

# SUSTAINABILITY REPORT

LAFARGE 2012

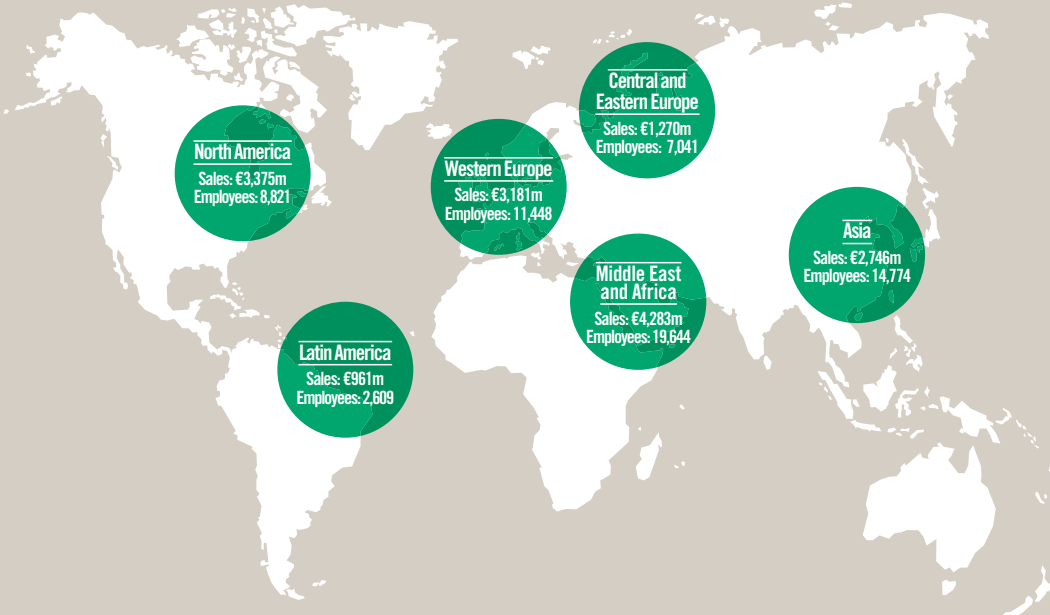


 **LAFARGE**  
Building better cities™

COMPANY PROFILE

# Lafarge world presence

World leader in building materials and a major player in the cement, aggregates and concrete industries, we contribute to the construction of cities throughout the world. Our innovative solutions provide cities with more housing and make them more compact, more durable, more beautiful and better connected. The Group operates in 64 countries and employs 65,000 people. It generates annual sales of €15.8 billion.



SHARED VALUE AT LAFARGE	€m	%
Sales	15,816	-
Cost of goods sold	10,632	-
Cash value added	5,184	100
Paid to employees for their services	2,425	46.8
Paid to lenders as a return on their loans	1,031	19.9
Retained for growth	906	17.5
Community Investment	20	0.4
Net Cash	802	15.5
Income taxes paid to governments	487	60.7
Paid to investors for providing capital	315	39.3

**Cement**

World leader  
 Employees: 41,200  
 Revenues: €10,373m  
 Countries: 58  
 Sites: 161

**Aggregates & concrete**

No. 2 & No. 4 worldwide  
 Employees: 21,800  
 Revenues: €5,353m  
 Countries: 36  
 Sites: 1,395

Revenues

€15,816m

Net income Group share

€432m

Number of countries

64

Number of employees

65,000

Number of sites

1,570

Number of quarries

708

## REINFORCING OUR COMMITMENT TO SUSTAINABLE DEVELOPMENT

**BRUNO LAFONT**

Chairman and Chief Executive Officer



**“Sustainability is a commitment to be renewed every day, even more so in times of crisis.”**

In 2012 Lafarge reorganized around country units instead of product divisions, to be closer to its markets and customers. At the same time, the Group launched its Sustainability Ambitions 2020. To be sustainable, a company needs to both reflect market developments in its world vision and build on its expertise and past successes.

**Sustainability Ambitions 2020 incorporate objectives that scale up previous ambitions** as well as new targets in the fields of affordable housing, volunteering, and recycling. Lafarge has expanded its activities towards the Circular economy which is

becoming more important to address the challenges of demography and urbanization in a world where two thirds of the population are expected to live in cities and where natural resources are limited. In this context, Lafarge needs to continue its efforts towards housing, education and health to address increasing inequalities. Such efforts are coherent with Lafarge’s ambition to Building Better Cities.

In 2012 Lafarge’s Sustainability Report was A+ level checked by Global Reporting Initiative, as in previous years. Moreover, Lafarge continued its efforts in R&D, especially in the field of sustainable construction and cities, while decreasing the burden of its debt and implementing its cost reduction program. For example, Lafarge successfully launched Hydromedia™, an innovative concrete contributing to our climate change adaptation efforts. The Group also created a microfinance program for affordable housing and inaugurated a new Construction Development Lab in Mumbai, India.

**However, we do not take our successes for granted.** Sustainability Ambitions 2020 give a new impulse to our sustainable development actions and enable our employees to contribute as part of their daily practice. Sustainability is a commitment to be renewed every

day. Lafarge continues to be the safety leader in its sector but we will not be satisfied with our results until we reach our target of zero incidents. All employees at Lafarge, starting with the Executive team and our Country CCEOs remain fully mobilized to achieve this target. Any incident is unacceptable. I personally review with the Country CEO and appropriate managers the root cause of every fatality and ensure remedial action plans are implemented. Safety remains our number one priority. 2012 saw achievements in many fields: CO<sub>2</sub> emissions have decreased by 24.7% since 1990 and a biodiversity strategy was published in partnership with WWF International, among many other actions highlighted in this report. In addition, we still need to improve in terms of diversity and have therefore set very ambitious objectives in this field as part of our Sustainability Ambitions 2020. Raising the bar to maximize value for all our stakeholders and ensure that we make a net positive contribution to society and nature is our ambition for 2013 and beyond. ◆

# YEAR AT A GLANCE

## CLIMATE CHANGE FURTHER CARBON FOOTPRINT REDUCTION

# 24.7%

reduction of CO<sub>2</sub> emissions per ton of cement compared to 1990

Lafarge continued to reduce its CO<sub>2</sub> emissions in 2012. This result was obtained thanks to intensified performance efforts to improve kiln energy efficiency, increase the use of alternative fuels and develop new blended products for a range of applications using carbon-neutral additives. Lafarge also successfully completed its second industrial trial for Aether®, its new generation clinker formulated for lower carbon cements. The trial confirmed the feasibility of industrial-scale production of Aether® cements, which offer similar characteristics to Ordinary Portland Cement, while allowing a 25-30% reduction in CO<sub>2</sub> emissions. [See page 37](#)

## EMPLOYEES NEW COUNTRY-BASED ORGANIZATION



A new country-based organization was put into place to allow stronger focus on local market needs, accelerate development through organic growth and innovation and reinforce efficiency. The reorganization, along with a number of divestments, led to a 5.3% net reduction in the number of employees Group-wide. Measures were taken to accommodate those employees impacted by the reorganization, to assist them in finding new employment either within or outside the Group. [See page 14](#)

## SUSTAINABLE CONSTRUCTION DEVELOPING NEW SOLUTIONS TO MEET THE URBAN CHALLENGE



Lafarge created a new Innovation function in 2012 to boost the development and roll-out of more sustainable, cost-effective construction solutions for better towns and cities worldwide. Bringing together R&D, marketing by specific construction segment and distribution, this new function will facilitate the development of tailor-made local solutions.

With several billion people today lacking access to decent housing, Lafarge also launched its microfinance program for affordable housing to help low income populations in emerging markets finance the construction, extension or renovation of their homes. [See page 22](#)

## Health & Safety

2012 saw the continuation of our Health & Safety journey and the successful early implementation of new strategic orientations in Health and Safety management, with a 24% reduction in fatalities compared to 2011. However, the Health and Safety of employees and contractors remains a preoccupation and the Group's number one priority. [See page 12](#)

## CIRCULAR ECONOMY

### ENERGY CONSUMPTION & RESOURCE MANAGEMENT, NEW INCREASE IN FOSSIL FUEL SUBSTITUTION.

Lafarge continued to increase its use of alternative fuels, reaching an average of 14%. It focused increasingly on the use of biomass and municipal waste in its kilns, for example launching a project in Hungary in partnership with WWF to develop the use of various biomass sources as alternative fuels for its local plant. [See page 30](#)

### BIODIVERSITY, ADDITIONAL TOOLS TO RAISE AWARENESS AND PROFESSIONALIZE PRACTICES.

Lafarge implemented Biodiversity Management Plans in 99.2% of those quarries identified in a 2011 screening program as being in or within 0.5 km of a biodiversity sensitive area. The Group also publicly released a Biodiversity Guidance manual developed with WWF International and its International Biodiversity Panel. [See page 32](#)

### WATER, TOWARDS WATER STEWARDSHIP IN 2012.

Lafarge used the WWF Water Risk Filter to identify its operations located in high-risk water basins. Fifteen cement plants were identified and, as part of its Sustainability Ambitions 2020, Lafarge will work with local stakeholders in these high priority basins to improve water management. [See page 34](#)

# SUSTAINABILITY AMBITIONS 2020: MAKING A NET POSITIVE CONTRIBUTION TO SOCIETY

Today the world consumes one and a half times the resources the Earth can support. Sustainability Ambitions 2020 is Lafarge's plan to contribute to correcting this imbalance: it is our roadmap for making a net positive contribution to society and nature.

### A holistic approach

The program's objectives incorporate the impact of our activities through our value chain and take into account all our stakeholders: clients, shareholders, employees, governments, suppliers, local communities and future generations. Some of our objectives, such as ambitious CO<sub>2</sub> emissions reduction targets, build on successful efforts outlined in our previous action plan, Sustainability Ambitions 2012. Others are entirely new, such as our commitment to one million hours per year of employee volunteering by 2020. The issues tackled in Sustainability Ambitions 2020 are interlinked. For instance, our commitment to have 20% of concrete made using recycled materials will also contribute to other objectives such as expanding the market for recycled aggregates and contributing to local job creation as entrepreneurs cre-

ate businesses to collect, transport, and process materials.

We applied analytical tools to measure our contribution to society's development, mapping our Ambitions relative to their environmental and social impact as well as their business impact. We are confident that this program will help us gain a competitive advantage through talent attraction and retention, industrial performance, new product and solution development, market opportunities, improved risk management and a secured license to operate.

### Measuring our net positive contribution

Value in our business is created locally. To maximize our net positive contribution worldwide, our country units need the leeway and support to localize the implementation of the Sustainability Ambitions 2020 objectives. Our efforts in 2013 will be geared towards the effective measure of our net positive contribution, implementation support to country unit teams and the piloting of new projects, such as the employee-volunteering program. We will start reporting on Sustainability Ambitions 2020 in 2014.

### Working with stakeholders

Sustainability Ambitions 2020 is the result of close consultation with all our stakeholders, who have helped us evolve and define strategies that are good both for Lafarge and the greater community. Our Stakeholder Panel continues to help us understand what our stakeholders expect from us, but also the value they attach to our growth: more jobs, long-term socio-economic development, more affordable and reliable products and greater transparency. In summary, that Lafarge contributes actively to the development of the communities in which it operates. ◆

- [Building communities - P.11](#)
- [Building sustainably - P.21](#)
- [Building the Circular Economy - P.29](#)
- [Governance - P.41](#)

# Understanding our business

The global cement market is increasing by approximately 5% per year on average, with demographic growth and urbanization driving consumption, especially in emerging economies. By taking an integrated approach to sustainability issues throughout its value chain, Lafarge intends to minimize its footprint upstream and provide markets with innovative solutions downstream, to contribute to more sustainable, livable towns and cities. Our products are sourced, manufactured and used locally. Lafarge therefore considers itself part of the communities where it operates. Investing in its operations for the long term, its ambition is to make a net positive contribution to society and nature.

## 1. BIODIVERSITY

Our operations can impact (positively or negatively) on local ecosystems. Lafarge has been working in partnership with WWF International since 2000 to protect and promote biodiversity at its sites. The Group aims to implement Biodiversity Management Plans in all its quarries and cement plants by 2020.

## 2. CO<sub>2</sub>

The cement manufacturing process generates CO<sub>2</sub> through the 'decarbonation' of limestone at temperatures of approximately 1,450°C and the use of fossil fuels to heat the raw materials. Lafarge has made significant progress in reducing its CO<sub>2</sub> emissions, thanks to improvements in kiln energy efficiency, the increasing use of non-fossil fuels and the development of new lower-carbon cement solutions.

**+69%**  
in cement production since 1990, yet only +27% in net CO<sub>2</sub> emissions

**14%**  
average alternative fuel rate

## 3. WATER

Water is an essential resource for all life species and human activities. In 2012 Lafarge used the WWF Water Risk Filter to identify its operations located in high-risk basins, where it will work with other stakeholders to promote sustainable water management.

**20%**  
of Group sales in water-stressed regions

**70%**  
of sites equipped with a water recycling system



## 5. SUSTAINABLE CONSTRUCTION

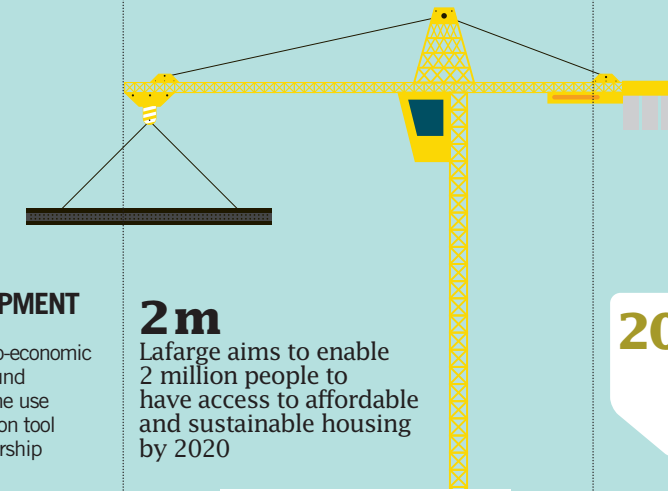
By 2020 two thirds of the world's inhabitants will be living in towns and cities. Lafarge is innovating to develop more eco-efficient and cost-effective construction solutions for more sustainable, livable urban environments. As part of its Sustainability Ambitions 2020, it aims to contribute to 500 energy efficient construction projects.

## 6. AFFORDABLE HOUSING

Four billion people lack access to decent housing. Lafarge has launched a micro-finance program for affordable housing, to help low income populations in emerging markets finance the construction, extension or renovation of their homes.

## 7. RECYCLING

It is Lafarge's responsibility to be efficient in the use of raw materials. One way of doing this is through recycling. As part of its Sustainability Ambitions 2020, the Group's objective by 2020 is for 20% of its concrete to contain reused or recycled materials and to produce 15 million tons per year of aggregates manufactured from recycled/reused materials.



## 4. SOCIO-ECONOMIC DEVELOPMENT

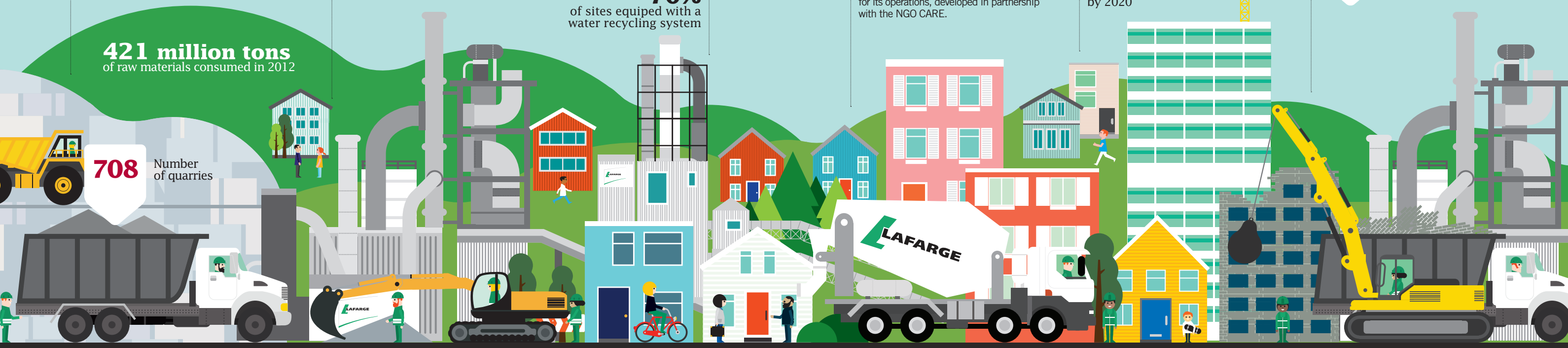
Lafarge plays an active role in the socio-economic development of the communities around its sites. In 2012 the Group piloted the use of a socio-economic footprint evaluation tool for its operations, developed in partnership with the NGO CARE.

