



'09

SUSTAINABILITY REPORT

## SCOPE OF REPORT

CIMPOR's 2009 Sustainability Report is a complementary publication to the Group's Annual Report and Accounts for the period in question.

The 2009 Sustainability Report only covers the Cement activity of the Group in the Business Areas of Portugal, Spain, Morocco, Tunisia, Egypt, Turkey, Brazil, Peru, Mozambique, South Africa, Cape Verde, China and India.

## CHAIRMAN'S STATEMENT

Dear Partners,

In little more than thirty years and with only four different leadership teams on the Board of Directors, we have always been capable of continuing the strategy and the work carried out by previous leaderships, thus allowing CIMPOR to become today an international group of reference in its sector of activity, operating on four continents where it provides direct employment to around eight thousand seven hundred people and, as a consequence, ensure the sustainability of their families.

Sustainable development is a concept at the root of our culture which we keep alive today in our day-to-day lives, through the preservation and enhancement of the wealth generated and our respect for the natural resources available to us and for the communities that are close to us.

Throughout our internationalization process, which began in 1992, we have learned to build an assets structure that is balanced between mature and emerging markets, which has proven to be fundamental to the sustained creation of wealth - one of the core pillars of the social role we perform.

Our concern with reconciling the creation of wealth with the social responsibility that we are accountable to is a priority that is fully assimilated in all our business areas, without exception.

We have made, with that goal in mind, every effort to harmonise the excellence of our technical, economic and financial performance with the effective exercise of a position of social and environmental responsibility.

Accordingly, we freely make commitments that drive us to constantly develop best practices in terms of the environment, innovation, quality of life of the communities close to our facilities and a transparent and fruitful climate in relations with all our stakeholders.

In view of the specific characteristics of each country where we operate and the diversity of those countries' social priorities, we seek to ensure that the social intervention strategy of the Group is interpreted and implemented in accordance with local circumstances, leading us to implement or sponsor a highly varied range of initiatives.

In the future we will continue to play a leading role in the consolidation of our sector, advancing along the path of growth and internationalisation, ensuring that our performance is in harmony with the principles of the sustainable development policy.

*Ricardo Bayão Horta*

*Chairman of the Board of Directors of CIMPOR*

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OUR SUSTAINABLE  
FUTURE



## OUR SUSTAINABLE FUTURE

One of the major developments in the business climate of recent years has to do with the increased expectations of stakeholders directed at the business world as regards companies' responsibilities relative to the major current economic, environmental and social issues and their ability to change rules of the game, taking on the role of leaders in this process towards a more sustainable society.

There is growing concern in society regarding issues such as climate change, the consumption of natural resources, atmospheric emissions, health and safety at work and employability. Requests to the business world for the establishment of closer relations with an increasingly wider reaching local business environment have increased, as the economic and financial results of companies comprise only one, albeit important, part of their worth. The intangible assets of businesses, which include aspects as diverse as intellectual capital, the transparency of the governance system, relations with stakeholders and social and environmental responsibility, must occupy a growing share in their long-term creation of value.

### SUSTAINABILITY AS A STRATEGY FOR CREATING VALUE FOR ALL STAKEHOLDERS

The main priority of the CIMPOR Group's senior management is the ongoing creation of value for the stakeholders in the long term and, along the same lines, ensuring business sustainability.

Accordingly, ensuring the harmonisation, in a balanced and transparent manner, of the level of excellence of economic, financial and technical performance with very demanding environmental, social and ethical principles allows this major priority to be achieved, not only constituting one of the pillars of the corporate culture of the CIMPOR Group but also a fundamental prerequisite for its development and future success.

The CIMPOR Group, so that such might occur, is concerned with promoting open dialogue, the mobilisation of all those with whom it has relations and ensuring that all its staff and subsidiaries behave in a socially responsible manner so that they may be viewed in the communities where they operate as essential partners in their development and prosperity, and inspire by example other industries and other sectors to invest in this pathway towards progress.

### PRINCIPLES OF CORPORATE GOVERNANCE AND CONDUCT

No company will be sufficiently credible in today's market without a good system of corporate governance. Hence, CIMPOR adopts the Best Practices in Corporate Governance and complies with legislation in force, especially the CMVM Regulations and Recommendations, as presented in detail in the Annual Report 2009.

Promoting correct conduct and socially responsible behaviour, corporate-wide and among all subsidiaries and respective employees, in an increasingly globalised world with a broad spectrum of cultures and values, is nowadays an important goal for many multinational companies and CIMPOR cannot fail to be at the forefront. This means, among other aspects, ensuring compliance with local, national and international laws and regulations and conducting business in each Business Area bounded by the principles of honesty and integrity, based on frank and open communication with employees and stakeholders.

