%	EN14	
% of sites audited environmentally in the last 4 years <sup>(3)</sup> ✓	%	84%	84%	88%	83%	100%		
Specific gross CO <sub>2</sub> emissions <sup>(4)</sup> ✓	t CO <sub>2</sub> /tonne of product			0.667	NA	NA	EN16	
Specific net CO <sub>2</sub> emissions <sup>(4)</sup> ✓	t CO <sub>2</sub> /tonne of product			0.648	NA	NA	EN16	
Net CO <sub>2</sub> emissions <sup>(4)</sup>	million tonnes	95.3	97.4	96.2	NA	1.2	EN16	
R&D budget	million euros	24.2	29.7					
Environmental and safety investments (amounts committed)	million euros	148	148	118	12	18	EN30	
<b>Health &amp; safety</b>								
Lost time injury frequency rate <sup>(6)</sup> ✓	points	2.57	1.66	1.30	1.79	3.26	LA7	
Lost time injury severity rate <sup>(7)</sup>	points	0.17	0.14	0.10	0.16	0.28	LA7	
Number of lost-time injuries among Lafarge employees <sup>(5)</sup>	number	368	247	106	91	50	LA7	
Number of lost-time injuries among contractors' employees	number	273	231	178	20	33	LA7	
Lafarge employee fatalities on site <sup>(5)</sup>	number	11	7	5	1	1	LA7	
Lafarge employee fatalities - transport	number	4	2	2	0	0	LA7	
Contractor employee fatalities on site	number	11	14	11	3	0	LA7	
Contractor employee fatalities - transport	number	13	3	3	0	0	LA7	
Third-party fatalities on site	number	1	3	2	1	0	LA7	
Third-party fatalities - transport	number	3	3	2	1	0	LA7	
Lafarge employee fatality rate <sup>(5) (8)</sup>	number	1.95	1.30	1.79	0.42	1.51	LA7	

NA: Not available

\* Total headcounts are posted on the basis of 100%, excluding companies held in equity at December 31, 2007 and 2006.

(A) Total physical output (B) and 1,168k tonnes of plasterpowder. (In the previous years only building and industrial plasters were included. In 2007 we have added joint and glue compounds to be used with plasterboards and plasterblocks) (C) Readymix plants only.

✓ Indicators verified by Ernst & Young





	2006	2007	
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UNIT	GROUP	GRI G3
------	-------	--------

**Social data at Group level**

Employment				
Full-time	%	NA	98%	LA1
Part-time	%	NA	2%	LA1
Permanent employees	%	91%	91%	LA1
Fixed-term contracts	%	5%	3%	LA1
Temporary employees	%	4%	6%	LA1
Hirings	number	5,046	5,535	LA2
Resignations	number	5,176	4,430	LA2
Retirements	number	806	879	LA2
Redundancies	number	3,982	4,846	LA2
Deaths	number	114	175	LA2
<b>Diversity</b>				
Percentage of women in senior management <sup>(9)</sup> ✓	%	10%	12.2%	LA13
<b>Training</b>				
Average number of hours of training for manager staff	number	37	41	LA10
Average number of hours of training for non manager staff	number	23	25	LA10
<b>People development</b>				
Percentage of manager staff having an annual performance review	%	NA	90%	LA12
Percentage of non manager staff having an annual performance review	%	NA	57%	LA12
<b>Industrial relations</b>				
Percentage of Lafarge employees represented by elected staff representatives and/or trade union organizations <sup>(5)</sup>	%	68%	67%	
Percentage of business units where employees are covered by collective agreements	%	NA	78%	LA4
Number of business units with strike actions	number	9	8	
Percentage of the total workforce represented in Health & Safety committees	%	NA	73%	LA6
<b>Restructuring/ job cuts</b>				
Percentage of business units having implemented a significant headcount reduction impacting more than 5% of the workforce	%	10%	15% <sup>(4)</sup>	
Percentage of business units having set up an employment channel for employees	%	NA	79%	
Percentage of business units having set up a local economic development channel for local communities	%	NA	69%	
Number of Lafarge employees re-employed outside the Group (in another group, or their own business) <sup>(6)</sup>	number	111	873	
Number of external jobs created through the local economic development program	number	NA	468	

NA: Not available

(A) In 2007, 14 Business Units made headcount reductions of more than 5% of their workforce.

**Notes on methodology**

The environmental indicators cover 100% of the Group's perimeter. Health and safety indicators cover 100% of the workforce. For 2007, all social indicators are based on a social survey covering 85 business units in 51 countries representing 89% of the total Group workforce.