**2m**  
Lafarge aims to enable 2 million people to have access to affordable and sustainable housing by 2020

**20%** of its concrete to contain reused or recycled materials: this is Lafarge objective for 2020

**421 million tons**  
of raw materials consumed in 2012

**708** Number of quarries



# SUSTAINABILITY AMBITIONS 2012: HAVE WE DELIVERED?

Our Sustainability Ambitions 2012 program came to term at the end of the year. Almost all the objectives were achieved and contributed to the integration of sustainability into our business processes and strategic orientations. We have built on this program to develop our Sustainability Ambitions 2020, an even more ambitious plan to make a net positive contribution to society.

● FULLY ACHIEVED ● PARTIALLY ACHIEVED ● IN PROGRESS

MANAGEMENT				
Target	Deadline	Performance 2012	Performance 2011	Why is Lafarge pursuing this ambition? What will change? How are we progressing against this ambition?
● On safety, reduce the employee Lost Time Injury Frequency Rate (LTIFR) for Lafarge employees to 0.94 or below in 2010.	2010	0.75	0.63	Lafarge continued to make progress in 2012 in reducing the lost-time injury frequency rate (LTIFR) for its on-site contractors, with a 19% reduction compared to 2011. However, the LTIFR for employees was disappointing with a 19% increase compared to 2011.
● Continue to check the implementation of our Competition compliance program in our business units. 100% of all significant business units tested for compliance by end of 2010.	2010	100%	96%	Our Competition Compliance Program has been implemented in 100% of our business units. To ensure its effectiveness, the Group Legal Department conducts regular unannounced compliance checks and verifications.
Manage and improve our local stakeholder relationship management by:				Training workshops focus on the key personnel for stakeholder engagement: Cement Plant Managers and Aggregates & Concrete (A&C) Area/Regional Managers. With the reorganization that took place at both Group and country level in 2012, some training sessions were postponed to allow country-level organizations to be put in place; going forward, we will continue to reinforce this program. The other objectives had been completed previously.
● Training 100% of units in the local stakeholder relationship methodology.	2012	Cement: 64% A&C: 41%	Cement: 76% A&C: 80%	
● Full reporting of the three new indicators. Three additional targets (undertaking self-assessment on stakeholder relationships, launching a dedicated intranet site and providing an internal audit screening tool) were completed in 2009.	2009	done	done	
● On customers, by 2012, the Group will achieve €3 billion annual sales in new products.	2012	€2.2 billion	€2.3 billion	New concrete product sales increased, but overall sales of new products decreased slightly in 2012.
● Reach 20% of women in senior and executive management (Lafarge grades 18+) by 2012.	2012	16.4%	15.8%	In 2012 we continued the improvement seen over the last few years, and by year-end 16.4% of positions in senior management were held by women. Although we did not reach our target of 20% by end 2012, we are making progress and our Sustainability Ambitions 2020 target is to have 35% of senior management positions held by women in 2020.

<sup>(1)</sup> Sensitive areas are defined as IUCN Category I to VI sites, Ramsar, IBA, Natura 2000.  
<sup>(2)</sup> Net CO<sub>2</sub> emissions are the gross emissions less the emissions that come from burning waste.

SOCIAL				
Target	Deadline	Performance 2012	Performance 2011	Why is Lafarge pursuing this ambition? What will change? How are we progressing against this ambition?
● By end 2010, establish a comprehensive Group-wide occupational health program including, at a minimum, regular medical examinations.	2010	Completed	Plan rolled-out	A protocol for Health Assessment (HASOP) has been developed and broadened in all countries to provide a standardized approach to risk-based medicals. This protocol will ensure that the relevant occupational and personal health risks are identified and managed. Assessments are now being implemented at country level, and should be finished by 2014.
● For HIV/AIDS and malaria, by end 2010, Lafarge will have extended to major emerging countries where it operates, its best practice implemented in Africa.	2010	Completed	Completed	Based on its experience in Africa, the Group has developed a manual and user guide to assess and manage relevant public health issues. The Group is working towards the development of an integrated health approach to improve the well-being of its communities. In 2012 guidelines were developed to facilitate the implementation of the health strategy.

ENVIRONMENT				
Target	Deadline	Performance 2012	Performance 2011	Why is Lafarge pursuing this ambition? What will change? How are we progressing against this ambition?
● Have 100% of our sites audited environmentally within the last four years.	Permanent	89.3%	88.4%	Although we did not complete our objective, we have made progress over the years and will continue to work towards the target of having 100% of our sites audited environmentally within the last four years.
● By end 2010 reach a rate of 85% of quarries with a rehabilitation plan complying with Lafarge standards.	2010	84.6%	86.4%	Although we reached this objective in 2011 changes in assets slightly undermined our performance in 2012.
● By end of 2010, all our quarries will have been screened according to criteria validated by WWF International.	2010	100%	97%	Lafarge continued to build on the 2011 mapping of all its quarries and screened them to confirm locations that are inside internationally protected areas or within 500m of them using IBAT (Integrated Biodiversity Assessment Tool).
● Sites in sensitive areas <sup>(1)</sup> will have developed a site biodiversity program by 2012.	2012	99.2%	49.2%	In order to achieve this ambition, Lafarge and WWF employed ecology graduates to help develop site biodiversity programs, in close collaboration with the environment and operational teams in several countries.
● By end 2010, cut our worldwide net <sup>(2)</sup> CO <sub>2</sub> emissions per ton of cementitious by 20% compared to 1990. During 2011, a new objective of reduction of 33% vs 1990 by 2020 was set.	2010	(24.7%)	(23%)	Our new CO <sub>2</sub> emissions reduction objective was made public in June 2011 and is part of the Sustainability Ambitions 2020 plan. By end of 2012 we made significant progress, in line with our new objective.
● Cut our dust emissions in cement plants by 30% over the period 2005-2012.	2012	(45%)	(39%)	Although cement plants generate dust, we have continued to make significant progress in lowering emissions through revamping or replacing less efficient air pollution control devices.
● Cut our NOx emissions in our cement plant by 20% over the period 2005-2012.	2012	(34.5%)	(33.5%)	NOx is emitted from virtually every combustion, including cement manufacture. Since achieving our targeted reduction in 2009 we have continued to implement NOx abatement technologies such as SNCR (Selective non catalytic reduction) and many of our newer kilns are designed with low-NOx precalciners.
● Cut our SO <sub>2</sub> emissions in our cement plant by 20% over the period 2005-2012.	2012	(61%)	(51%)	SO <sub>2</sub> can be another unwanted product of some cement kilns. We have reduced emissions by approximately 60% since 2005.
● By end 2010 have a baseline for persistent pollutants in our cement plants for 100% of kilns and reinforce our Best Manufacturing Practices to limit emissions.	2010	98%	100%	Persistent pollutants are emitted by cement kilns. Lafarge is working with WWF to achieve significant emission reduction. Measurements have been completed for all kilns but the analytical results for recently acquired operations in one country are pending. Plant-specific action plans have been developed to reduce emissions from a group of top-emitting plants. Progress with reducing emissions will be monitored and reported.

## 01

BUILDING  
COMMUNITIES

Whether a cement plant or a quarry, Lafarge invests in its operations for the long term. It therefore has a special responsibility towards the communities surrounding these operations. This starts of course with its employees: their health and safety, which is the number one priority for the Group, and their skill development. But beyond this, Lafarge believes its success will be greater if its corporate policies and practices enhance not only its own competitiveness but also the social and economic conditions in the communities surrounding its sites. This involves developing solutions to meet specific local challenges, whether related to health, housing, education or job creation. Each local Lafarge organization is responsible for developing and implementing projects that benefit both Lafarge and its communities, driving local socio-economic development. This is a key aspect of the net positive contribution that the Group intends to make to its local communities.



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**Women in a village near Lafarge's Arasmeta plant, India.**  
The plant has installed a pipeline in this arid region to provide the neighboring communities with drinking water.

# HEALTH AND SAFETY



**Lafarge's ambition is to reach zero fatalities and virtually eliminate lost-time incidents (LTI) for employees and contractors across its operations around the world.**

**25**

**fatal incidents in 2012.** Ten fatalities occurred on our operating sites while 15 occurred during off-site transport activities. This compares to 34 fatal incidents in 2011, 16 on-site and 18 off-site

**H**ealth and Safety ambitions remains an overarching priority for the Group. As Lafarge wants to be a leader in Health and Safety for not only our sector but for industry in general, we will continue our efforts to implement our risk mitigation strategy, behavior-based safety, and strengthen our approach to occupational health issues. The year 2012 saw major reductions in fatalities both on-site and in transport operations and successful early implementation of new strategic orientations.

◆ **RESULTS & INCIDENT REDUCTION**

Lafarge continued to make progress in 2012 in its lost-time injury frequency rate (LTIFR) for on-site contractors, with a 19% reduction compared to 2011. However, the LTIFR for employees was disappointing with a 19% increase compared to 2011, affected by the situation in 7 countries. When safety performance began to slip in these countries immediate corrective action was taken. In most cases we found the root-cause to be safety leadership and employee empowerment. The situation improved by year-end and good performance continues in the first part of 2013.

Twenty-five fatalities occurred in 2012 compared to 34 in 2011. Although this repre-

sents a 26% reduction between 2011 and 2012, regrettably Lafarge still has too many fatalities and cannot be satisfied until all of them have been eliminated. Following a 50% reduction in transport related fatalities in 2011, no significant reduction was noted in 2012. 80% of transport fatalities occurred in Africa and the Middle East. Countries in this zone are diligently and relentlessly working at implementing the Group Transport Standards in a challenging geographical context. The focus is on the five transport management pillars: Transport Contractors, Drivers, Vehicles, Journey and Load.

◆ **STRENGTHENING LOCAL HEALTH AND SAFETY MANAGEMENT BY DEVELOPING A RISK-BASED APPROACH**

In line with its Health and Safety Management System, the Group moved to a Risk Based Approach starting in early 2012. The countries assessed their Health and Safety related risks, prioritized them and then addressed them in compliance with the Group Standards, Advisories, Good Practices and Guidelines. This evolution provided countries with more accountability and stresses individual responsibility in managing Health and Safety according to local needs, issues and priorities. To assist the countries, an Operational Health



**FRANCK ROSE,**  
Independent

**Whilst recognizing Lafarge's leadership within its sector** the more important factor is whether Lafarge can sustain year on year continuous improvement in reduction of fatalities and work related injuries and illnesses. The reduction in fatalities in 2012 is welcome but there is still a long way to go. The priority of this journey is exemplified by the Chairman and CEO personally reviewing every fatality investigation.

The deterioration in the employee LTIFR is of concern. For the last decade Lafarge has achieved continuous improvement by rigorous deployment of standards and risk management processes with demonstrable management leadership. To lose momentum in 2012 is disappointing but I commend Lafarge for rapidly identifying and addressing the root cause. Ensuring consistency of

leadership is crucial and the emphasis on the Visible Felt Leadership program is entirely appropriate. I am pleased with and support the development of the Occupational Health program and the progress achieved.



and Safety Matrix was launched in early October to provide management with a clear framework in identifying Health and Safety issues and gaps, defining the path to corrective actions and implementing proven good practices developed by the countries. The Matrix is based on the Group's three key pillars in managing health and safety: Rules & Standards, Leadership and Empowerment. In addition, Lafarge launched two guidelines on the prevention of hand and eye injuries, representing about 30% and 20% respectively of all incidents in the Group (2010-2012). For the fifth year in a row, Health and Safety Month in June was an opportunity to engage everyone in every country and in every function, in raising awareness and improving performance on risk mitigation behaviors, not forgetting engagement with customers, contractors and local stakeholders. Success is also conveyed by powerful new Health & Safety best practices emerging more and more from the countries. For example, the Management Accountability & Engagement process in Honduras and the "See Something, Do Something" program in Western Canada are the types of initiatives developed locally. Lastly, our Visible Felt Leadership program, an initiative where managers and

supervisors reinforce good safety practices and behavior, strongly continues.

◆ **DEVELOPING AN INTEGRATED HEALTH APPROACH**

In 2011 Lafarge developed a Health strategy supporting its goal of providing a healthy work environment and preventing occupational illness. To complement this strategy, guidelines were developed in 2012 to further explain and simplify implementation of the Health strategy. A fourth pillar – Environmental Health (also referred to as public health), has been added to the existing three Health pillars: Occupational Health Risk Prevention, Workplace Reintegration and Health Promotion. Five Group Health Standards were launched in 2012. Additional Health Standards are expected to be launched in 2013, including one devoted to the handling of alternative fuels. Through the requirements of the Risk Management Standard and the risk-based approach, the implementation of these specific Health Standards will be phased over the next few years as determined by the prioritization process in each country. To assist countries in managing Occupational Health, a guideline entitled 'Baseline Industrial Hygiene measurements and service providers' was launched in October. ◆

# EMPLOYEE DIVERSITY AND SKILLS



**Lafarge is convinced that the personal development of its employees and an efficient organization are key levers to achieve competitive advantage, through talent attraction and retention, organizational performance and innovation-driven teams.**

## 39

### Hours of Training

In 2012 Lafarge continued to invest significantly in the development of its employees, through regular training programs, e-learning tools and on-the-job training. Managers benefited from an average of 39 hours of formal training during the year. Non-managers benefited from an average of 33 hours.

Lafarge's commitment to people is based on robust and innovative programs related, for instance, to diversity, skill development and career management. These programs support the Group's strategy, performance and innovation.

### ◆ STRONG INVESTMENT IN PEOPLE DEVELOPMENT

In 2012 the Group continued to invest significantly in training for its employees: the average number of training hours for managers decreased slightly but remained high and increased by 14% for non-managers. Moreover, 88% of our management staff and 63% of non-managers benefited from an annual performance review, destined to accompany them in defining an appropriate personal development plan. In its training programs, Lafarge is especially committed to promoting diversity and inclusion in general. The percentage of women in senior management positions increased from 15.8% in 2011 to 16.4% in 2012. The Group aims to increase this proportion to 35% as part of its Sustainability Ambitions 2020.

To attract and retain talents, Lafarge promotes well-being at work and endeavors to become an employer of choice in its coun-

tries of operations. In 2012 satisfaction or well-being at work surveys were carried out in countries such as Vietnam, Cameroon and Zimbabwe, following similar surveys in a number of European countries over the previous two years. Brazil ranked among the 100 Best Places to Work. Only 4.6% of employees chose to leave the Group in 2012, indicating that Lafarge is meeting its objective to fulfill employee expectations.

### ◆ GROUP REORGANIZATIONS & SOCIAL MEASURES

Our employment policy aims to develop our people and improve our efficiency. Job reduction is the option of last resort. The principles of our employment policy include:

- Stakeholder dialogue: involving employees, employee and union representatives, local and national public authorities.
- Solidarity and support to facilitate internal mobility, adapted measures for departing employees, internal job placement and outplacement.
- Support to entrepreneurship outside the Group. In France, for instance, Lafarge contributes to the creation of hundreds of jobs every year. Many other countries implement similar actions, (training for bricklayers in India, support for private

**At Lafarge, we are convinced that diversity speeds up change and is a source of performance, creativity and innovation. In terms of gender diversity, we have set an ambitious objective to have 35% of senior management positions held by women by 2020.**

enterprises in Central Europe, etc.) Our objective is to have 75% of Lafarge operations implementing a local job creation plan by 2020.

At the end of 2012, the Group had 64,337 employees, representing a reduction of 3,587 employees (or 5.3%) compared to December 2011. The Group increased its workforce in Latin America, as well as in other emerging economies such as Nigeria and Russia. However, this increase was offset by the reorganization of our activities to cope with local market situations, especially in China, Qatar, the United States and Europe. Divestments in China and North America and Corporate reorganization also contributed to the reduction in headcount.