The management policies of the CIMPOR Group have always been based on strict compliance with a set of ethical values, both internally and in its external relations. The Board of Directors decided in 2006 to establish in a code a set of rules on these matters and approved the corporate code of ethics with the aim of specifically regulating such matters and to formalize the observance by all Group employees of the high standards of conduct required for the performance of their respective duties. The Irregularities' Reporting Regulations of the CIMPOR Group began to be published from that year with the Code of Ethics, thus establishing an important benchmark for the CIMPOR Group.

Since the publication of that Code, in-house programs aimed at fostering ethics, moral codes, respect for human rights, respect for labour laws and other socially acceptable practices have and are being implemented in an official capacity in various Business Areas, so as to create a common in-house approach on the subject. Some of the most significant matters mentioned in the Code of Ethics are:

- The ethics commitment of the CIMPOR Group to ensure the equal treatment of its employees in conformity with fundamental values of human rights such as non-discrimination on grounds of nationality, gender, ethnicity, religious or political beliefs;
- The CIMPOR Group's commitment to ensuring the handling of environmental, health and safety issues in a complete manner;
- Corruption and bribery are strictly prohibited and liable for punishment since they not only violate the duties of the post held by employees but also contravene all ethical principles governing the activity of the CIMPOR Group and its stakeholders.

As a multinational company it is important to disclose both internally and externally the values and ethical principles governing the business activity and the principles governing the sustainability policy, which include the environment, health and safety and social responsibility fields, among others.

It is essential that employees know, incorporate and respect these values, which is why they are regularly disclosed at management meetings, in CIMPOR News, the BBT Technical Bulletin, in the CIMPOR Group Management Training Programme, Internal work groups, Follow-up Technical Visits of Operating Units (OU's), and at External Audits, among others.

The Internal Audit Office (GAI), a corporate body of the CIMPOR Group, assists the Organisation in achieving its objectives, through a systematic and disciplined approach to assessing the effectiveness of risk management, control and the governance processes, and also encompassing integrity and ethical values.

Part of the data published in the Annual Report (financial information) and Sustainability Report (e.g. CO<sub>2</sub>, fuel and raw materials, cement additives, OH&S) and annually reported by the Business Units are also directly or indirectly checked by independent external entities.

Furthermore, there is an annual programme of technical visits by specialised staff of the CIMPOR Group's Technical Centre (CIMPOR TEC), which verifies the quality of the data reported, the internal implementation of established measures and compliance with the defined goals.

## SUSTAINABILITY ORGANISATION IN THE CIMPOR GROUP

### SUSTAINABLE DEVELOPMENT STEERING COMMITTEE (CPDS)

The Sustainable Development Steering Committee guarantees the implementation and internal monitoring of the CIMPOR Group's initiatives in the field of sustainable development and the commitments made under the CSI. It is directly led by the Chairman of the Board of Directors of the CIMPOR Group, who is simultaneously chairman of the "Internal Consultative Committee of the Board of Directors on Corporate Governance and Social Responsibility", which concerns itself with this issue, among others. The members of the Steering Committee include the Director for the Operational Area, the CEO of CIMPOR TEC, the officer responsible for sustainability at the corporate level who is also the WBCSD /CSI Liaison Delegate, the officers responsible at the corporate level for Communication and for Safety and, whenever necessary, the company representatives in the different working groups. The geometry of this committee varies according to the topics to be discussed at any time.

Each of the representatives of CIMPOR on the external working groups of the CSI, created with the purpose of carrying out collective tasks of the **Cement Sustainability Initiative (CSI)** is also, within the CIMPOR Group, the officer responsible for developing internal working groups to implement the commitments made by the company in the CSI and under its own internal policy.

The coordination of the activity of each of the working groups is ensured by the CIMPOR Liaison Delegate for the CSI, in direct liaison with the Chairman of the Board of Directors and the Executive Committee of the CIMPOR Group, keeping them informed of the main activities, initiatives and programmes developed in this regard in the CSI.