(1) SO<sub>2</sub>, NO<sub>x</sub> and dust emissions (tonnes/year) are calculated based on concentrations measured at site level and standard flow rates defined at Group level depending on kiln technologies. As permitted by the WBCSD-CSI guidelines (see www.wbcsd.org/chapter Sector Project/cement/ guidelines for emissions monitoring and reporting in the cement industry, March 2005), the Group reports on dust emissions at main stack. Dust concentration is measured in kilns representing 96% of clinker production. Emissions from remaining kilns are estimated based on standard concentrations depending on kiln age and technology. SO<sub>2</sub> and NO<sub>x</sub> concentrations are measured in kilns representing 87% and 79% of clinker production respectively.

(2) The internal standard for quarry rehabilitation has been revised in 2007 and its implementation has only been partial in 2007 throughout the Group. According to this revised standard on quarry rehabilitation, the plan has to comply with at least four criteria: graphic presentation of final stage, description of various areas with intended use, rehabilitation work to be performed, and appropriate description of the sequencing of work. In the cement division, quarries are allowed a maximum delay of four years to implement a rehabilitation plan within our standards.

(3) Environmental audit methodologies are defined at the Business level for Cement and Gypsum branches and at the business unit level for Aggregates & Concrete Businesses.

(4) CO<sub>2</sub> emissions: Gross emissions exclude emissions from biomass combustion only. Net emissions exclude also emissions from alternative fuels corresponding to waste. This methodology complies with 2001 WBCSD CO<sub>2</sub> Protocol but does not follow the latest WBCSD definitions concerning net emissions and credit savings. Emissions factors used by the Group are 536 kCO<sub>2</sub>/t clinker for clinker and are WBCSD default values for fuels. Specific CO<sub>2</sub> emissions are absolute emissions divided by tonnes of cementitious products, which include clinker production, cement additives used in grinding and cement additives sold directly.

(5) A Lafarge employee is any individual that is directly employed (i.e. temporary or permanent) by Lafarge on a part-time or full-time basis or is managed by Lafarge whether or not the individual receives remuneration directly from the Lafarge payroll system.

(6) Lost Time Injury (LTI) is a work-related injury causing absence from one or more scheduled workdays (or scheduled shifts), counting from the day after the injury occurs to the day before the individual returns to normal or modified work. Lost Time Injury Frequency Rate (LTIFR): Number of accidents, including fatal accidents leading to loss of time by million of hours worked.

(7) Lost Time Injury Severity Rate (LTISR): Number of calendar days lost as a result of accidents by thousand of hours worked.

(8) Fatality rate: Number of fatal accidents per 10,000 employees.

(9) Percentage of women in senior management: women whose job is graded between 18 and 22 according to the Hay method. In order to achieve a uniform classification of the various types of management positions, Lafarge decided to use a single approach for all the countries in which it is present (Hay method) and to seek input from local Hay representatives.

# Correspondence with French NRE law

ART 148-2	SOCIAL TOPICS	PAGES	COMMENTS
1.a	Total headcount, hirings (fixed-term/permanent), recruitments, redundancies and reasons, overtime, external manpower	Page 1, pages 44-47	
1.b	Headcount reduction and job protection, job-seeking assistance, rehires and supporting measures	Pages 44-47, page 67	
2	Organization of working time, length of working hours for full-time and part-time employees, absenteeism and reasons	Pages 44-47, pages 48-49, page 66	Absenteeism monitored at Group level relates to workplace accidents; this varies according to the rules in force in the countries where the Group is present or according to the functions performed. As a result, the details (variable hours, length of working day, etc) are relatively diversified and cannot be consolidated. In 2007, 7% of business units were found to be in breach of working time standards
3	Remuneration and trends, payroll taxes, application of Section IV of Book IV of the French labor regulations, professional equality between men and women	Pages 44-47	See note 31 to our consolidated financial statements for details of payroll charges paid at Group level in 2007
4	Professional relations and appraisal of collective agreements	Pages 44-47	Collective agreements not consolidated at Group level
5	Health and safety conditions	Pages 48-49, 66	
6	Training	Pages 44-47	
7	Employment and integration of disabled workers	Pages 44-47	
8	Social initiatives	Pages 54-57	
9	Importance of subcontracting	Pages 44-47	
ART 148-3	ENVIRONMENTAL TOPICS	PAGES	COMMENTS
1	Consumption of water, raw materials and energy. Measures taken to improve energy efficiency, use of renewable energy, usage of soil, emissions into air, water and soil, noise pollution, offensive odors, waste	Pages 36-39, page 66	Noise pollution relates mainly to cement plant crushers, explosions at quarries and circulation of trucks, and extraction machinery. At Group level we monitor only waste sent to landfill
2	Measures taken to limit harm to biological equilibrium, natural environments and protected fauna and flora	Pages 25-27; pages 36-39	
3	Evaluation or certification measures taken on environmental matters	Pages 36-39	Environmental audits, which are conducted at least every four years, include verification of compliance with regulations
4	Measures taken to ensure the company's activities comply with the laws and regulations applicable to this matter	Pages 36-39	
5	Expenditure incurred to avert any impact on the environment from the company's activities	Pages 36-39, page 66	
6	Internal environmental management services, environmental training and information for employees, resources used to reduce environmental risks, system put in place to deal with pollution accidents having an impact beyond the confines of the company's premises	Pages 36-39, page 66	
7	Amount of provisions and guarantees for environment related risks, unless such information is liable to cause serious harm to the company in an ongoing dispute	See opposite	The main environment-related provisions relate to quarry rehabilitation (which is not strictly speaking a risk). At Group level, provisions for site redevelopment and environmental risks amounted to €249 million in 2007.
8	Amount of compensation paid during the year in execution of a court ruling on environmental matters and measures taken to make good any damage caused to the environment	See note 29 of Annual Report and Accounts	
9	All elements of the objectives set by the company for its foreign subsidiaries with regard to points 1 to 6 above	Pages 4-5	