### ◆ WORKFORCE ORGANIZATION

Our compensation and benefits system is predominantly handled directly by countries, except for the top management. However, some core principles apply everywhere. These include respect for legal and contractual minimum wages and, in line with external practices, a pay package consisting of a fixed portion and a flexible portion dependent on the completion of objectives (which include Health and



**ADRIAN MARINESCU,**  
European Works Council

**For Lafarge employee diversity is a necessity,** considering its activities cover a large geographical area with different cultures, habits, attitudes and behaviors.

Diversity is a source of performance, creativity and innovation, which the Group can exploit to achieve a competitive advantage. Lafarge uses diversity to help identify opportunities for each employee to increase their own potential, as well as the organization's

performance. Lafarge invests in maximizing employee specific skills. It offers a positive environment, where every employee can feel valued so that their skills can be used to a maximum in order to achieve Group's goals.

For diversity to be well managed, Lafarge takes surveys about: staff expectations, incentives and ways to stimulate the workers, the level of informing and counseling, and the quality of the workplace. For 2020 increasing the number of women in senior management up to 35% is an achievable goal.

Safety). Benefits include medical insurance and a retirement plan. In addition, enforcing our commitment to work/life balance, 43% of our country headquarters already have a flexible hour system and most entities offer additional holidays for family events.

In 2012 Lafarge worked with 31,577 outsourced contractors (5.5% less than 2011), accounting for some 33% of the workforce (same as in 2011). Lafarge extended its Health & Safety practices to contractors, resulting in a reduction in occupational accidents. Furthermore, several pilot actions were conducted in emerging countries, aimed at improving working conditions for contractor employees, pro-

fessionalizing the business relationships with contracting parties and increasing Lafarge efficiency.

### ◆ SOCIAL DIALOGUE

Lafarge values the involvement of employee representatives, especially in a rapidly changing business environment. Therefore, high quality social dialogue is sought at the country, regional and international level. Because of the Group's reorganization in 2012, information and consultation processes were conducted regularly at every level in many countries and at the Group's headquarters. The European Works Council, including its restricted committee and health commission, met nine times on these topics. ◆



FIGURES

EMPLOYEES DIVERSITY AND SKILLS

EMPLOYEES BY GEOGRAPHICAL ZONE								
	2010		2011			2012		
	Headcount	%	Headcount	%	11 vs 10	Headcount	%	12 vs 11
Western Europe	15,626	20.7%	12,202	18.0%	(21.9%)	11,448	17.8%	(6.2%)
North America	10,748	14.2%	9,604	14.2%	(10.6%)	8,821	13.7%	(8.2%)
Middle East and Africa	18,843	24.9%	20,376	30.0%	8.1%	19,644	30.5%	(3.6%)
Central and Eastern Europe	7,652	10.1%	7,464	11.0%	(2.4%)	7,041	10.9%	(5.7%)
Latin America	3,355	4.4%	2,535	3.7%	(24.5%)	2,609	4.1%	2.9%
Asia	19,454	25.7%	15,742	23.1%	(19.1%)	14,774	23.0%	(6.1%)
<b>Total</b>	<b>75,677</b>	<b>100%</b>	<b>67,924</b>	<b>100%</b>	<b>(10.2%)</b>	<b>64,337</b>	<b>100%</b>	<b>(5.3%)</b>

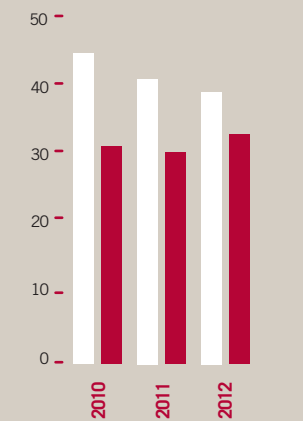
EMPLOYEES BY BUSINESS LINE								
	2010		2011			2012		
	Headcount	%	Headcount	%	11 vs 10	Headcount	%	12 vs 11
Cement	44,253	58.5%	43,392	63.9%	(1.9%)	41,249	64.1%	(4.9%)
Aggregates & Concrete	23,438	31.0%	23,242	34.2%	(0.8%)	21,780	33.9%	(6.3%)
Others	7,986 <sup>(2)</sup>	10.5%	1,289 <sup>(1)</sup>	1.9%	(83.9%)	1,308	2.0%	1.4%
<b>Total</b>	<b>75,677</b>	<b>100%</b>	<b>67,923</b>	<b>100%</b>	<b>(10.2%)</b>	<b>64,337</b>	<b>100%</b>	<b>(5.3%)</b>

<sup>(1)</sup> Including headcount of our residual Gypsum activities and Gypsum activities held for sale. <sup>(2)</sup> Including headcount of our Gypsum activities the majority of which were sold in 2011.

OUTSOURCING BY FIELD OF ACTIVITY			
(%)	2010	2011	2012
Production	38%	36%	36%
Maintenance and Cleaning	26%	27%	27%
Transport	19%	20%	18%
Security and Guarding	10%	11%	9%
Others (IT, accounting, etc.)	7%	6%	10%

INCREASING WOMEN IN SENIOR MANAGEMENT ACTIVITY			
(%)	2010	2011	2012
Board of Directors	17.0%	17.6%	18.8%
Senior executives and managers (Lafarge grades 18+)	13.5%	15.8%	16.4%
Senior executives (Lafarge grades 23+)	9.9%	10.8%	11.2%
Senior managers (Lafarge grades 18-22)	13.9%	16.2%	16.7%
Managers (all categories)	18.7%	18.8%	19.7%
Non-managers	16.0%	15.0%	14.9%

DIVERSITY PROGRAMS IN COUNTRIES			
	2010	2011	2012
% of entities with a recruitment and/or career development plan aimed at a specific population	45%	31%	45%
Of which, percentage of entities with a specific program for women	72%	75%	76%
Of which, percentage of entities with a specific program for disabled workers	29%	25%	33%



AVERAGE NUMBER OF HOURS OF TRAINING

Managers Non-managers



DIVERSITY PROGRAMS IN COUNTRIES

% of entities with a recruitment and/or career development plan aimed at a specific population. Of which, % of entities with a specific program for women.



AGE DIVERSITY

% of employees aged under 30 % of employees from 30 to 50 years of age. % of employees over 50 years of age.

AVERAGE NUMBER OF HOURS OF TRAINING			
	2010	2011	2012
Managers	45	41	39
Non-Managers	31	29	33

AGE DIVERSITY			
	2010	2011	2012
Percentage of employees aged under 30	16.7%	16.1%	15.0%
Percentage of employees from 30 to 50 years	63.3%	63.0%	63.6%
Percentage of employees over 50 years	20.0%	20.9%	21.4%

EMPLOYEES COVERED BY COLLECTIVE AGREEMENTS			
(%)	2010	2011	2012
Health and Safety	51%	59%	62%
Restructuring	47%	57%	58%
Compensation and benefits	52%	58%	62%
Others	25%	35%	28%
Staff employees represented by staff representatives or trade union organizations	67%	70%	70%
Countries with collective agreements	71%	74%	78%

# COMMUNITY DEVELOPMENT AND OUTREACH



**Consistent with Lafarge's long tradition of community development, one of the three main pillars of Lafarge's Sustainability Ambitions 2020 focuses on "Building Communities". Building on our experience, it sets new ambitious targets for all operations worldwide.**

**2,500**

meetings with stakeholders were recorded in 2012. Dialogue and socio-economic development are at the heart of Lafarge's approach towards local communities and ensure the success of its actions.

Lafarge believes its success will be greater if its practices enhance the competitiveness of the company while simultaneously advancing social and economic conditions in the communities in which the Group operates. We have three core priorities: enhancing stakeholder relations, being a driver of local socio-economic development and supporting local communities in areas of Lafarge expertise. Through volunteer work within these priorities, we can leverage our contribution to urban and community development in a professional and optimized manner.

◆ **PARTNERSHIP WITH COMMUNITIES**

Over the last 10 years Lafarge has developed and implemented a methodology which is used by its operations to identify and engage with stakeholders and as a framework to evaluate actions with communities. In 2012 64% of cement industrial site managers and 41% of A&C area / product line managers had participated in stakeholder training – a decrease on 2011 results. This reflects the Group reorganization in 2012 that led to the postponement of certain stakeholder actions and training until the new organization was in place. Lafarge focuses on two main outputs: (1) the number of sites meeting regularly with their communities and (2) the number of sites

developing stakeholder engagement action plans. These indicators track both planning and dialogue for each site. Improvements were shown during 2012 within A&C, with 40% of sites meeting with their stakeholders regularly and 29% developing action plans. Figures for Cement are 77% and 64% respectively, a slight decrease from 2011. During 2012 45% of sites reported difficult relations with local stakeholders, consistent with levels recorded in 2011. Of those sites reporting issues, 68% classified them as minor incidents which could be quickly resolved; a further 15% reported conflicts that impacted on the sites' business. Case studies drawn from examples of difficult relations in countries such as Slovenia, India, Indonesia and the United States are available on the Lafarge website. These examples reinforce our belief that it is critical to be an active member of the community, and that this belonging and the local nature of our business create expectations that we must address.

◆ **BEING A DRIVER OF LOCAL SOCIO-ECONOMIC DEVELOPMENT**

Lafarge intends to be a driver of socio-economic development, especially in the fields of job creation, education, health, urban development and environmental



**PHILIPPE LÉVÊQUE,**  
CARE

**In 2012 Lafarge made the strategic shift to conduct its operations by country rather than by business line.** Maintaining good relations with the countries and the populations that host Lafarge's activities will have to be even more at the center of the group's attention. Through this report, Lafarge demonstrates its commitment to creating favorable conditions for a local environment that is conducive to all. Indeed, the group will have to further advance its local anchoring with the communities around its sites. Community development programs must be completely integrated, at country level and in each production unit, and develop through tangible, measurable, significant and positively "impactful" actions: actions co-developed with local partners representing local communities; fair and balanced actions that are inscribed in the long-term, across the entire value chain. For this, the company must mobilize significant resources over the coming years. As an engaged member of the stakeholder panel, I will pay particular attention to these issues.

conservation. Each year our sites implement programs to address community needs in cooperation with local NGOs. In 2012 over 1,000 community programs were reported by Lafarge sites. Examples include setting up an educational campaign for road safety in Egypt, supporting community educational skills in India, sharing in-house biodiversity expertise in the United Kingdom, support to entrepreneurship in Romania and Morocco, alongside long-running initiatives, such as public health programs in UAE, Ecuador and Zambia (where mobile medical units tour neighboring communities). Examples from all around the world are available on [www.lafarge.com](http://www.lafarge.com).

◆ **VOLUNTEER WORKING TO BOOST LEVEL OF EMPLOYEE ENGAGEMENT OUTSIDE OUR OPERATIONS**

Volunteer working was identified as an opportunity for employees to contribute to urban development and communities. In 2012 over 15,000 volunteering hours were recorded, with employees involved spending, on average, just over a day volunteering on community projects. Examples include a river clean-up in the USA and a project to improve the quality

of life of disadvantaged citizens in Serbia. For 2013 the challenge will be to plan and implement volunteering programs in countries with various socio-economic and cultural contexts. Our operations worldwide will be able to capitalize on ongoing initiatives such as the one implemented by Lafarge Cameroon since 2009; Lafarge volunteers are given the

opportunity to work with a local entrepreneur to build wells and train villagers on the maintenance of water cleanliness to avoid the spread of diseases such as cholera. Volunteers have also joined WWF's efforts for reforestation. At the Figuil plant in North Cameroon, over 900 working hours have been dedicated to volunteering and 4,500 trees have been planted. ◆

**CASE STUDY**

**MEASURING SOCIO-ECONOMIC FOOTPRINT**

In 2011 Lafarge and CARE France developed a tool to measure the socio-economic footprint of operational sites, through collection and analysis of qualitative and quantitative information. In 2012 the partnership focused on piloting the use of the tool. As a result, one-week long visits were made to Mbeya plant (Tanzania) and Otavalo plant (Ecuador), where workshops, data collection and

interviews with stakeholders were undertaken by teams consisting of Lafarge personnel and representatives from CARE. These trips aimed at improving the functionality of the footprint tool and providing the site team with feedback and proposed engagement actions. This is particularly important in the context of the Sustainability Ambitions, which target the use of the tool by 75% of

countries by 2020. For Mbeya and Otavalo, the use of the tool will allow the site to communicate their role to stakeholders, in terms of direct, indirect and induced employment and the level of economic activity generated. Ideas have emerged, including developing partnerships with local companies to tackle local issues such as access to water.

## 02

# BUILDING SUSTAINABLY

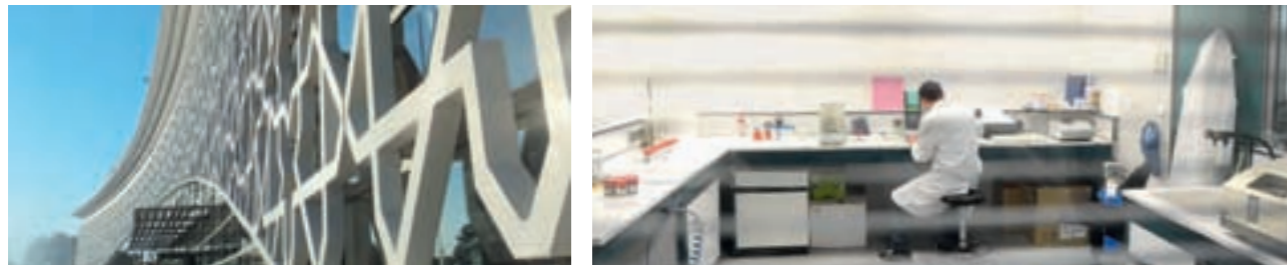
Urbanization is one of the 21<sup>st</sup> century's biggest challenges. By 2030 two thirds of the world's inhabitants will be living in towns and cities. The built environment will therefore be at the center of many social and environmental challenges, ranging from poverty, health and quality of life to climate change, waste management and resource consumption. These issues are core to Lafarge's business, where we work towards designing more eco-efficient and cost-effective products and solutions and ensuring sustainable sourcing for our operations. The Group is also partnering with others in the construction chain to promote more sustainable construction practices and develop solutions for affordable housing. Several billion people today lack access to decent housing and an estimated one billion live in slums. To contribute to overcoming financial obstacles in its communities, Lafarge, in partnership with a number of government agencies and NGOs, has set up a microcredit program for affordable housing.



- 1 SUSTAINABLE CONSTRUCTION & CITIES P.22
- 2 ACCESS TO HOUSING P.24
- 3 SUSTAINABLE SUPPLY CHAIN P.27

**New housing project in Paris, France.** Lafarge's ultra-high performance concrete Ductal® has been used to create an innovative 'latticework' facade, designed to imitate the surrounding vegetation.

# SUSTAINABLE CONSTRUCTION AND CITIES



**Rapid development of towns and cities worldwide and the associated social, economic and environmental challenges are driving change throughout the construction sector. Lafarge is innovating to develop more sustainable, cost-effective construction solutions.**

**€116m**

Lafarge invested €116m in 2012 in product innovation and industrial performance improvement.

A building's environmental footprint must be optimized over its full lifecycle, starting from the design phase. This is why Lafarge has created an in-house team of construction specialists. This team provides advice on building design and engineering from a very early stage in a given project, as well as on the solutions that Lafarge can provide to optimize building performance throughout its usage phase and contribute to climate change adaptation.

### ◆ TAILORING INNOVATION TO MEET LOCAL MARKET NEEDS

Lafarge takes into account local needs and product safety requirements<sup>(1)</sup>, which can vary considerably due to specific environmental constraints, cultural habits, social needs and regulatory frameworks. In 2012 Lafarge Shui On in China launched a new, innovative construction system called Wallmaster to meet the challenge of Chongqing's rapid urban growth while complying with local regulatory requirements in terms of energy efficiency. Wallmaster is a new wall-fill and thermal solution using autoclaved aerated concrete blocks, coupled

with a lightweight concrete solution for floor insulation. It contributes to improving energy efficiency in buildings and as a ready-mix solution it is easier to install than existing local solutions, allowing a significant reduction in construction time and costs.

Our innovation is supported by our in-house research center. Situated near Lyons in France, it is the world's leading research center on building materials and brings together approximately 240 researchers of over a dozen different nationalities and with a wide range of scientific competencies.

Our research teams work in close collaboration with the Group's regional technical centers and Construction Development Laboratories (CDL) around the world. Following the opening of a first CDL in Chongqing (China) in September 2011, a new laboratory was inaugurated in Mumbai (India) in March 2012. In 2013 we plan to open new laboratories in both Algeria and Brazil. These laboratories allow Lafarge to respond to construction trends in these key markets, adapting our solutions in order to address specific local needs.