Ad hoc working groups will be set up whenever necessary to develop policies, projects, protocols, codes, good practice guidelines and specific measures in this field at the Group's subsidiaries in the different Business Areas. The main goals of this Steering Committee are as follows:

- Ensure internal alignment with the principles of sustainable development in all business areas according to the vision and strategy of the CIMPOR Group and also monitor the progress made;
- Guarantee compliance with the individual commitments taken on by the CIMPOR Group as well as all the targets set in the context of our participation in the Cement Sustainability Initiative and the WBCSD;
- Guarantee the inclusion and formalisation of goals related to sustainable development in the decision-making process, in other words, in Strategic Planning, the Business Plan and the Annual Budget of the CIMPOR Group;
- Ensure the standardisation of reporting activities in the sustainability area in relation to the subsidiaries of the CIMPOR Group;
- Contribute to the definition and implementation of an effective and coherent internal and external communication policy of the CIMPOR Group in this field;

### INTRA-GROUP OVERSIGHT COMMITTEE (CIA)

In addition to meetings of the Sustainable Development Steering Committee convened by the Chairman of the Board of Directors of the CIMPOR Group, the Intra-Group Oversight Committee meets five to six times per year, whenever necessary, when convened by the Executive Committee of the CIMPOR holding company. These meetings are attended by, in addition to the directors of the Executive Committee, the heads of each of the CIMPOR Group's Business Areas/Regions, CIMPORTEC, the heads of other central departments and the officer responsible for sustainability at the corporate level, who is also the WBCSD/CSI Liaison Delegate.

These meetings are intended to discuss and approve corporate initiatives in various fields included those concerning sustainability, as well as assess the progress made by those initiatives in relation to the Group's goals.

### SUSTAINABLE DEVELOPMENT ADVISORY OFFICE (APDS)

The Sustainable Development Advisory Office (APDS) was created in mid-2008, thus embodying a new stage in the internal organisation of sustainability. Its mission is to support the implementation, in the Cement activity, of the Agenda for Sustainable Development of the CIMPOR Group, the adoption of Sustainability Best Practices, and challenge the various operational units to improve their sustainability performance.

## WBCSD AND BCSD PORTUGAL

CIMPOR has always sought throughout its history to identify the interactions required to improve the overall performance of its business and, accordingly, find partners who likewise wanted to mutually discover new ways forward and make commitments to an identical extent in the field of sustainable development.

The CIMPOR Group's accession in 1997 to the WBCSD – World Business Council for Sustainable Development represents one of the milestones of its recent history, forming part of the partnership policy in which the Group intends to engage increasingly more.

In 2001, and in the same vein, the Business Council for Sustainable Development (BCSD Portugal) was founded at the initiative of CIMPOR and 35 other Portuguese companies or companies operating in Portugal. BCSD Portugal joined the WBCSD's vast regional network in 2001.

CIMPOR participates on a regular basis and with great enthusiasm in the many events organised by WBCSD and BCSD Portugal, in order to familiarise its employees with the new challenges faced by the business world and society in general. This is precisely what happened in 2009 when CIMPOR participated for the fourth time in the WBCSD's programme "Future Leaders Team (FLT)", which was dedicated this year to the issues of "Inclusive Business" and "Measuring Impact Framework Methodology" and included CIMPOR signing the "Energy Efficiency in Buildings (EEB)" Manifest of the WBCSD.

In relation to the EEB Manifest, given that buildings account for about 40% of energy globally consumed, CIMPOR and a group of WBCSD member companies signed, at the highest level, an "Energy Efficiency in Buildings" Manifest whereby they undertake to voluntarily analyse the current energy consumption situation of their non-industrial buildings and take the most suitable measures to reduce consumption over the next few years. They also agree to report the progress made in their Sustainability Reports.

This initiative is also intended to send an important message to the market, employees and other stakeholders of the CIMPOR Group.

### CEMENT SUSTAINABILITY INITIATIVE (CSI)

This is one of the largest ever sustainability programs voluntarily undertaken by an industry, which has been mobilising an important set of stakeholders of this industry and gaining for it a growing reputation. This initiative, besides aiming to create a vision and values of sustainability among companies and their organisational structures, also seeks to strengthen dialogue with the main external stakeholders.

The pioneering CSI – Cement Sustainability Initiative project, which was established in 1999, was initially the scheme of the world's ten largest cement manufacturers, including CIMPOR from its inception, to apply that concept to the cement sector, under the standard of the WBCSD.

Even though all these companies, which currently number twenty-three, have been developing projects in this field over the years, for the first time CSI represents an opportunity to join forces to together tackle the challenges facing the entire sector and society in general, providing a unique opportunity to mobilise society's different actors at a global level.