# Ernst & Young Assurance

Lafarge, S.A. — Financial year ended on December 31, 2007  
Statutory auditor's report on certain environmental, safety and human resources indicators

*This is a free translation into English of the original report issued in the French language.*

Further to Lafarge's request and in our capacity of statutory auditor of Lafarge, we have performed a limited review on the environmental, safety and human resources indicators for the financial year 2007 identified by the ✓ symbol in the sustainability report on pages 4, 5, 66 and 67 (the "Indicators"). These Indicators were prepared under the responsibility of the Lafarge's Sustainable Development and Public Affairs Department, in accordance with the reporting criteria applicable in 2007 (the "Reporting Criteria"), consisting in:

- External standards and guidelines elaborated by the Cement Sustainable Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD) for environment and safety indicators and the international Hay job evaluation method for data on senior managers. Those standards and guidelines are available on the WBCSD and Hay websites, respectively<sup>1</sup>;
- Lafarge Group specific instructions and procedures, a summary of which is provided on pages 60 and 61 under the heading "Reporting methodology" and in the comments related to the Indicators presentation on pages 66 and 67 of the sustainability report.

It is our responsibility to express a conclusion on these Indicators on the basis of our review.

## Nature and scope of our review

We performed the following review to obtain limited assurance that the Indicators are free of material misstatements. A higher level of assurance would have required more extensive work.

- We have assessed the Reporting Criteria with respect to its relevance, completeness, neutrality, understandability, and reliability.
- At the Group level and at the Cement, Aggregates and Concrete, and Gypsum Branch levels, we have conducted interviews with the persons responsible for environmental, safety, and human resources reporting in order to assess the application of the Reporting Criteria. At this level, we have implemented analytical procedures and verified, on a test basis, the calculations and the consolidation of data.
- At the Cement Branch level, for the specific CO<sub>2</sub> emissions and other atmospheric emissions (SO<sub>2</sub>, NO<sub>x</sub> and dust), we checked the consistency of:
  - Clinker, cement and additives production data used for the denominator of specific CO<sub>2</sub> and other atmospheric emissions with data from the

financial control,

– CO<sub>2</sub> emissions with figures declared to authorities and verified in the framework of the 2003/87/CE European Directive on "allowances".

- At the Cement Branch level, for the indicators related to CO<sub>2</sub> emission reduction compared to 1990 emissions, our review was limited to reviewing modifications brought since 2005 to the 1990 baseline.
- We have selected a sample of eleven sites or business units<sup>2</sup> on the basis of their activity, their location, and the results of the review performed during prior financial years. At the level of the selected sites and entities, we have verified the understanding and application of the Reporting Criteria, and verified, on a test basis, calculations and reconciliation with supporting documents.
- We reviewed the presentation of the Indicators in the sustainable development report and the associated notes on methodology.

On average, our tests covered 20% of environmental indicators<sup>3</sup>, 8% of hours worked used in the calculation of the lost time injury frequency rate, and 12% of senior management staff. Taking into account the review performed during the past two financial years in different activities and countries, we assess that these coverage rates provide a sufficient basis for the conclusion expressed below.