**LIVIA TIRONE**  
Architect

**Sustainability needs to permeate the built environment no matter where we are.** In the present positioning it is clear that Lafarge recognizes the urgency of addressing urbanization – and this already includes engaging with less formal sectors, that host close to 1 billion people in large and very large cities, where the pace of transformation rarely allows room for planning.

Lafarge is beginning to interact with these new markets by providing them with the products they have selected from the existing offer, but there are many more opportunities that need to be addressed to improve living conditions in these informal urban contexts. In isolation, governments, NGOs and communities don't seem to have the required power to reach these vast populations and to tackle their real needs.

Is there a local creative leadership role Lafarge can take on and support, collaborating with the abovementioned actors and involving the wider business sector, to embrace the opportunities of the still unraveled dimensions of the urbanization challenge and make a larger difference to these 1 billion people?



### ◆ DELIVERING ON OUR VALUE PROPOSITION

Lafarge reorganized its teams in 2012 to build a strong value proposition for local construction markets around the world. Sustainable construction is now under the responsibility of the Executive Vice President for Innovation, within a function that brings together the whole value chain, from research and development and marketing by specific segment to distribution. In 2012 the Group enriched its catalog of Efficient Building™ Systems, adding new systems as well as guidelines on commercialization and on how to adapt systems to specific local contexts. This catalog provides detailed information on the technical, environmental and aesthetic performance of concrete, based on a wide range of construction projects from around the world. It also includes calculation tools to model the contribution of Lafarge's different concrete solutions to the cost and overall mechanical and environmental performance of buildings.

### ◆ PARTNERING FOR SUCCESS

Lafarge is convinced that the challenge of sustainable construction requires a collective effort. We therefore work in part-

nership with all the other actors in the construction value chain: architects, engineering design offices, property developers as well as world-class research centers and universities. Lafarge continues to take the lead in a number of sectoral bodies promoting sustainable construction solutions and standards. We co-chair task forces within the Cement Sustainability Initiative (CSI), launched under the auspices of the World Business Council for Sustainable Development (WBCSD) and which brings together 24 major cement producers with operations in more than 100 countries. We are also active members of Cembureau, the European Cement Association and of many national associations.

In 2012 we took the decision to co-chair the second phase of the WBCSD's Energy Efficiency in Buildings initiative (EEB 2.0) with United Technologies. Bringing together major companies in the construction value chain, EEB 2.0 focuses on the implementation of the recommendations and roadmap that were produced as part of the initial EEB project for a transformation of the building sector to reach an 80% reduction in energy use by

2050. EEB 2.0 will involve both public and private initiatives to develop energy efficient building projects at a variety of locations around the world. ◆

<sup>(1)</sup> Lafarge maintains for its customers' use an up-to-date data base with precise information on product safety and on the related handling requirements.

**A building's environmental footprint must be optimized over its full lifecycle, starting from the design phase. Lafarge's in-house team of construction specialists provide advice on building design and engineering very early on in a project.**

# AFFORDABLE HOUSING



**The Lafarge Affordable Housing Project aims to implement a range of initiatives to provide decent, affordable housing and financing for home extensions, constructions and renovations, for 2 million people by 2020.**

## €10m

This is the amount targeted to be invested over the next 2 years as part of Lafarge's microfinance program for affordable housing. In 2012 Lafarge signed its first two partnerships under this program: with Global Communities (previously CHF) and the Agence Française de Développement.

The Lafarge Affordable Housing project is our business response to one of the greatest development challenges of our time, with 4 billion people at the “base of the pyramid”<sup>(1)</sup> and many people excluded from decent housing in developed countries. Lafarge is committed to contributing to urban development by delivering construction solutions for everyone. To do this, innovation in materials is only one part of the solution; we also need innovative finance, innovative ways of delivering solutions to the end-user and innovative partnerships. For Lafarge, this means creating new markets and contributing to urban planning efforts for growing cities.

### ◆ CREATING AN AFFORDABLE HOUSING BUSINESS OFFER

In order to achieve its ambition of enabling 2 million people to have access to affordable and sustainable housing by 2020, Lafarge has set up a dedicated team at Group level to provide expertise and coordinate projects in the key market segments identified as business opportunities: microcredit for individual home improvement or extension, slum rehabilitation, developers' housing programs and new social housing projects in developed countries. Projects are run

locally by a dedicated manager, with Group support, and are fully integrated into the marketing plans of the countries concerned.

### ◆ INNOVATIVE FINANCE FOR HOUSE EXTENSIONS

The Lafarge microfinance program for affordable housing brings together the complementary competencies of microfinance institutions, retail networks and Lafarge teams to develop a tailor-made local affordable housing offer. Lafarge salespeople provide promotional materials to local retailers to present the offer to potential customers and they also publicize this via village meetings and at local markets. Customers are provided a loan with a microfinance institution selected by Lafarge (approximately 2,000 euros on average). Lafarge technical experts then provide advice on design and construction, using a Lafarge catalog of house designs and innovative construction systems developed specifically for this type of construction project. Customers thereby receive assistance and support throughout their project. This program is still in its infancy. A microfinance pilot project was first run in Indonesia and then rolled out in Honduras, Nigeria, the Philippines and Zambia during

### PILOTING PROJECTS AROUND THE WORLD



### WORLD URBAN FORUM



LAFARGE SHOWCASED its Affordable Housing Program at UN Habitat's World Urban Forum on 'The Urban Future' in September 2012. As part of the program, Lafarge's Construction Development Lab in Mumbai (India) is developing solutions to increase the durability of traditional earthen houses (see photo).

2012, after adaptations for the specific characteristics of each market.

### ◆ DELIVERING CONCRETE IN INFORMAL SETTLEMENTS

Lafarge has developed an innovative solution to deliver concrete to slums in Mumbai, India and plans to expand its reach in 2013, thereby contributing to the urban development of one of the world's fastest growing economies. Concrete offers a number of advantages compared to the traditional solutions used in slums, in particular speed of implementation and resistance to tropical weather conditions. The main challenge is delivery, as customers in slums typically need small quantities and delivery cannot be carried out by truck due to roadways that are not adapted to large vehicles. Lafarge has set up a dedicated concrete plant to serve these settlements and has developed an innovative solution to deliver concrete in buckets or bags by rickshaw to slum dwellers. The Lafarge Construction Development Lab, which opened in Mumbai in 2012, has developed a new formulation for this concrete to ensure quality and homogeneity when it is delivered to the customer. ◆

<sup>(1)</sup> The BOP population segment is defined as those with annual incomes less than \$3,000 per capita per year (2002 purchasing power parity).



**SHEILA KHAMA**  
American center for economic transformation

**Lafarge's Affordable Housing Ambition is one of the most important sustainability issues** in the company's long term strategy because it addresses a universal and ever increasing human challenge. Global demographics consistently point to three major challenges of sustainable development. Firstly, an ever increasing rate of population growth. Secondly, a rise in the numbers and levels of poverty. Finally, a rapid rate of urbanization with more

than half of the world's 7 billion citizens in cities today. All three place tremendous pressure on an already declining natural resource base and are particularly severe in developing countries. Lafarge's partnership approach is particularly appropriate because urbanization to the world's poorest not only calls for affordable housing alternatives but for urban regional planning which incorporates sustainability. This is the role of national governments, but sadly many either lack resources or are indifferent to the negative impact of poor planning. Therefore, to the degree that Lafarge is able to raise awareness and create a sense of urgency in the countries in which the company operates, this will be a valuable first step and contribution to a global problem. However, in the long run strategic partnerships with all of Lafarge's stakeholders is a critical success factor'.

CASE STUDY



Construction of an innovative duplex residence designed to achieve zero net energy use. The use of pre-cast concrete panels, produced at a nearby Lafarge facility, allowed for fast and efficient on-site assembly.

## A SUCCESSFUL EXPERIMENT IN SUSTAINABLE HOME DESIGN AND CONSTRUCTION TO ACHIEVE ZERO NET ENERGY CONSUMPTION

**LAFARGE IN WESTERN CANADA,** in partnership with international architecture and engineering firm Stantec, developed an innovative, energy-efficient, precast concrete duplex residence. The house was built for two families selected by Habitat for Humanity in Alberta, Canada. The aim was to design and build a cost-effective, zero net energy housing solution that could serve as a model for future sustainable housing development.

**CUTTING EDGE BUILDING INFORMATION MODELING** was used in the design phase to assess physical and functional characteristics of the house. Lafarge's precast concrete was then selected as the primary building material for an air-tight and

energy-efficient building envelope. Lafarge ready mix concrete was used for the duplex's footing and basement floor slab and to provide a 2-inch layer of topping over the precast hollow core slabs.

**THE DUPLEX IS DESIGNED TO ACHIEVE ZERO NET ENERGY USE,** i.e. over a year its energy consumption for heating, cooling, lighting, water and cooking should be zero. It has photovoltaic and thermal solar panels on the roof and the units share a geothermal heat pump for heating and cooling. It takes advantage of the density of the concrete, using its thermal mass to retain heat from the daytime sun and release it during the night. The homes are also more fire and sound-resistant than

standard residences. The construction is targeted to achieve Platinum-level LEED® certification from the Canada Green Building Council.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY** will monitor, over a three-year period, the energy performance of this unique duplex, with its two resident families, compared by unit, as well as against similar wood frame structures in the area to determine the added value of sustainable precast concrete construction for residential applications. In the meantime, Lafarge has already applied lessons from the duplex to new assisted living and mid-rise multifamily projects.

# SUSTAINABLE SUPPLY CHAIN



*Over the past three years Lafarge has worked towards the integration of sustainability assessment into its sourcing process. As part of its Sustainability Ambitions 2020, the Group has committed to ensuring that its supply chain respects the principles of the UN Global Compact.*

Since May 2012 Country Purchasing Teams have started to hold suppliers responsible for compliance with the ten UN Global Compact Principles in all Purchase Orders. As of December 2012, Lafarge has 13 Countries who have adopted the standard clause. For 2013 our target is to have all countries comply with this requirement. In addition, Lafarge has decided to carry out a category risk mapping of its suppliers to assess their sustainability risk. The Group is evaluating suppliers on potential risks linked to social, environmental and ethical practices. In order to facilitate the evaluation, Lafarge works with Ecovadis, a company that specializes in supplier assessments. In 2012 over 1,000 critical suppliers were identified for as-

essment. Where necessary, Country Purchasing Teams will use this information to work with suppliers on action plans. This will contribute to capacity building and improve local sustainability practices. Our ambition is to have 12,000 suppliers assessed by 2015.

◆ **SUSTAINABLE SOURCING IN PAPER**

Lafarge purchases approximately 1.1 billion paper cement bags each year. As part of its partnership with WWF International, the Group announced to its suppliers in 2012 that it would not accept paper bags containing fiber from “unknown” or potentially “controversial sources”. As a result, from 2013 all Lafarge suppliers use paper from wood that is sourced legally and non-controversially. ◆



**ALASTAIR MCINTOSH,**  
Center for Human Ecology

**I have reached my tenth year on the Lafarge Panel and have decided it is time to move on.** But what a report on which to exit! Here, on page 27, we see the group placing higher expectations on its supply chain. This matters because sustainability cannot happen in isolation from suppliers. In such ways, Lafarge raises the level of the whole industry's

playing field. We hear a lot about corporations driving standards down, but here is one that drives them up. That is how we can together leverage a better world. I am also pleased to see a reminder (p.43) of Lafarge's pioneering recognition of the UN Declaration on the Rights of Indigenous Peoples, and seeking good relationships with communities.

So much is being achieved by Bruno Lafont's team. On rare occasions over the past decade when I have raised concerns they have always been promptly addressed. My time on the panel has been rewarding, effective and enriching, and I move on with much admiration and every blessing.



## 03

# BUILDING THE CIRCULAR ECONOMY

Lafarge believes it is possible to create synergies between multiple industries so that waste from one company can be used as fuel or raw materials for another, thus preserving natural resources. The Group has developed this practice over the past three decades, helping to eliminate waste and reducing the overall environmental footprint of its operations. Lafarge has renewed its commitment to building the circular economy in order to address the challenges of urbanization and the development of more natural resource and waste-intensive lifestyles. Lafarge's goal is to make a net positive contribution to society and nature through improvement in the key areas of climate, water, air, raw materials and energy. All are essential to the balance of ecosystems, agriculture, human settlement and economic growth. We need not only to preserve biodiversity but to enhance it. We need to contribute to better water and air quality and improved energy and raw material management. Beyond pure environmental benefits, these actions create jobs and contribute to sustainable societal development.



- 1 ENERGY CONSUMPTION AND RESOURCE MANAGEMENT** P.30
- 2 NATURAL RESOURCES: BIODIVERSITY AND WATER** P.32
- 3 CO<sub>2</sub> & AIR EMISSIONS** P.37

**Bath cement plant, Canada.** As part of the Group's partnership with WWF, the plant has developed a project to grow crops for use as biofuel in its kiln, reducing fossil fuel use, CO<sub>2</sub> emissions and costs.

# ENERGY CONSUMPTION AND RESOURCE MANAGEMENT



**In 2012 Lafarge continued to increase its use of alternative fuels such as industrial or municipal waste and biomass. As part of its Sustainability Ambitions 2020, the Group aims to use 50% of non-fossil fuels in its cement plants by 2020, 30% of which should be biomass.**

**W**e believe that integrating our operations within the circular economy is the most effective response to the challenges of natural resource management and the growing competition for resources between different activities. By extracting value from waste, Lafarge can not only improve its competitiveness by reducing fuel costs, but also save non-renewable resources and cut net CO<sub>2</sub> emissions by reducing fossil fuel consumption. Furthermore, this activity provides a service to the community, offering a sound route for the safe disposal of a broad range of waste, and the processing of waste in Lafarge cement plants generates local economic activity.

### ◆ THE EIGHT GOLDEN RULES OF OUR INDUSTRIAL ECOLOGY POLICY

The growing importance of this activity drove us to rework our industrial ecology policy in 2012, which today includes eight golden rules:

- Protect the health and safety of our employees, contractors and local communities
- Respect the environment
- Guarantee the quality of our cement products
- Have appropriate operational controls

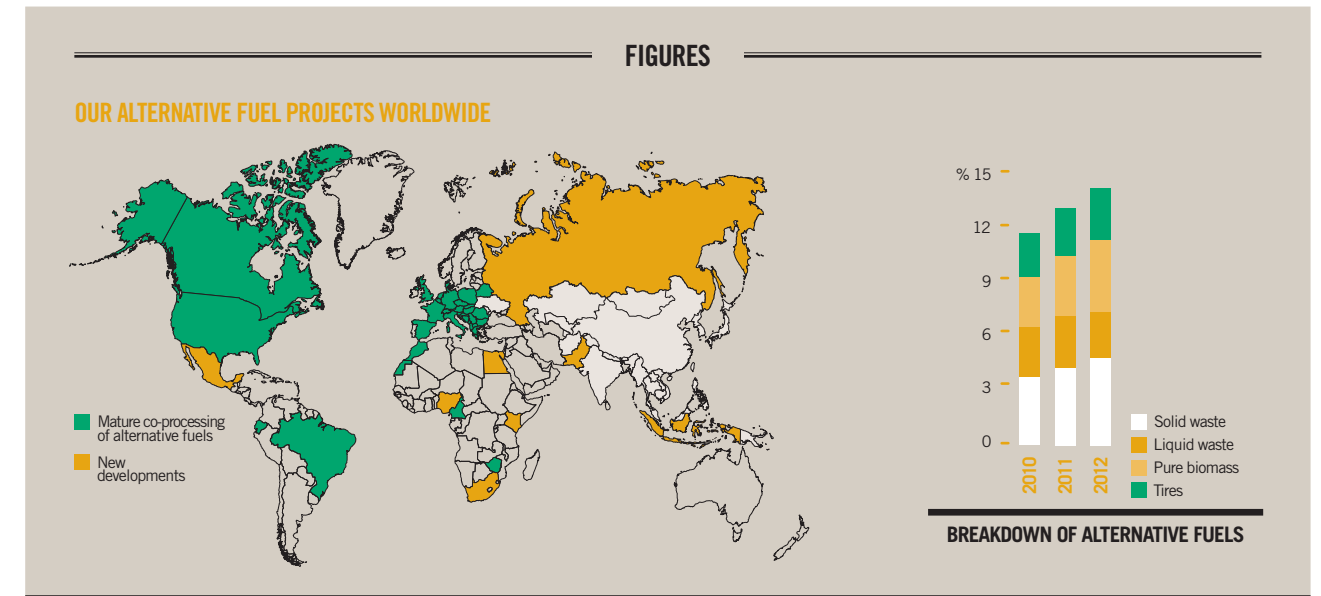
- Have appropriate waste quality control
  - Ensure full transparency with our stakeholders
  - Be recognized as a service provider
  - Use sustainable biomass production
- Through 2012 we progressed each month in the fuel substitution rate and reached an average of 14% for the year (15.5% on an equity consolidated basis). We continued to develop our activities in all countries, utilizing many types of waste, with a growing emphasis on biomass and municipal waste.