The referred to companies, after undertaking an independent research programme and consulting stakeholders, endorsed and launched a five-year voluntary action plan in July 2002, which they called *Our Agenda for Action*, and which constitutes the first major formal commitment of the world leaders of this industry relative to the adoption of a policy of sustainable development. This action plan identified **six key areas** considered as sensitive for progress towards a more sustainable society, and it called for contributions from experts inside and outside the sector on how best to handle those key areas:

- Climate protection and management of CO<sub>2</sub> emissions;
- Responsible use of raw materials and fuels;
- Worker safety and health;
- Emissions monitoring and reporting;
- Impacts on land use and local communities;
- Reporting and Communication.

It was, until then, a reference document within the CIMPOR Group profusely disseminated in all Business Areas, forming the basis for all sustainable development-related projects, initiatives, training and internal and external disclosures, and which has underpinned the Sustainability Agenda of the CIMPOR Group.

The CSI project sets a 20-year time frame for monitoring the evolution of the sector, divided into four five-year cycles, making it easier to integrate in the industry's standard planning and investment cycles.

The Our Agenda for Action established a programme that precisely corresponds to the first of these cycles, but while the next action plan is not released in a more official manner, new activities approved by the Coe's of the companies involved in the CSI are already in motion.

The CSI Full Report was published at the start of 2008. This report focused on the evolution of the commitments undertaken by the respective chairmen in the Our Agenda for Action, which was signed in Paris in July 2002. The report publishes the results achieved during the five years the "Our Agenda for Action" plan has been in force. It can be read at [www.csiprogess2007.org](http://www.csiprogess2007.org).

The above-referred six key areas subsequently underwent further development through the creation of new facets or the extension to other areas.

Significant advances were made in 2009 in the work on four new aspects of the key area "Climate protection and management of CO<sub>2</sub> emissions", which is currently the major focus of activity of the CSI and the CIMPOR Group. These being the Getting the Numbers Right project, the Sectoral Approach, the CDM sectoral methodology based on benchmarking and, lastly, the Cement Technology Roadmap, which began in the two preceding years.

Furthermore, two other areas started up, one concerning the "Recycling of Concrete," which has already been concluded, and the other the "Sustainability of Concrete". Their importance means they all deserve highlighting:

- The CSI has completed the project of modelling of a "Sectoral Approach", intended to study the CO<sub>2</sub> problem. The results will help better understand the impact of the different CO<sub>2</sub> emissions mitigation policies, the effect on world trade in cement and on regional markets of the sector. The study was presented in Bonn in July 2009 during the UN meetings on climate change and at the end of 2009 in Copenhagen during the Conference of Parties (CoP15). The brochure and the full results of the model are available at [www.wbcscement.org/sectoral](http://www.wbcscement.org/sectoral);
- The "Getting the Numbers Right" statistical information (database), encompassing the energy and CO<sub>2</sub> performance of the cement sector on a world and regional scale, was strengthened and expanded. This database is managed by an independent body and it is intended to serve the needs of internal and external stakeholders, and to also be taken into account in future negotiations of schemes to mitigate the sector's CO<sub>2</sub> emissions. Information was provided to different stakeholders, various reports produced and several conclusions drawn based on the information generated. The report and overall results are available at [www.wbcscement.org/co2data](http://www.wbcscement.org/co2data);

- In 2009, the CSI proposed, pending approval by the Methodology Panel/CDM Executive Board of the UN Framework Convention on Climate Change (UNFCCC), the sector's Clean Development Mechanism (CDM), based on simple and transparent benchmarking principles adapted to generic projects of the cement sector. This methodology is intended to improve the effectiveness and credibility of this flexibility mechanism whilst also creating incentives for greater participation in the mechanism by companies of the sector;
- The International Energy Agency (IEA), considering the mandate provided it by the G8 to develop technology roadmaps for different sectors, invited the WBCSD to collaborate on a document of this type for the cement sector. The working group of CSI with the task of identifying and monitoring emerging technologies, public policies, funding schemes and R&D incentives, aimed at the possible mitigation of the sector's CO<sub>2</sub> emissions, concluded the work it was jointly carrying out with the IEA in 2009. This partnership resulted in the development of a technology roadmap to 2050, which is a good working tool for the cement sector and has been presented at various international forums, including the Conference of Parties in Copenhagen (COP15). The roadmap was developed based on data and projections from the IEA and a set of technology papers developed by CSI/ECRA, highlighting all the technologies in the sector, whether available or emerging, that might contribute to the reduction of CO<sub>2</sub> emissions. The report is available at [www.wbcscement.org/technology](http://www.wbcscement.org/technology).
- The publication of the "Recycling Concrete" report in July 2009. The aim of this CSI report is to raise awareness of the sector's different stakeholders concerning the recycling of concrete (construction and demolition waste), with the ultimate aim of achieving zero disposal of this material at landfills by encouraging its recycling. The report is available at [www.wbcscement.org/recycling](http://www.wbcscement.org/recycling).
- The CSI working group created in 2008 to explore the facets of concrete from the perspective of the product's sustainability in an increasingly urbanized world, called the "Sustainability of Concrete" validated the proposed work programme, after a period of research;
- The working group on occupational health and safety, in order to put an end to the fatal accidents that continue to occur among contractors and drivers providing services to the sector, initiated and concluded the drawing up of very ambitious safety guidelines for those two groups, and which will be individually implemented over the next 5 years;
- CSI also began in 2009 a process of internal discussion aimed at reflecting on the next steps and action to be taken in the future in order to maintain a path of sustainability for the sector, called CSI Looking Ahead.