## Information about the Reporting Criteria

### Relevance

- The Group publishes key performance indicators defined for cement manufacturing activities by the Cement Sustainable Initiative (CSI) of the World Business Council for Sustainable Development (WBCSD).
- Methodologies selected by the Group are consistent with the latest versions of the WBCSD-CSI standards and guidelines; the Group's amendments or specificities are specified in the notes on methodology (see details on pages 60, 61, 66 and 67).

### Completeness

- The reporting perimeters for environment, safety, and human resources data are specified in the "Reporting Methodology" section on pages 60 and 61.
- The Indicators reporting perimeter aims to cover the whole Group worldwide. Methods for estimat-

ing missing data, notably atmospheric emissions or 1990 baseline for CO<sub>2</sub> emissions, as well as the perimeters covered by the Indicators (expressed in percentage) have been indicated where applicable.

### Neutrality

- The Group provides detailed information on methodologies used to establish the Indicators in the notes on methodology on pages 60 and 61 and in the comments next to the published data, in particular for indicators related to "SO<sub>2</sub>, NO<sub>x</sub> and dust emissions", the "% of women in senior management", the "quarries with a rehabilitation plan" and the "share of audited sites", on page 67.

### Reliability

- The internal controls performed by the Environment, Technical, and Financial Departments are of good quality for production data (cement, clinker) and CO<sub>2</sub> emissions. Efforts have been undertaken this year to improve the reliability of the "% of women in senior management" indicator, by setting up new reporting methodologies.
- However, for indicators related to site audits, quarry rehabilitation plans, women in senior management, SO<sub>2</sub>, NO<sub>x</sub> and dust emissions and reductions compared to baseline, and number of hours worked used in the calculation of the lost time injury frequency rate, the potential for misunderstanding should be reduced and internal controls need to be strengthened.

## Conclusion

- The Group standard for quarry rehabilitation has been clarified this year. Probably for this reason, we identified material gaps in the audited Aggregates & Concrete business unit which were corrected further to the audit and inconsistencies between the Branches in the application of the new requirements for the "quarries with a rehabilitation plan" indicator.

Based on our review, and except for the above qualification, nothing has come to our attention that causes us to believe that the Indicators were not established, in all material respects, in accordance with the Reporting Criteria.

Paris-La Défense, April 4<sup>th</sup> 2008

The Statutory Auditor

ERNST & YOUNG

Audit

Alain Perroux

ERNST & YOUNG

& Associés

Eric Duvaud

1 | www.wbcd.org/ Sector Project/ Cement and www.haygroup.com/ Service Line / Job evaluation 2 | Three business units of the Cement Branch (Lafarge Cement France, Lakes & Seaway, Lafarge Cement Romania) and 4 of their cement plants: Saint-Pierre La Cour (France), Alpena (USA), Saint Constant (Canada) and Medgidia (Romania); two cement plants in Russia: Korkino and Voskressensk; two business units of the Aggregates & Concrete Branch (Lafarge Concrete France and Lafarge Western US) 3 | 40% of CO<sub>2</sub> emissions, 25% on average of SO<sub>2</sub>, NO<sub>x</sub> and dust emissions, 18% of sites and 12% of active quarries.



**Photo credits:** Cover: DR Mediatheque Lafarge; Back cover: Jean-Philippe Mesguen; P.01 (left): Philippe Ruault/Rudy Ricciotti (architect); P.01 (right), 40: Ignus Gerber; P.03: Jacques Grison; P.15: Vincent Rackelboom; P.16, 24 (right), 57 (top): Rea/Hamilton De Oliveira, P.20, 57 (bottom): Franco Electronics; P.21: Interspeed/Imtiaz Alam Beg; P.25, 61: Mikolaj Katus; P.28: Rapho/Nian Zeng; P.29: GPA/Jim Callaway; P.32: KJC Photography/Jack Clark/I.K.O.Y. (architect); P.33: Jacques Ferrier (architect); P.44: Courtesy of Lafarge Malayan Cement Communications Dept; P.46 : Charles Callaghan ; P.48 (right): Shaun Browne; P.50: André Duvenage (architect); P.51 (left): Serge Henri, (right): Cyrille Dubreuil; P.55 (bottom): Mark Edwards; P.55 (right): DR Port Autonome de Bordeaux; P.59: Courtesy of Patrick Rimoux (architect); Stakeholder Panel (except P.37): Alain Le Breton, P.52: WWF International / Elma Okic. All other pictures: DR Mediatheque Lafarge. Illustrations: P.06-09: Ide. • Managing editor: Stéphanie Tessier • Design and production: Direction de la communication Lafarge • Editorial team: Corporate Citizenship [www.corporate-citizenship.com](http://www.corporate-citizenship.com) • Graphic design: Textuel • Production: E-Graphics



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