### ◆ PROJECTS IN OVER 40 COUNTRIES

A portfolio of projects in more than 40 countries is currently being developed by the Industrial Ecology team, including partnerships with local companies or investment funds specializing in sustainable development projects. New installations were started in Asia, the Middle East, Europe, Latin America and North America based on local waste generation. R&D and knowledge progressed in 2012 in the area of municipal waste so that today Lafarge is in a position to offer municipalities a complete solution for the treatment of this waste stream.

### ◆ AN INCREASING FOCUS ON BIOMASS

WWF International was invited to review and



challenge Lafarge's roadmap, as part of its global partnership with the Group. In particular with respect to biomass, Lafarge's policy has since been extended to avoid competition with food production. In 2012 the Group also started working with WWF in Hungary to develop a project that could allow the use of various local biomass sources as alternative fuel for its cement plant, including non-indigenous invasive plants that are growing out of control. In Uganda we distributed more than 1 million coffee seedlings to help a local population of more than 40,000 people create a new farming activity and thus increase local prosperity. Coffee husks will be a source of alternative fuel for our Hima cement plant after the coffee beans are extracted. Several captive plantations on the African continent are being studied, incorporating key principles such as not replacing food, sharing prosperity, integration with other agriculture benefits for the local population and maintaining or improving biodiversity.

### ◆ INDUSTRIAL BY-PRODUCTS AS ALTERNATIVE RAW MATERIALS

In 2012 we also prepared to roll out projects in 20 plants to increase the use of alternative raw materials, such as slag from steel-in-

dustry blast furnaces or fly ash from coal-fired power plants. These cementitious products have similar hydraulic binding properties to cement and can be used either as substitute raw materials or to replace clinker in the finished product (cement), to produce less carbon intensive blended cements, and offer specific properties in a wide range of applications.

### ◆ SCALING UP OUR RECYCLING PRACTICES

For many years Lafarge has used recycled materials in its manufacture of aggregates, concrete and asphalt, helping to reduce the use of virgin materials and raw material costs and offering other industries specific uses for some of their waste products. As part of its Sustainability Ambitions 2020, Lafarge set ambitious new targets for recycling: by 2020, 20% of its concrete will contain reused or recycled materials and 15 million tons/year of its aggregates sold will be manufactured from recycled/reused materials. Lafarge has major recycling operations in the UK, Canada, the USA and France and in 2012 the Group sold 2.66 million tons of recycled aggregates, produced from a variety of materials, including construction and demolition waste, glass and recycled asphalt pavement. It also launched Aggneo™, a

range of high-quality recycled aggregates, offering a performance close to natural aggregates in applications such as pathways, road bases and bedding sand. Source materials are carefully processed to separate deleterious and other recyclable materials, such as steel, gypsum and asphalt, and to ensure consistency and performance. Lafarge continues to engage with specifiers and other influencers to help ensure that specifications and quality expectations allow for the highest possible use of recycled aggregates. As a result these types of materials are increasingly being used for the production of concrete products. ◆

### PUBLIC POSITION

**BUILDING THE CIRCULAR ECONOMY for the long term requires working on a regional basis and fostering recycling and valuable use of waste locally. Lafarge is convinced that it is possible to create a symbiotic relationship between multiple industries so that waste from one company can be used as fuel or raw materials for another. Strong public incentives are needed to develop the recycling industry, by limiting waste burying and promoting the reuse of waste materials from an industry by others.**

**5.4**

million tons

This is the CO<sub>2</sub> avoided from Lafarge plants in 2012 thanks to the use of alternative fuels.

Our 50% alternative fuel target for 2020 would represent 7.4 millions tons of CO<sub>2</sub> avoided.



# BIODIVERSITY



**In 2012 Lafarge continued to professionalize its biodiversity practices, developing a Biodiversity Management Plan template to assist sites in their work to protect and promote biodiversity. As part of its Sustainability Ambitions 2020, Lafarge aims to implement these plans in all its quarries and cement plants.**

**99.2%**

Lafarge implemented Biodiversity Management Plans in 99.2% of its quarries located in or near biodiversity sensitive areas.

**B**iodiversity is an area of longstanding importance for Lafarge and one of the original work streams of the Group partnership with WWF International. Ecosystems play an important role in the quality of life in an area and our operations can impact (positively or negatively) on local ecosystems. One of the ways in which we manage impacts is through our actions to protect and promote biodiversity at our sites. This work, carried out in partnership with local stakeholders, is key to addressing the concerns of the communities in which we operate and also helps to secure our license to operate.

◆ **NEW TOOLS TO HELP SITES MANAGE BIODIVERSITY**

In 2012 we finalized a Biodiversity Management Plan (BMP) template for roll-out across our quarries. This template helps site teams to identify specific conditions to take into account when developing the site plan, such as the targets in regional biodiversity action plans, the surrounding flora and fauna and recommendations from local experts and nature groups. In 2013, Lafarge will work with WWF International to adapt this template for use in other sectors. Lafarge, in partnership with IUCN France, WWF France and WWF International, also

became one of the first companies to develop a toolbox of methods to monitor biodiversity over time. The toolbox includes simple methods such as the use of photographic images to track the change in habitats over time, but also more complex methods such as our Long term Biodiversity Index (LBI), which was revised and released internally in 2012 following extensive consultation with many stakeholders including our International Biodiversity Panel.

◆ **RAISING AWARENESS ON BIODIVERSITY**

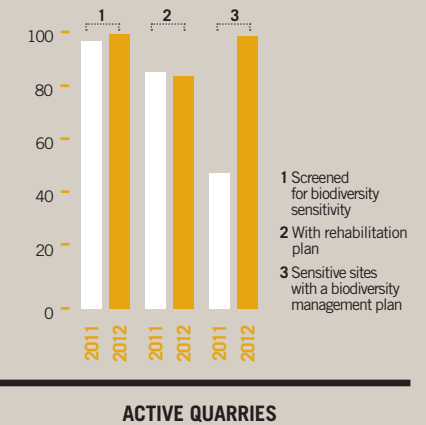
Lafarge continued to work on raising awareness on biodiversity both internally and externally in 2012. Following the development in 2011 of a groundbreaking Biodiversity Guidance manual, in partnership with WWF International and the Group's International Biodiversity Panel, an internal competition was conducted in 2012 to promote the implementation of this guidance at both quarry and non-quarry sites. The winning projects, selected by the Panel, were those that showed the best application of the guidance to their specific local project. The Biodiversity Guidance was also publically released at the 24<sup>th</sup> Wildlife Habitat Council symposium in November. Lafarge participated in the Ramsar Conference held in Romania in July.

**FIGURES**

**PROGRESS WITH AMBITIONS FOR REHABILITATION AND BIODIVERSITY**

SAMPLE OF 708 QUARRIES	2012 Achievement
% of quarries with rehabilitation plans (target 85% by 2010)	84.6%
% of quarries screened for international biodiversity sensitivity using IBAT data	100%
% of quarries which operate within or adjacent to a protected area <sup>(1)</sup>	18.5%
Of which have a site biodiversity program (target 100% by 2012)	99.2%
% of quarries which have red-listed species <sup>(2)</sup>	17.8%
% of quarries engaged in formalized partnerships with NGOs for nature conservation	34.6%

<sup>(1)</sup> Quarries within 500 m of IUCN I-VI, Ramsar, IBA, Natura 2000.  
<sup>(2)</sup> A species categorized by the IUCN as threatened.



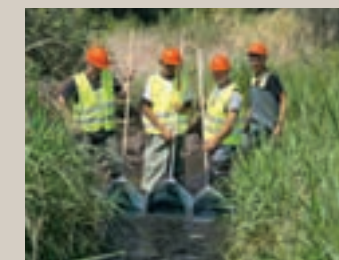
Lafarge presented on biodiversity and water management at the event alongside WWF and a wetland area created in Lafarge's Fusea Quarry was one of the official visits open to conference delegates.

◆ **ROLL-OUT OF THE BIODIVERSITY MANAGEMENT PLAN TEMPLATE**

In 2011 our screening program using IBAT, a global mapping tool of international biodiversity sensitive areas, identified 18% of our active quarries as being in or within 0.5 km of a sensitive area. Lafarge set an objective to develop Biodiversity Management Plans (BMPs) for these sensitive quarries by 2012. In order to achieve this, Lafarge and WWF employed ecology graduates to help develop these plans in close partnership with the environment and operational teams in several countries. This was a great opportunity for students to get practical experience and to share the new techniques they had learnt through their studies. Thanks to these partnerships Lafarge was able to complete 99.2% of its BMPs of sensitive quarries by year end, just short of the 100% target. ◆

**CASE STUDY**

**BEST PRACTICE IN BIODIVERSITY MANAGEMENT**

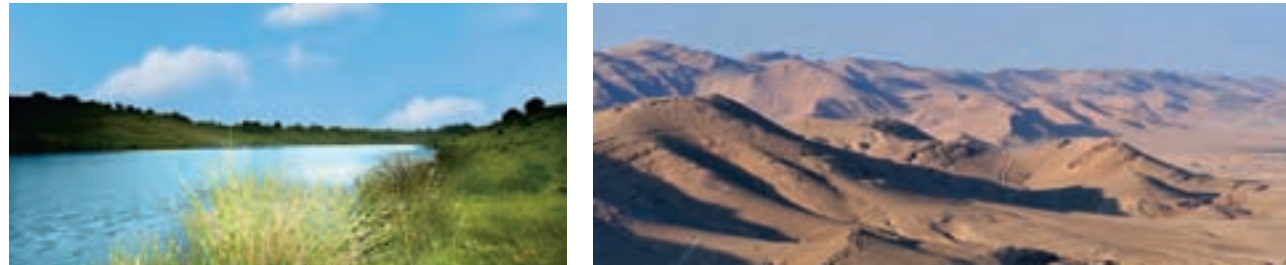


**LAFARGE'S INTERNAL 2012 BIODIVERSITY AWARDS** highlighted many good examples of biodiversity management at both its quarry and non-quarry sites. The winning quarry project, selected by the Group's International Biodiversity Panel, concerned the Saint Etienne quarry on Reunion Island. Lafarge's existing quarry production site and new quarry site are located either side of the Saint Etienne River, which is internationally recognized for high biodiversity. Following Lafarge research, a new river crossing was built to safeguard the passage of migratory fish and macro-crustaceans, including some IUCN Red List species. Monitoring

is undertaken every three months to ensure the effectiveness of the new measures. This initiative, recognized as the first of its kind on Reunion Island, involved hydrology and aquatic species experts, as well as consultation with local fishermen and other local stakeholders.

**THE WINNING NON-QUARRY PROJECT** was Lafarge's Alpena plant in the USA, which has developed a pollinator garden to provide an active biodiversity/wildlife area near the plant for the local community. The aim is to increase public awareness of the importance of pollinators in our lives and provide a learning environment to view them. The garden improves neighborhood aesthetics and provides a green, relaxing oasis in the city's industrial corridor while enhancing the habitat for pollinator and other species. The garden is self-sustaining, with a rainwater collection system to help weather dry spells and a selection of hardy, disease, insect and animal resistant plant species.

# WATER



**Lafarge has been working for several years to measure and reduce the water footprint of its operations. Today it is going beyond conservation to evaluate water risks in the wider basin and engage with other stakeholders in high-risk basins to promote sustainable water management.**

**W**ater is an essential and, in some regions of the world, increasingly contested resource. While we have already taken actions to assess and reduce our water footprint, it is not enough for Lafarge to be an efficient water user at site level: we need to contribute to responsible water stewardship in the wider water basin. In 2012, we therefore moved from addressing site-level water use to examining water risks, to allow us to identify river basins for high-priority actions.

◆ **LAFARGE'S WATER FOOTPRINT IN 2012**

The systems that we have put into place to measure and report on our water footprint according to GRI definitions have given us a clearer picture of water withdrawals at our operations. In 2012 our reported measured water withdrawal increased; the installation of meters at several aggregates sites enabled us to correct previous underestimations. However, over the last three years, we have developed good practices across all product lines, as part of our climate adaptation strategy, and we have managed to reduce the dependency of our sites on municipal and groundwater supplies. In the UK, for example, our Cement business received the Lafarge Business EMAS<sup>(1)</sup> Award for its in-

novative practices in water management across six of its sites, which today meet all their process water needs through rainwater harvesting and recycling.

◆ **ESTABLISHING HIGH PRIORITY BASINS**

In 2011 Lafarge set an objective to assess the water risk for its cement and aggregate operations worldwide in order to identify situations at risk and set plans accordingly. A first risk assessment exercise was carried out in 2011, focusing on the sole dimension of water scarcity. This showed that 25% of our cement production was located in areas of water scarcity or high water scarcity, based on 2025 projections of Annual Renewable Water Supply per Person (see Lafarge Sustainability Report 2011).

In 2012 we completed this assessment by using the WWF Water Risk Filter (WRF), which takes into account not only physical risks such as water scarcity, but also regulatory and reputational risks. The graph hereafter shows the evaluation of our cement activities.

Fifteen Lafarge cement sites were identified as being located in high-risk basins (indicated in orange in the graph). The site-specific risks for these operations were ranked as medium. Ten priority basins have been

**FIGURES**

**LAFARGE'S WATER FOOTPRINT IN 2012**

(IN MILLION M <sup>3</sup> )	2012			
	Cement	Aggregates	Concrete	Total
Surface water including from rivers, lakes, wetlands and oceans	190.6	29.7	1.2	221.5
Ground water	21.4	15.9	3.2	40.5
Rainwater harvest	2.3	13.3	0.5	16.1
Municipal water supplies or other water utilities	5.5	1.5	4.7	11.7
Total withdrawal <sup>(1)</sup>	219.8	60.4	9.6	289.8
Water returned to same catchment area	165.4	0.0	0.0	165.4
Net withdrawal	54.4	60.4	9.6	124.4

<sup>(1)</sup> According to GRI G3 EN 8.



**WATER RISK FILTER**  
Using the WWF Water Risk Filter, Lafarge identified 15 cement sites as being located in high-risk basins.

identified: Indus (Pakistan), Damodar & Mahanadi (India), Djebel Zerouala, El Fedj and Menasria (Algeria), Panuco (Mexico), Dead Sea (Jordan), Hong (China), Groot-Vis (South Africa), Tigris and Euphrate (Iraq), Nile (Uganda). Lafarge will work to reduce water impact and develop a watershed sustainability plan in these water impacted areas.

◆ **ENGAGING WITH LOCAL STAKEHOLDERS**

From 2013 we will start analyzing the specificities of each basin by collecting local information on physical characteristics and local regulatory frameworks, identifying any existing water initiatives and platforms and mapping key stakeholders with a role in watershed governance. On this basis we will define the appropriate type and level of local engagement for each water basin. Typical collective action areas for Lafarge could be contributing to the provision of water for agricultural needs, reuse of waste water, storm water management and flood control, contributing to projects to access safe water and sanitation or educational and public awareness programs. ◆

<sup>(1)</sup> European Eco-Management and Audit Scheme

**15**  
cement plants identified through the WWF Water Risk Filter as being located in high-risk water basins. As part of its Sustainability Ambitions 2020, Lafarge will work with local stakeholders in these high-priority basins to improve water management.

**CASE STUDY**  
**WORKING TOWARDS WATER STEWARDSHIP IN MEXICO**

Using the WWF Water Risk Filter (WRF), Lafarge identified Pánuco basin, where its Tula plant is situated, as one of its top 15 high-risk basins. The basin's physical risk is high (3.9/5), due to its proximity to "Aguas del Valle de Mexico" that covers Mexico City and its region, with its 21.4 million inhabitants. Panuco river is located downstream from "Aguas del Valle de Mexico" and receives part of the waste water of Mexico City. Most of the water consumed in the basin (4,854 hm<sup>3</sup>) is for agriculture and domestic use. Lafarge Mexico's water consumption in 2012 was 0.15hm<sup>3</sup>.



ranking it among Lafarge's top ten performing plants.