The third CSI Forum was held in 2009 in São Paulo, Brazil. This seminar aims to expand on the discussion and sharing of knowledge on the theme of sustainability among the companies participating in the CSI initiative. The seminar included guest interventions from specialists on sustainability and various professional associations of the cement sector.

The initiative will continue under the banner of the WBCSD. Its recently revamped website ([www.wbcscement.org](http://www.wbcscement.org)) will continue to publish updates on the progress of its work and also general information on sustainable development.

## CONSOLIDATION PERIMETER OF THE CIMPOR GROUP'S 2009 SUSTAINABILITY INDICATORS

Between 1990 and 2009, the CIMPOR Group grew from a company with six operating units (OU's) in Portugal, two of which have since ceased to belong to the company, to an international group with 40 operating units (26 cement plants and 14 grinding plants) in its Cement Business and also operations in a further 12 Business Areas: Spain, Morocco, Tunisia, Egypt, Turkey, South Africa, Mozambique, Cape Verde, Brazil, China, India and Peru. In Cape Verde and Peru, the activity is developed through depots, since no production units are held in the country.

The term operating unit (OU), as used in this report, invariably refers to complete cement plants or grinding units. Whenever we refer to other types of unit we use the term organisational unit (OrU) (e.g. central office, sales depot, trading services, among others).

Only the operating units of the subsidiaries in which, at the end of 2009, the CIMPOR Group held management control and in which traditional reporting systems are in place were considered in the consolidation of data for this Sustainability Report.

The Group acquired a new cement grinding plant on the island of Tenerife, Spain, at the start of 2009. Also in 2009, the former grinding unit at Hasanođlan in Turkey was converted into an integrated cement production plant by the installation of a new clinker production line.

The clinker production line at Liyang, China, also came into regular operation in 2009. These three new OUs will fall within the consolidation perimeter of the CIMPOR Group from 2009, for the purposes of the Sustainability Report.

Two more OU's from China – the Shanting (Zaozhuang) plant and Huai'an grinding unit – should be added to the consolidation perimeter in 2010, as they very recently began operations and the corporate reporting systems have not yet been established.

All indicators published in this report refer, therefore, to this new perimeter and this current group of 40 OU's.

The only exception encompasses the OH&S indicators which in 2009, in addition to the above-described cement plants and grinding units, include shared central business and corporate services connected to the Cement Activity in the Portugal Business Area (CIMPOR – Cimentos de Portugal, SGPS, SA; CIMPOR PORTUGAL, SGPS, SA; CIMPOR TEC, SA; CIMPOR Serviços, SA; CECISA – Comércio Internacional; CTA – Cement Trading Activities and the Network of Sales Depots/Cement Terminals), as well as shared central services connected to the Cement Activity, some of the subsidiaries in countries where the CIMPOR Group operates in which such services also exist (the Spain, Brazil, South Africa and Turkey Business Areas).

## SUMMARY OF THE MAIN SUSTAINABILITY GOALS OF THE CIMPOR GROUP

In 2009, the CIMPOR Group continued to pursue previously set goals relating to these topics, internally implementing actions relating to those goals, which will be detailed in this Report.

The following table summarises the evolution of the main key performance indicators used to monitor progress and the established goals:

WBCSD/CSI KPIs	2008	2009		PROGRESS AND GOALS
<b>CLIMATE CHANGE</b>				
% of OU's using the WBCSD/WRI CO <sub>2</sub> Protocol	100%	100%	☺	100%
Total direct net CO <sub>2</sub> emissions (million t)	18.4	17.7	-	n.s.
Direct net specific CO <sub>2</sub> emissions (Kg CO <sub>2</sub> per tonne of clinker)	872	870	* *	n.s.
Direct net specific CO <sub>2</sub> emissions per tonne of cementitious product	680	677	⇒	15% less total net emissions in 2015 (reference year - 1990) (reference: ~610 kg CO <sub>2</sub> /t of cementitious product).
<b>ALTERNATE FUELS AND RAW MATERIALS</b>				
Overall % use of alternative raw materials (clinker and cement)	9.8%	9.3%	⇒ ➔	10% in 2010; New goal: 10% in 2015 (current perimeter very different to previous one)
% of clinker used in manufacture of cement	77.1%	76.7%	* *	n.s.
Overall energy efficiency of clinker kilns (MJ/t of clinker)	3,586	3,565	* *	n.s.
Overall % use of alternative fuels (fossil and biomass alternative fuels)	5.0%	4.6%	⇒ ➔	10% in 2010; New goal: 10% for 8 Business Areas in 2015 (current perimeter very different to previous one)
Overall % use of biomass	2.3%	1.5%	⇒ ➔	5.0% in 2010; New goal: 2.5% for 8 Business Areas in 2015 (current perimeter very different to previous one)

WBCSD/CSI KPIs	2008	2009		PROGRESS AND GOALS
<b>OCCUPATIONAL HEALTH AND SAFETY</b>				
Number of fatal accidents involving direct employees	0	1	⊖	0
Mortality rate per 10,000 direct employees	0	1.69	⊖	0
Number of fatal accidents involving indirect employees (on contract and sub-contracts)	8	6	⊖	0
Number of fatal accidents involving third parties	0	0	⊕	0
Number of accidents of direct employees with loss of working days	60	51	-	n.s.
Frequency rate of accidents of direct employees with loss of working days per 1 million hours worked	6.68	4,10	⊕	< 5.74 in 2009; 2010: < 3.9; 2011: < 3.5; 2012: < 3.10; 2013: < 2.6
Number of working days lost involving direct employees	2,834	2,975	-	n.s.
Severity rate per 1 million hours worked for direct employees	320	239.4	⊕	< 256 in 2009; 2010: < 192; 2011: < 453; 2012: < 123; 2013: < 98
Number of accidents of indirect employees with loss of working days	123	122	-	n.s.
<b>EMISSIONS</b>				
Specific particle emissions (g/t of clinker)	171.6	161.6	⊖	125 g/t of clinker in 2009; ➔ New goal: 100 g/t of clinker in 2015
Total particle emissions (t/year)	3,436.6	3,242.0	-	n.s.
Specific NO <sub>x</sub> emissions (g/t of clinker)	1,682.8	1,656.9	⊖	1,750 g/t of clinker in 2009; ➔ New goal: 1,700 g/t of clinker in 2015
Total NO <sub>x</sub> emissions (t/year)	33,702.77	31,593.00	-	n.s.
Specific SO <sub>x</sub> emissions (g/t of clinker)	300.1	193.5	⊖	300 g/t of clinker in 2009; ➔ New goal: 280 g/t of clinker in 2015
Total SO <sub>x</sub> emissions (t/year)	6,010.7	3,881.8	-	n.s.
% clinker produced in kilns equipped with an occasional or continuous monitoring system for principal pollutants and micro-pollutants	80.8%	95%	⇒	100% in 2010; General Rule: 100% in the 2 years following each acquisition;
% clinker produced in kilns equipped with a continuous monitoring system for principal pollutants	95.9%	95%	⇒	100% in 2010; General Rule: 100% in the 2 years following the last acquisition.