**EFFECTIVE ACTIONS TO REDUCE SITE WATER FOOTPRINT**

The Tula plant's WRF rating was good as it had already reduced its water consumption. It had installed a water treatment station, recycling the treated water in its production process to achieve a 15% reduction in groundwater withdrawal, and created two ponds for rainwater harvesting, collecting over 500m<sup>3</sup> of water in the wet season for industrial cooling and irrigation. The plant today consumes 75 l/t cement produced,

**ENGAGING WITH OTHER ACTORS IN THE BASIN**

Lafarge Mexico also started several external initiatives with stakeholders, in line with the Group's ambition to work on improving watershed management in high-risk basins. These include participation in a training program on water preservation at nearby schools, and work with landowners and national water authorities to reduce water consumption for agriculture, helping to reduce pressure during shortages in the Pánuco river. Lafarge has also participated in the planning process for water-related projects with the local municipal authority.



JEAN-PAUL JEANRENAUD,  
WWF

**Lafarge made good progress in improving its biodiversity performance in 2012**, including by creating biodiversity management plans for 99% of quarries in

internationally-sensitive areas, and in developing a new Biodiversity Strategy for the Group. We especially welcome the new commitment on protected areas, and the ambition to have a net positive impact on biodiversity at the site level. Similarly, we welcome the publication of Lafarge's Biodiversity Guidance, which was developed in partnership with WWF, and which provides all Lafarge sites (including quarries, plants and offices) with practical guidance on how to protect, restore and enhance local biodiversity. This

Biodiversity guidance document should also prove useful to many other companies, in a variety of sectors. We are also pleased to see Lafarge work on the responsible sourcing of paper cement bags, including the new preference for FSC paper and the use of WWF's Check Your Paper tool. On the Climate front, we applaud Lafarge's new commitment to increase the portion of biomass in its alternative fuel to 30% by 2020 and its commitment to only use sustainable sources. We would have hoped to have seen

greater progress towards an increase in Lafarge's share of renewable electricity. Although we understand that this is not core business for Lafarge, in absolute terms Lafarge is a very big purchaser of electricity, and thus has a responsibility to play its part in promoting the shift to renewables. Looking forward we expect to see Lafarge play a leading role in advancing ambitious global and regional EU climate deals.

# CO<sub>2</sub> & AIR EMISSIONS



**For a large industrial company like Lafarge, managing its emissions is not only a key part of its industrial performance and its environmental stewardship, but also central to its responsibility towards local communities and public health. Emissions reductions are therefore an important part of its Sustainability Ambitions 2020 program.**

**W**e have developed a number of strategies to reduce our environmental footprint, contributing to both our economic competitiveness and our industrial performance. They include anticipating changing regulations and benchmarking each plant's emissions, both internally and against international standards, in order to anticipate and prioritize emission reduction investment. We also contribute to setting standards for the industry through the Cement Sustainability Initiative and many national and regional associations.

Our CO<sub>2</sub> performance is the result of our long-term industrial performance programs:

- Improvements in kiln energy efficiency.
- Efforts to accelerate the transition towards non fossil fuels which now account for 14% of our fuel mix, with a 50% target for 2020.
- Product development and innovation to bring lower carbon cement solutions to market. We continue to reduce the carbon intensity of our cements, which is reflected by the decrease in our clinker factor from 84.6% in 1990 to only 72.6% in 2012.

In 2012 Lafarge successfully completed its second industrial trial for Aether<sup>®</sup>, its new generation clinker formulated for lower carbon cements. The trial confirmed the feasibility of industrial-scale production of Aether<sup>®</sup> cements, which offer similar characteristics to Ordinary Portland Cement, while allowing a 25-30% reduction in CO<sub>2</sub> emissions.

◆ **MITIGATING CLIMATE CHANGE**

As announced in June 2011, our objective is to reduce our net carbon emissions per ton of cement by 33% in 2020 compared to 1990. At the end of 2012 we managed to reduce our emissions by 24.7% compared to 1990, representing a 192 kg reduction in CO<sub>2</sub> emitted per ton of cement and approximately 30 million tons of carbon emissions avoided for 2012. Included in this report are third-party verified Scope 2 emissions (related to power consumption). Due to the decrease in our market capitalization, we were not eligible for ranking in the Carbon Disclosure Project (CDP) Global 500 Climate Change Report in 2012.

◆ **REDUCING EMISSIONS**

Growing urbanization around the world poses new challenges in terms of public health, particularly due to air pollution. Lafarge is conscious of the positive impact it can have on this phenomenon by sound management of its own emissions. Regulators rightly continue to focus their attention on NOx reduction from industrial ◆◆◆

**PUBLIC POSITION**



**WE ARE CONVINCED THAT OUR EXTRACTING PRACTICE** is compatible with biodiversity protection. Lafarge can have a positive impact on biodiversity protection and ecosystem management by adopting appropriate planning for resource extraction and rehabilitation programs. In so doing, natural resources can be protected in the long term.

We support public policies and regulations that combine biodiversity preservation, sustainable development of our ecosystems and expansion of our business. In order to do this, it is essential to enable raw material sourcing and extraction close to production sites. This is achieved through appropriate planning and efficient allocation of licenses

to operate. In addition, we consider that quarry rehabilitation is the best way to protect biodiversity, as opposed to financial compensation.

**PUBLIC POSITION**



**LAFARGE BELIEVES WATER POLICIES** need to cover three essential aspects, namely: resource availability, quality and ecosystem management. We operate in places with very different water profiles. In water-stressed regions, access to water and availability of water

for communities is a matter of corporate social responsibility. Lafarge believes public policies need to be implemented locally. They should aim at maximizing benefits for all stakeholders equitably through coordination on water, land and other resource

management, without jeopardizing ecosystems. Such public policies should result from dialogue between all stakeholders, including the private sector.

**24.7%**

Lafarge has reduced its CO<sub>2</sub> emissions per ton of cement by 24.7% compared to 1990, thanks to intensified performance efforts to improve kiln energy efficiency, increase the use of alternative fuels and develop new blended products for a range of applications using carbon-neutral additives.



**KARINA LITVACK,**  
Independent

**This report is chock-full of impressive milestones,** as well as bold targets, initiatives and ambitions, many linked to climate protection: 33% on CO<sub>2</sub>, 50% on alternative fuels, Aether, climate lobbying, conservation. And yet these float alongside, rather than square the circle with, two key challenges: the world's over-consumption of resources, as the Sustainability Ambitions rightly acknowledge, and Lafarge's day job –

delivering sustained profit growth. Where is this missing fil conducteur that can weave together, in one integrated corporate strategy, customer satisfaction, shareholder value and Net Positive Contribution for society as a whole? The promise lies in the Circular Economy, where Lafarge has made real strides. Rather than just selling building materials, however innovative, and driving down

harmful impacts, however ambitiously, Lafarge can recast itself as a true cradle-to-cradle business, one that transforms materials into materials, some of them virgin but more and more of them derived from other people's waste, making a profit at each turn and delivering essential services throughout the cycle.

◆◆◆ combustion sources. More stringent standards, be it in China, the United States, or Europe, are continuing to be implemented in legislation, regulation, permit renewals, or bi-lateral agreements with companies, all requiring investment in NOx reduction technology.

◆ **ADDRESSING LOCAL CONCERNS**

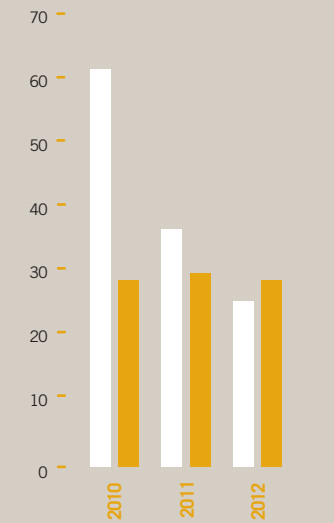
Being not only a positive and responsible contributor to society, Lafarge also endeavors to be a good neighbor. Our long-lasting relations with our local stakeholders highlight the importance of reducing dust emissions and local impact (blast vibration, noise, etc.). Lafarge has therefore set standards for emissions for all of its plants and is implementing a replacement and upgrade program that meets both regulatory and internal standards. In addition, blast vibration is strictly monitored. Our use of advanced blasting technology has reduced vibration levels. As far as noise is concerned, we have set new targets within our Sustainability Ambitions 2020 and started to implement a dedicated roadmap. At this stage, 74.4% of our cement sites have measured noise at site boundaries over the past five years.

Lafarge, through its partnership with WWF International on persistent pollutants, has been addressing both mercury and dioxin/furan emissions for more than ten years. This work has focused on defining and implementing best practices for control and reduction of emissions, testing and analysis protocols to ensure accurate measurement of emissions, and is implementing a program for the reduction of emissions at higher emitting plants. Mercury emissions from the cement industry are also a continuing focus of both international organizations and domestic regulators. In January 2013 Lafarge welcomed the completion of the international negotiations held under the auspices of UNEP (United Nations Environment Programme) to conclude a global legally binding instrument on mercury, which will apply to the cement sector, amongst others. As part of its Sustainability Ambitions 2020, Lafarge has set itself the ambitious target of reducing its mercury emissions by 30% per ton of clinker by 2020, compared to its baseline emissions in 2010. ◆

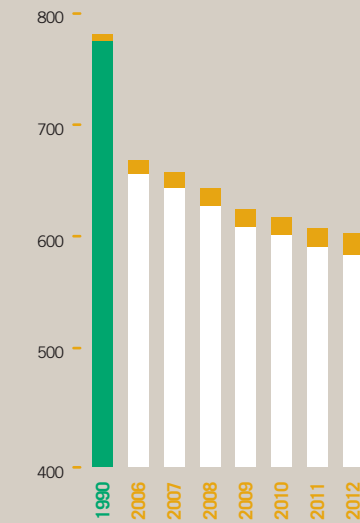
**PUBLIC POSITION**

**BECAUSE THESE ISSUES ARE CLOSELY INTERTWINED,** public policies should address carbon emissions, energy and environmental matters in a coordinated, holistic and integrated manner. In order for industrial companies to plan and implement their necessary investments and remain internationally competitive, these energy and climate related policies should have a stable and predictable framework with clear objectives, and should be fully articulated with other economic, industrial and fiscal policies. We are in favor of policies that together tackle both CO<sub>2</sub> emission reductions and promote energy efficiency and innovation in the value chain (especially in the building sector). We support market mechanisms, including the European Union Emissions Trading Scheme (EU ETS), which are the most cost effective way to trigger CO<sub>2</sub> emission reductions in the industrial sector.

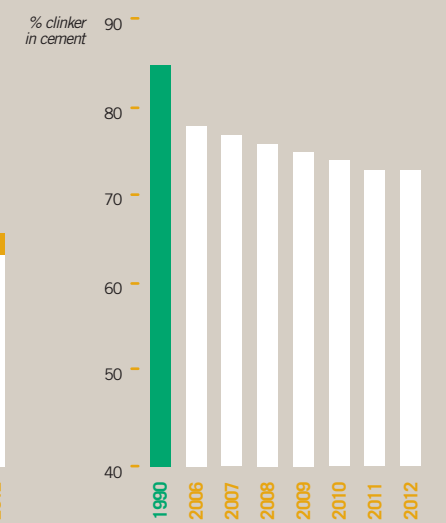
**FIGURES**  
**CONTINUING PROGRESS IN EMISSIONS REDUCTION**



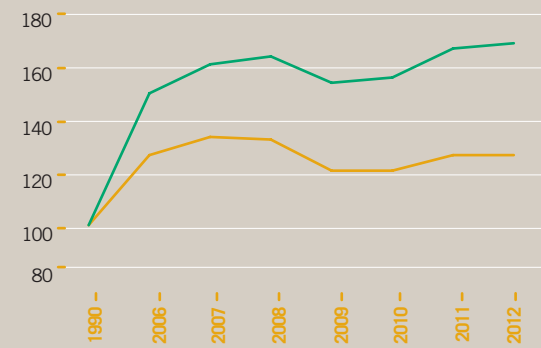
**PERSISTENT POLLUTANT MERCURY / DIOXIN-FURAN**  
Our emissions reductions from 2011 levels are 30% and 1% respectively for dioxin/furan and mercury.  
■ mg Hg / t kk ■ ng Dioxin / Furan / t kk



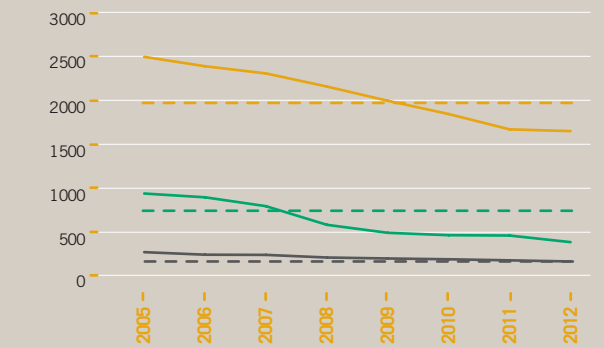
**NET AND GROSS CO<sub>2</sub> EMISSIONS**  
In 2012 our gross CO<sub>2</sub> emissions per ton of cement were 22.5% lower than 1990 levels, and our net CO<sub>2</sub> emissions were 24.7% lower than 1990 levels.  
■ Net CO<sub>2</sub> emissions (kg/ton cement) ■ Gross CO<sub>2</sub> emissions (kg/ton cement)



**CLINKER FACTOR (% clinker in cement)**  
Clinker, the component of cement whose production is responsible for CO<sub>2</sub> emissions, has decreased by 14.4% since 1990.



**CARBON EFFICIENCY IN OPERATIONS**  
In 2012 we produced 69% more cement than in 1990 but our net CO<sub>2</sub> emissions increased by only 27% over the same period.  
■ Net CO<sub>2</sub> ■ Cement Produced



**NO<sub>x</sub>, SO<sub>2</sub> & DUST EMISSIONS**  
NO<sub>x</sub>, SO<sub>2</sub> and Dust emissions have decreased 34%, 61% and 45% respectively since 2005, exceeding the reduction targets set at the beginning of the program.  
■ g Dust Emissions / tKK ■ g SO<sub>2</sub> Emissions / tKK ■ g NO<sub>x</sub> Emissions / tKK  
--- Dust Target --- SO<sub>2</sub> Target --- NO<sub>x</sub> Target



# GOVERNANCE

## 04

- 1 BUSINESS ETHICS P.42
- 2 STAKEHOLDER PANEL COMMENT P.44
- 3 REPORTING METHODOLOGY P.46

Strong governance is at the heart of Lafarge's approach to sustainability and key to achieving strong business performance. It reflects the Group's commitment to embody its core values of courage, integrity, respect and transparency in everything it does, a commitment that has been rewarded by Lafarge's inclusion in the Dow Jones Sustainability Index for the third year running.

Lafarge has been a member of the UN Global Compact since 2003 and ensures that its 10

key principles are reflected in Group policies and actions.

In 2012 it achieved Advanced Status. Its Code of Business Conduct, first established in 2004, covers a wide range of areas, including compliance with laws and regulations on free competition and trade, corruption and insider trading; conflicts of interest; health and safety; prevention of discrimination and harassment; and respect for the environment. All Lafarge employees are to follow these principles. Our commitment to good governance based

on strong ethical principles is both a collective and personal one that needs to be renewed every day, particularly in these times of rapid social, political and cultural change in many of our markets.



## BUSINESS ETHICS



**MARION HELLMANN**  
Building and Wood Worker  
International

**Lafarge's Code of Business Conduct covers a wide range of areas**, including compliance with laws and regulations on free competition and trade,

corruption and insider trading; conflicts of interest; health and safety; prevention of discrimination and harassment; and respect for the environment. However Business Ethics is more than abiding by 'customs' and 'laws'. Trade unions welcome that Lafarge recognizes the utmost importance of respecting human rights in all countries where it operates and that human rights are addressed in business-decision making, in Russia, Qatar, China and elsewhere where human and trade union

rights are not guaranteed by governments. Lafarge took the right way forward: firstly, employee awareness-building and training and verification at country level and global reporting that show that the company respects human rights in practice. The United Nations Guiding Principles on Business and Human Rights state that showing involves communication, providing a measure of transparency and accountability to individuals or groups who may be impacted and to other relevant

stakeholders, including investors. Lafarge's next sustainability report should take this up and contribute to more transparency and accountability with regard to Human Rights. Secondly Lafarge's supply chain assessment and the commitment to ensure suppliers' compliance with the ten UN Global Compact principles in all purchase orders is a real benchmark against its competitors. However, reporting on the results would be appreciated.

**Lafarge's sustainability agenda is driven from the very highest level within the Group. Bruno Lafont, Chairman and CEO, plays a personal role in shaping the sustainability agenda.**

# 100%

Our Competition Compliance Program has been implemented in 100% of our businesses. To ensure its effectiveness, the Group Legal Department conducts regular unannounced compliance checks and verifications.

The Group Executive Committee approves sustainability strategy and policies according to Lafarge's vision and values.

### ◆ GOVERNANCE STRUCTURE

The Group's 16 Board Directors carry out their duties in line with its Director's Charter. The corporate governance code applicable to the Board is that of the French employers' organizations AFEP and MEDEF. Lafarge complies in all major areas except length of service. The proportion of women on the Board remained stable at 17% in 2012, still below the standards of AFEP-MEDEF. Diversity and length of service remain two areas of improvement for Lafarge's governance structure. In 2012 62.5 % Board members are considered independent.

Sustainability issues are addressed by a dedicated Board Committee. Sustainability is under the responsibility of the Executive Vice President for Strategy, Development and Public Affairs. The Sustainable Development and Public Affairs Department oversees the implementation of the Group sustainability strategy at country level. The Department liaises with sustainability rating agencies, non-governmental orga-

nizations, business associations and public authorities. Sustainable development is embedded in every manager's personal objectives and every industrial site has environmental targets, part of a group-wide Environmental Management System. As part of Sustainability Ambitions 2020, an Ethics Committee composed of the heads of major functions and operations will be set up and will report directly to the Chairman of the Board. It will review the ethicality and consistency of Group policies and ensure the effectiveness of the roll out of the Code of Conduct.

### ◆ OUR CODE OF BUSINESS CONDUCT IN PRACTICE

Lafarge recognizes the utmost importance of respecting human rights in all countries where it operates. Lafarge believes that human rights must be addressed in business-decision making, according to its Code of Business Conduct, first adopted in 2004. Given the geographical scope of its operations, the Group will always be subject to scrutiny by competition authorities. Moreover, given the utmost importance of competition issues in its industry, Lafarge publicly reports on ongoing main antitrust litigation (see table p.48-51,

Annual Report Note 29 and [www.lafarge.com](http://www.lafarge.com)). Lafarge absolutely forbids anti-competitive behavior wherever it is present. Since 2007 Lafarge has operated according to the Group Competition Compliance Program, which also applies to third parties. The Program is deployed continuously and includes worldwide employee awareness-building and training, verification at country level and global reporting by competition correspondents based in the countries where the Group operates. 100% of our operations have been tested as part of our ongoing internal testing program, which started in 2006. Lafarge does not make contributions to influence the political process but engages in lobbying efforts, consistent with its stated Public Positions. However, in the United States, any group of individuals who want to contribute to federal candidates or parties may do so through a Political Action Committee (PAC). This is a separate legal entity from the company and Lafarge does not necessarily agree with all the policy positions of candidates who receive its contributions. Support to candidates is based on whether the candidate is attuned to the wellbeing of the company and its employees and the ability

of the candidate to work towards these goals. Additional information can be found on [www.lafarge-na.com](http://www.lafarge-na.com).

### ◆ PUBLIC AFFAIRS

In accordance with the Group's Lobbying Charter (see [www.lafarge.com](http://www.lafarge.com)), the Group Public Affairs department continued the professionalization of its practices in 2012, creating and managing a network of dedicated managers in countries. An induction program incorporating Lafarge ethical principles, key policies, methods and tools available for the public affairs practice was designed and will be rolled out globally in 2013. Lafarge contributes actively to the public debate on issues of importance to its business, such as energy, climate change, use of natural resources and fiscal policies. Besides public affairs officers, many senior managers contribute to the work of business associations (see the list on [www.lafarge.com](http://www.lafarge.com)), attending meetings, chairing working groups or drafting recommendations and public positions. Lafarge believes that dialogue with all stakeholders is at the heart of sustainable development governance. Lafarge was present at the first Earth Summit in 1992 in Rio and Bruno Lafont attended the Rio+20 summit

in June 2012. A speaker in several side events, he also met with personalities such as Mr R.K. Pachauri, President of the Intergovernmental Panel on Climate Change. Rio+20 was the opportunity to reaffirm through its Sustainability Ambitions 2020 the Group's commitment to make a net positive contribution towards a more sustainable world. ◆

**Lafarge recognizes the UN Declaration on the Rights of Indigenous People, the OECD Principles of Corporate Governance, and UN Global Compact and is committed to reflecting those principles through its policies, and in day-to-day practice.**

## OUR STAKEHOLDER PANEL



### MEMBERS OF THE LAFARGE STAKEHOLDER PANEL

- **Adrian Marinescu**  
(European Works Council)
- **Marion Hellmann**  
(Building and Wood Workers International)
- **Jean-Paul Jeanrenaud**  
(WWF)
- **Sheila Khama**  
(African Center for Economic Transformation)
- **Philippe Lévêque**  
(CARE)
- **Karina Litvack**  
(Independent)
- **Alastair McIntosh**  
(Center for Human Ecology)
- **Frank Rose**  
(Independent)
- **Livia Tirone**  
(Architect)

***“I am convinced that our approach must be constantly challenged and questioned.”***

*Bruno Lafont*

For the last ten years, the Lafarge Stakeholder Panel has served as the company’s group of “critical friends”, challenging Lafarge’s approach to sustainability, helping the company anticipate emerging issues, testing the boundaries of good practice, and pressing Lafarge to exercise leadership in the building industry.

Our meetings are conducted twice a year with frankness, constructive criticism and fresh thinking: we particularly value the fact that the Lafarge Chairman and CEO personally leads the process and encourages robust challenge, making our engagement effective and rewarding.

Our oversight covers all areas of sustainability, including strategy, delivery and reporting: it includes evaluating performance against Ambitions 2012 as well as advising on forward-looking policy objectives. In this statement, we comment on progress achieved during 2012.

#### ◆ IMPROVEMENT IN REPORTING

This year, Lafarge has significantly improved the quality of its report, incorporating our earlier feedback and recommendations: compared to previous years, this report strikes a better balance between selected performance data, short narrative and clear forward-looking strategy.

We find it informative and reader-friendly, while combining broad position statements and focused data.

A number of challenges still lie ahead for Lafarge on its path to more effective sustainability performance: the first is to better contextualize and benchmark against external standards, sector peers, other industry leaders, globally and locally. The second challenge, now that the group has a new organization around country units (instead of functional and product lines), will be to introduce a country-flavor in its reporting as well, and a new segmentation of reporting, assembled by country, in order to show how local ownership of the global strategy is promoted and how innovation is driven by local conditions and stakeholder expectations. Going further on local reporting, we would like Lafarge to enable comparison of performance to local context and issues, especially on issues with strong localism like water.

#### ◆ ADDRESSING SOCIETAL CHALLENGES

When the Ambitions 2020 were published, we commended Lafarge for their vision and aspirations, particularly the focus on an integrated approach encompassing the whole lifecycle of buildings, cities and wider infrastructure.

We also welcome the clear and explicit link made in the report between the old and new Ambitions, since 2012 marks the end of one set of Ambitions and the opening of a new one.

We also particularly appreciate the fact that sustainability has remained an integral part of Group strategy, despite the current economic downturn. And we like the way Lafarge now frames the challenges it faces in broad systemic terms (whether demography, urbanization or mankind’s overconsumption of resources), clearly stating its will to introduce new business models that meet customer needs while also addressing these macro-challenges. A very good job was done in linking corporate targets to overall societal needs, aspirations and imperatives - as exemplified in this report by the sections on Sustainable Construction and the Circular Economy.

#### ◆ BUILDING THE CIRCULAR ECONOMY INTO CORPORATE STRATEGY

We particularly applaud the Group’s ambition on specific enterprises, that appear to go way beyond the conventional business role to incubate new and often disruptive business ideas with strong potential – such as the affordable housing project for Mumbai slums (India), the flexible social housing project developed in Bègles (France), the target on alternative fuels, the group’s leadership on biodiversity management, or the investment in decentralized research and solutions, adapted to local contexts.

This is made even stronger by the way Lafarge frames this in terms of the circular economy. The Group was historically one of the first industrial companies to articulate a proactive strategy on industrial ecology, and it has now taken its focus on the subject to a new level. However, we would like to see how the circular economy will actually underpin the basic corporate strategy. We strongly believe that this subject has the potential to demonstrate how sustainability and commercial success can be woven together into a genuinely integrated strategy to drive forward a sustainable business.

◆ **LOOKING FORWARD**  
On other issues, the panel hopes to see swift improvement on health and safety issues and, over the course of the next years, on diversity issues - including gender. A clear strategy for rolling-out low-carbon solutions for cities and rural areas would also be most welcome, as well as a plan to address the issue of water life-cycle in an urban context, related to how Lafarge’s solutions can help cities harvest and recycle water, and much more.

#### ◆ CONCLUSION

To conclude, we are delighted to see that in spite of the global context, and now that the low-hanging fruits have been picked, Lafarge continues to invest in sustainability and takes its approach even further: the Group appears to be have more confidence in embracing challenges and entering areas that would have been too unusual or uncomfortable to explore a few years ago. We are living in an era of cultural changes and shifting attitudes towards corporations: the panel welcomes the opportunities that it has to explore these with the management of Lafarge in ways that perhaps help to make the difference to the emerging world.

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# REPORTING METHODOLOGY

## ◆ REPORTING STANDARDS

The rules for computing the KPIs are consistent with the GRI (Global Reporting Initiative) G3 reporting standard. Where detailed definitions of KPIs are defined by WBCSD - CSI (World Business Council for Sustainable Development – Cement Sustainability Initiative), the recommended CSI methodology is used for the calculation of the KPI. All elements for calculating KPIs are documented in a glossary specific to the Cement, Gypsum or Aggregates and Concrete businesses. Compliance with GRI G3 and a summary of reporting standards used is documented online at [www.lafarge.com](http://www.lafarge.com).

Health and safety data is collected separately, taking into account our internal guidelines and external best practice. The Group's Social Policies department conducts a separate survey on social data. The KPI related to the training on stakeholder relationship is also tracked and verified. Local stakeholder relationship management training is organized around plant managers in Cement and area/regional managers in Aggregates and Concrete. Our 2008, 2009, 2010, 2011 and this 2012 report were GRI A+ application level checked.

## ◆ SCOPE OF CONSOLIDATION AND REPORTING METHODOLOGIES

The reporting covers all business units and their industrial production sites under the Group's management control throughout the world. When a new site is acquired by Lafarge, procedures and definitions for sustainability data are not necessarily in line with Lafarge standards. Accordingly we give new sites a maximum of four years to meet our standards but performance and emissions reporting are included from the start up date. This period is necessary to implement the appropriate management systems. When a plant is sold,

we cease to include its performance data and we remove its data from the baseline data used for our Sustainability Ambitions, whether the reference year is 1990 or 2005. For plants divested during the year, social data is excluded for the entire year; for environmental and health and safety, data is included up until the time of divestiture.

We use the CSI Protocol V3 to calculate CO<sub>2</sub> emissions between the 1990 baseline and the reporting year. In 2011 we changed our methodology for calculating air emissions to be in accordance with the March 2012 CSI guidelines for emissions monitoring and reporting in the Cement Industry ([wbcscement.org](http://wbcscement.org)). Previously, gas factors based on the type of kiln process were utilized whereas we now use gas factors based on the energy consumption of the specific kiln; prior years data and our baseline (2005) is restated using the this methodology for comparison.

For dust, SO<sub>2</sub> and NO<sub>x</sub> emissions, we use standard emission concentrations based on the site's kiln process when no measurements are available and we use the prior year's reporting in cases where the current year data is not available. In 2012 the standard emission concentration was applied to 1.4% of clinker production and for dust emissions, 1.2% for SO<sub>2</sub> emissions and 3.0% for NO<sub>x</sub> emissions. For water, dewatering of quarries and non-contact cooling water taken from surface water and returned to the same catchment is not included in net withdrawal. For the calculation of safety KPIs that include contractors, contractor off-site hours are not included in the divisor and therefore these indicators may slightly overstate the frequency rates.

Social data and health and safety data is collected by business units and consolidated at Group level. Social data for 2012 in this report is derived from a social survey covering

98 business units representing 100% of the total Group workforce and includes majority owned entities and managed assets. Headcount data is compiled by an external consultant supervised by corporate and country finance departments. Absenteeism data is not consolidated due to the various national definitions under which this data is captured.

## ◆ CONTROL AND ASSURANCE

Environmental data is collected by business line and consolidated at Group level. For cement, environmental experts in the regional technical centers (Beijing, Cairo, Montréal, Kuala Lumpur and Vienna) review and validate the performance data for the plants within their regions.

Bureau Veritas Certification provides independent verification for sustainability data. A selection of key quantitative indicators (lost time injury frequency rate and fatality rate; total headcount, workforce covered by collective agreements and types of contracts and by Status, workforce hirings, resignations, retirements, redundancies and death; women in senior and executive management; sites environmentally audited, quarries with rehabilitation plans and quarries screened for biodiversity and those having biodiversity management plans; consumption of energy, fuels used, CO<sub>2</sub> dust, NO<sub>x</sub>, SO<sub>2</sub>, Mercury, VOC and Dioxins/Furans emissions, water withdrawals by sources and consumption quarried and alternative raw materials consumption) were reviewed to issue a limited assurance report. More details may be found on the verification works and conclusion in Bureau Veritas Certification's independent assurance report provided in our Registration Document, section 4. ◆

## ASSURANCE BY BUREAU VERITAS CERTIFICATION

*Year ended December, 31, 2012*

At the request of Lafarge S.A., Bureau Veritas Certification performed an independent verification of the information contained within section 4 "Social and environmental responsibility" of the Lafarge Registration Document. This addresses the requirements of the French decree No.2012-257 relative to the requirements of transparency of companies on the disclosure of environmental and social topics, and provides a limited assurance opinion on published performance indicators identified in the "reporting methodology" of section 4.5.2. The reviewed information subject to verification covers the reporting period of January 1<sup>st</sup> 2012 to December 31, 2012. This opinion is independently stated, and without partiality. Our work has been conducted according to the professional practice and internal protocol of Bureau Veritas Certification for assurance of non-financial information. The preparation and presentation of the qualitative and quantitative data within the Registration Document is the sole responsibility of Lafarge. The collection and management of this information has been coordinated by the Technical Director for Environment of the Lafarge, in accordance with:

- The reporting procedure Group "Group environmental standard" version V3.7.2;
- The Group specific instructions and procedures, a summary of which is provided in Section 4.5.2 (under the heading "social and environmental responsibility"), relating directly to the table of the Key performance indicators in section 4.5.1. This is further named "the reporting methodology" and available at Lafarge's Head Office.

### ◆ NATURE AND SCOPE OF OUR WORK

We undertook the review of the following quantitative social, societal and environmental information, including the following:

- Review of "the reporting methodology" with regard to relevance, completeness, neutrality, understandability and reliability of information, relating to good practice within the sector;
- Conducted at corporate level, interviews with key personnel responsible for safety, environment and social data and information management in order to verify the correct

application of the "the reporting methodology";

- Conducted at the Aggregates & Concrete, and Cement business lines, interviews with key personnel responsible for environmental reporting, in order to verify the correct application of the "the reporting methodology";
- Performed an analytical review on a sample of data to check the effectiveness of consolidation of the information at the corporate level;
- Selected for environmental, Health & Safety and social indicators, a sample of entities on the basis of their activities and contributions to the Group's consolidated data: ten cements plants, two regional technical center, seven business units, two concrete plants, on aggregates quarry, two cements quarries and the GIE Aggregates & Concrete. Selected entities are located across the globe (France, USA, Austria, UK, China, Russia)
- Tested at site level, the understanding and correct application of "the reporting methodology", conducted detailed checks on a sample of collected data, its supporting evidence and calculation methodology and formulas applied.
- At the Cement business line, checked the consistency of CO<sub>2</sub> emissions for sites in France with those figures declared to the appropriate authorities in accordance with reporting obligations under the Framework of the 2003/87/CE European Directive on EUETS 'allowances'. We undertook the review of the following qualitative social, societal and environmental information, including the following:
- Conducted at the corporate level and selected sites the checking of the qualitative information, except that included within section 3 of registration document duly supported by personnel, interviews and checking of the qualitative information on a sampling basis. The sites and technical centers sampling has covered more than 50% of clinker production. More than 20% of the environmental data was reviewed at operational sites 1. Investigations on site at the social level covered more than 20% of the workforce.

### ◆ INFORMATION ABOUT THE REPORTING METHODOLOGY AND THE VERIFIED DATA

We draw your attention to the following comments on the guidance and the information preparation processes:

### ◆ Relevance:

The published information is widely based on the professional reporting guidelines (WBCSD CSI: World Business Council for Sustainable Development – Cement Sustainability Initiative).

### ◆ Completeness:

The quantitative information represents the operational activities of the Group worldwide; The data relating to the activities of Tulsa and Sugar Creek plants, which were both divested during the second half of the reporting year, have been included in the reporting and the verification activities.

### ◆ Reliability:

As water consumption indicators are new, additional verification of Technical Center was required and implemented to compensate for any reporting difficulties at plant level. The method to account for subcontractor employee headcount differs between sites; however, at the global level the data is seen to be consistent on a year to year basis; Although no major anomaly was detected on safety indicators, the collection of hours worked of the subcontractors could be strengthened.

### ◆ PRESENCE

All the information required by the French decree No. 2012-257 on 24 April 2012 is present in Lafarge's reporting with the exception of "absenteeism" for which justification is provided.

### ◆ CONCLUSION: SINCERITY AND LIMITED ASSURANCE

- For the reported quantitative information, the data testing by Bureau Veritas Certification conducted on a sample basis has not revealed any significant discrepancy, error or mis-statement at the corporate level.
- For the reported qualitative information, the work conducted did not reveal any significant error, bias or mis-statement in assertions made.
- On the basis of the defined scope work, we have issued the above comments, and nothing has come to our attention to suggest that the information communicated by the Lafarge in its registration document is not reliable.

Puteaux, March, 1, 2013

**Etienne Casal**, Managing Director, Bureau Veritas Certification France S.A.S.



# KEY PERFORMANCE INDICATORS

## BUILDING COMMUNITIES

Health & Safety		Unit	2010	2011	2012	Perimeter	Reference
Fatalities	Fatalities (directly employed)	#	9	8	5	Group	GRI (LA7)
	Fatalities per 10,000 directly employed	#	1.18	1.11	0.77	Group	GRI (LA7)
	Fatalities (indirectly employed)	#	24	17	12	Group	GRI (LA7)
	Fatalities (3 <sup>rd</sup> party)	#	11	9	8	Group	GRI (LA7)
	<b>Total</b>	#	44	34	25	Group	GRI (LA7)
Lost Time Injuries	Lost Time Injuries (directly employed)	#	120	93	105	Group	GRI (LA7)
	Lost Time Injuries per 1 million manhours (directly employed)	#	0.76	0.63	0.75	Group	GRI (LA7)
	Lost Time Injuries (indirectly employed - contractors and sub contractors on site)	#	111	62	51	Group	GRI (LA7)
	Lost Time Injuries per 1 million manhours (indirectly employed)	#	0.94	0.58	0.47	Group	GRI (LA7)
	<b>Total</b>	#	231	155	156	Group	GRI (LA7)
<b>Community Development and Outreach</b>							
Sites footprint	Industrial sites <sup>(1)</sup>	#	1,963	1,604	1,570	Group	
	Cement plants	#	168	166	161	Cement	
	Industrial sites in Latin America <sup>(2)</sup>	#	60	60	62	Group	
	Industrial sites in North America	#	560	354	346	Group	
	Industrial sites in the Middle East and Africa	#	208	241	230	Group	
	Industrial sites in Europe	#	867	759	709	Group	
	Industrial sites in Asia	#	191	190	153	Group	
Local stakeholders management	Target population (regional and area managers) who have been trained on the Group stakeholder methodology	%	81%	76%	64	Group	CSI (6.3)
			Cement	Cement	41		
			80%	80%	A & C		
	Sites that organize regular meetings with their stakeholders / local communities	%	85%	88%	76	Cement	
	Sites with an annual local action plan detailing planned stakeholder engagement	%	64%	69%	65	Cement	CSI (5.5)
<b>Employee Diversity and Skills</b>							
Workforce	Total Headcount	#	75,677	67,923	64,337	Group	GRI (LA1)
	Full-time employees	%	99.1	99	99.1	Group	GRI (LA1)
	Part-time employees	%	0.9	1	0.9	Group	GRI (LA1)
	Permanent employees	%	96.0	97.0	96.4	Group	GRI (LA1)
	Fixed-term contract employees	%	4.0	3.0	3.6	Group	GRI (LA1)
	Employees under the age of 30	%	16.7	16.1	15.0	Group	GRI (LA13)
	Employees between 30 and 50	%	63.3	63.0	63.6	Group	GRI (LA13)
	Employees above 50	%	20.0	20.9	21.4	Group	GRI (LA13)
Turnover	Employee turnover rate	%	N/A	N/A	14.2%	Group	
	Voluntary employee turnover rate	%	N/A	N/A	4.6%	Group	
	Hirings	#	5,991	7,400	5,544	Group	GRI (LA2)

<sup>(1)</sup> Including gypsum sites. <sup>(2)</sup> Gypsum sites are not included in regional breakdown.

	Unit	2010	2011	2012	Perimeter	Reference	
Resignations	Resignations	#	3,752	3,770	2,996	Group	GRI (LA2)
	Retirements	#	1,057	776	910	Group	GRI (LA2)
	Redundancies	#	3,986	4,308	3,298	Group	GRI (LA2)
	Deaths	#	142	125	98	Group	CSI (3.2 & 3.8)
	Male / Female fatalities	#		33M/1F	24M/1F	Group	GRI (LA7)
Employees by business	Employees in cement	#	44,253	43,392	41,249	Cement	
	Employees in Aggregates and Concrete	#	23,438	23,242	21,780	A & C	
	Employees in other businesses (gypsum)	#	7,986	1,289	1,308	Gypsum	
Employees by region	Employees in Middle East and Africa	#	18,843	20,376	19,644	Group	
	Employees in Central & Eastern Europe	#	7,652	7,464	7,041	Group	
	Employees in Western Europe	#	1,626	12,202	11,448	Group	
	Employees in Asia	#	19,454	15,742	14,774	Group	
	Employee in North America	#	10,748	9,604	8,821	Group	
	Employees in Latin America	#	3,355	2,535	2,609	Group	
Training and skills development	Hours of training	%	1,921,137	1,611,339	1,577,585	Group	
	Hours of training for management staff (average)	%	45	41	39	Group	GRI (LA10)
	Hours of training for non-management staff (average)	%	31	29	33	Group	GRI (LA10)
	Managers attending training courses	%	80	86	79	Group	
	Non managers attending training courses	%	75	75	72	Group	
	Amount spent on training	€m	N/A	28.4	23.7	Group	
	Managers who had an annual performance review	%	94%	91%	88%	Group	GRI (LA12)
	Non managers who had an annual performance review	%	64%	62%	63%	Group	
Diversity	Female share of total workforce	%	16.6	15.8	15.9	Group	
	Women in senior management positions	%	13.5	15.8	16.4	Group	
	Disabled people employed	%	N/A	0.9	0.6	Group	
Well being	Units with a comprehensive employee occupational health program in place	%	N/A	68	76	Group	
Social dialogue	Countries with strike actions	#	14	9	4	Group	
	Countries where employees are covered by collective agreements	%	71	74	78	Group	GRI (LA4)
	Total workforce represented in Health & Safety Committees	%	97	98	99	Group	GRI (LA6)
<b>Governance</b>							
Board governance	Board size / number of directors	#	18	17	16	Group	
	Executive directors	#	1	1	1	Group	
	Non executive directors	#	17	16	15	Group	
	Independent directors	#	11	10	10	Group	
	Directors with 4 or less other mandates	#	8	13	13	Group	
	Women on Board	%	17	18	19	Group	
	Average Board meeting attendance	%	93	93	94	Group	
	Audit fees	€m	16.1	18.8	14.4	Group	
	Total annual compensation of the CEO	€m	1,994	1,778	1,628	Group	
Code of Business Conduct and Competition issues	Political contributions	€m	0	0	0	Group	
	Ongoing antitrust main litigations	#	4	5	5	Group	
	Amount of financial provisions made for pending or in anticipation of antitrust litigation	€m	24	24	24.5	Group	
Countries that have implemented the Competition Compliance Program	%	96	96	100	Group		
Security	Business units contracting security agencies to protect personnel and property	%	69	68	74	Group	
	% of which employ armed personnel	%	24	29	23	Group	

## BUILDING THE CIRCULAR ECONOMY

CO <sub>2</sub> and Air Emissions		Unit	2010	2011	2012	Perimeter	Reference
Carbon emissions	Total CO <sub>2</sub> emissions - gross	Mt	91.8	96.5	96.7	Cement	CSI, GRI (EN16)
	Total CO <sub>2</sub> emissions - net	Mt	89.4	93.7	93.8	Cement	CSI, GRI (EN16)
	Specific CO <sub>2</sub> emissions - gross	kg/t cementitious	620	610	603	Cement	CSI, GRI (EN16)
	Specific CO <sub>2</sub> emissions - net	kg/t cementitious	604	592	585	Cement	CSI, GRI (EN16)
	GHG emissions from energy purchased and consumed (scope 2)	Mt	8.390	9.003	8.907	Group	
Air emissions	Total NOx emissions	t/year	198,022	188,828	187,554	Cement	CSI, GRI (EN20)
	Specific NOx emissions	g/t clinker	1,810	1,636	1,611	Cement	CSI, GRI (EN20)
	Total SO <sub>2</sub> emissions	t/year	47,309	49,404	41,076	Cement	CSI, GRI (EN20)
	Specific SO <sub>2</sub> emissions	g/t clinker	432	428	353	Cement	CSI, GRI (EN20)
	Total Dust emissions	t/year	17,332	16,842	15,463	Cement	CSI, GRI (EN20)
	Specific Dust emissions	g/t clinker	158	146	133	Cement	CSI, GRI (EN20)
	Mercury emissions	t/year	3.5	3.8	3.8	Cement	CSI, GRI (EN20)
	Mercury emissions	mg/t clinker	31.7	33.0	32.7	Cement	CSI, GRI (EN20)
	Dioxin/Furans emissions	g TEQ/year	7.1	4.7	3.3	Cement	CSI, GRI (EN20)
	Dioxin/Furans emissions	ng/t clinker	64.7	40.4	28.1	Cement	CSI, GRI (EN20)
	VOC emissions	kt/year	4.1	4.5	3.8	Cement	CSI, GRI (EN20)
	VOC emissions	g/t clinker	37.7	39.0	32.8	Cement	CSI, GRI (EN20)
	Heavy Metals' emissions ("HM1"): Cd+Tl*	t/year		4.06	4.26	Cement	CSI
	Heavy Metals' emissions ("HM1"): Cd+Tl*	mg/t clinker		35.2	36.6	Cement	CSI
	Heavy Metals' emissions (HM2): Pb+As+Co+Ni+Sb+Cr+Cu+Mn+V**	t/year		124.15	115.3	Cement	CSI
	Heavy Metals' emissions (HM2): Pb+As+Co+Ni+Sb+Cr+Cu+Mn+V**	mg/t clinker		1,075	991	Cement	CSI
	Clinker produced with monitoring dust, SO <sub>2</sub> and NOx emissions	%	90	94	97	Cement	CSI
	Clinker produced with continuous monitoring dust, SO <sub>2</sub> and NOx emissions	%	62	66	71	Cement	CSI
	Clinker produced with monitoring "HM1" emissions	%		44	56	Cement	
	Clinker produced with monitoring "HM1" emissions	%		45	58	Cement	

## Energy Consumption and Resources Management

Energy efficiency	Total energy consumption	PJ	431.5	464.6	456.6	Group	
	Direct energy consumption by primary energy source	MTEP	9.88	10.39	10.44	Group	GRI (EN3)
	Electricity purchased	GWh	14,819	16,003	15,653	Group	
	Specific heat consumption of clinker production	MJ/t clinker	3,671	3,661	3,653	Cement	CSI
	Clinker Intensity	%	73.9	73.0	72.6	Cement	CSI
Alternative fuels	Alternative fuels	%	11.5	12.8	13.9	Cement	
	Biomass Fuel rate	%	4.0	4.7	5.5	Cement	CSI, GRI (EN4)
Materials	Quantity of quarried material	Mt	360.0	373.9	375.1	Group	CSI, GRI (EN1)
	Alternative raw materials rate	%	8.22	8.24	8.78	Group	CSI, GRI (EN2)
	Consumption of material	Mt	395.9	415.3	420.9	Group	CSI, GRI (EN1)
Waste	Dust disposed on-site	kt	687	556	557	Cement	GRI (EN22)

	Unit	2010	2011	2012	Perimeter	Reference
Non hazardous waste recovered	kt	171.0	221.4	352.9	Group	GRI (EN22)
Non hazardous waste disposed	kt	110.2	314.7	367.3	Group	GRI (EN22)
Hazardous waste recovered	kt	18.6	8.1	6.0	Group	GRI (EN22)
Hazardous waste disposed	kt	35.1	2.1	2.0	Group	GRI (EN22)

## Natural Resources

Biodiversity	Sites with quarry rehabilitation plans in place	%	84.5	86.4	84.6	Group	CSI, GRI (EN 14)
	Quarries within, containing, or adjacent to areas designated for their high biodiversity value, as defined by GRI EN11 (number and coverage)	#	N/A	132	131	Group	CSI, GRI (EN 11)
	Quarries with high biodiversity value where biodiversity management plans are actively implemented	%	N/A	49.2	99.2	Group	CSI, GRI (EN 14)
	Active quarries that have been screened for biodiversity according to WWF's criteria	%	90.7	97.2	100	Group	CSI, GRI (EN 14)
	Quarries engaged in formalized partnerships with NGOs for nature conservation	%	N/A	28.6	34.6	Group	CSI, GRI (EN 14)
Materiality <sup>(3)</sup>	Environment capital expenditure	€m	N/A	73.6	64.1	Group	GRI (EN 30)
	Environment operating expense <sup>(4)</sup>	€m	N/A	N/A	138.5	Group	GRI (EN 30)
Water <sup>(5)</sup>	Sales generated in water stressed regions <sup>(6)</sup>	%	N/A	24.7	20.3	Group	
	Total water withdrawal from ground water	Mm <sup>3</sup>	96.4	41.7	40.9	Group	GRI (EN8)
	Total water withdrawal from open water	Mm <sup>3</sup>	182.2	211.6	221.5	Group	GRI (EN8)
	Total water withdrawal from other sources	Mm <sup>3</sup>	15.2	13.6	12.5	Group	GRI (EN8)
	Rainwater harvested	Mm <sup>3</sup>	23.4	15.7	16.1	Group	GRI (EN8)
	Net water withdrawal	Mm <sup>3</sup>	174.9	120.8	125.6	Group	
	Quantity of water consumed	Mm <sup>3</sup>	97.19	81.78	82.56	Group	
	Sites equipped with a water recycling system	%	72.9	68.5	69.7	Group	GRI (EN10)
	Specific water consumption	l/t	317	314	305	Cement	
	Verification	Sites (in terms of revenues) audited as part of our Environmental Management System	%	99.2	88.4	89.3	Group

<sup>(1)</sup> Cadmium & Thallium.  
<sup>(2)</sup> Lead, Arsenic, Cobalt, Nickel, Antimony, Chromium, Copper, Manganese & Vanadium.  
<sup>(3)</sup> In 2012, environmental fines amounted to €305,000, in addition to the US\$740,000 announced in our 2011 Sustainability Report.  
<sup>(4)</sup> In 2012, we started measuring operating expenses. That is why we report this figure for 2012 only. Figures reported previously were estimated. It includes the cost of one spill of cement due to a failure of a dust collector in the United States.  
<sup>(5)</sup> Including gypsum.  
<sup>(6)</sup> In 2011 only cement operations were reported. In 2012 our reporting scope also includes the aggregate operations, 16% of which are situated in water stressed regions.



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