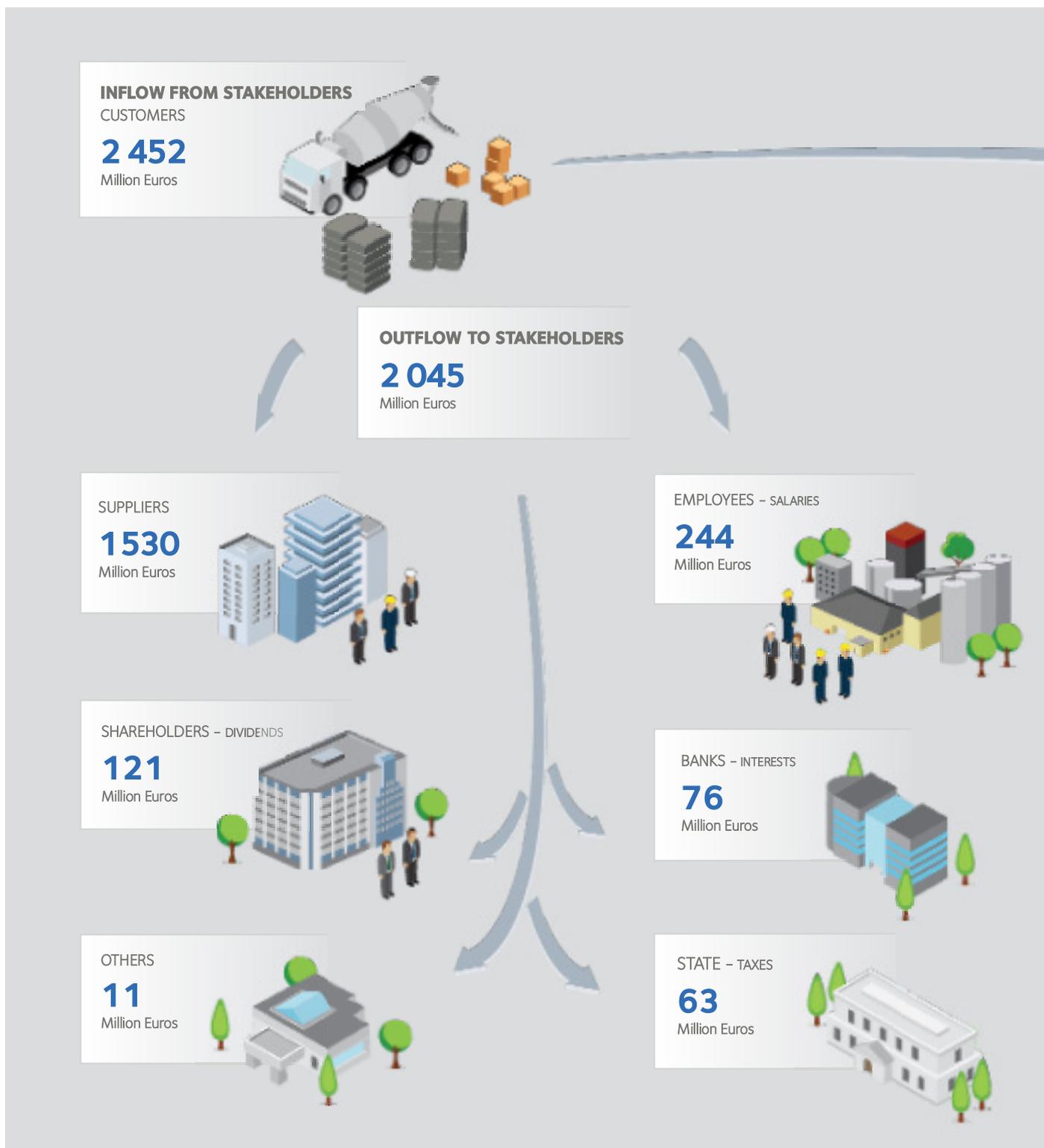
## 01 Our Sustainable Future

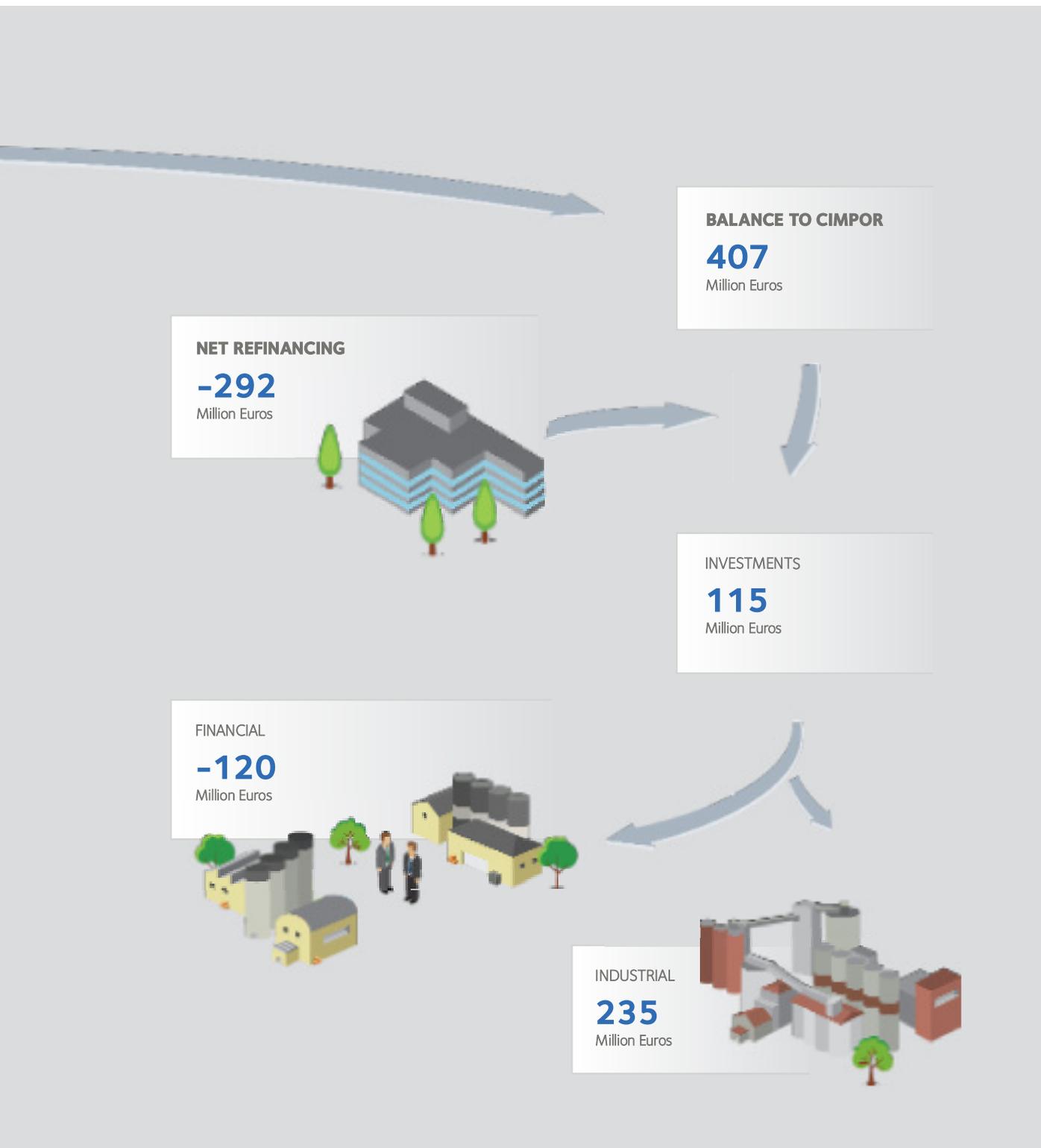
WBCSD/CSI KPIs	2008	2009		PROGRESS AND GOALS
<b>LOCAL IMPACTS</b>				
Number of quarries located in environmentally sensitive areas	n.s.	11 (16%)		n.s.
Percentage of sites (quarries) of high biodiversity value where Biodiversity Management Plans (BMP) are implemented	4	4 (36%)	⇒	n.s. → New goal: 7 (64%) with BMP's in 2015
% OU's with plan for the regular engagement of local communities and other stakeholders	71%	85%	⇒	100% in 2010;
Percentage of active operating units with approved environmental rehabilitation plans (ERP) for quarries	72%	78.3%	⊕	80% in 2008; 100% in 2009; → New goal: 90% with approved ERP's for 2015.

## KEY:

- New Goal
- ⇒ Undergoing development
- ⊕ Goal Achieved
- ⊖ Goal Partially Achieved
- ⊗ Goal Not Achieved
- \* No Associated Commitment
- Not Applicable/Not Available

ECONOMIC PERFORMANCE







## SOCIAL RESPONSIBILITY



## **POLICY ON COMMUNICATION AND RESOURCE DEVELOPMENT**

The CIMPOR Group's communication policy, based on the principles of integrity and transparency, guarantees the development of relations with its stakeholders and the general public.

The different Business Areas may possess, due to the specific nature of the respective locations, their own communication bodies operating under the supervision of the holding company's Communication and External Relations Department.

The CIMPOR Group encourages continuous technological update, ensuring that it is equipped with the means required to guarantee effective communication with in-house and external audiences in all the areas where it operates.

## **STAKEHOLDERS' ENGAGEMENT**

The CIMPOR Group's industrial projects in the countries where we have begun operations are implemented in a long-term perspective and comprise a commitment to create, develop and maintain constructive and lasting relationships of proximity with all stakeholders through ongoing investment in operating units, in people and the communities in which we operate.

We seek through the operating units, which often constitute the main industry in many of the communities in which we operate, to work closely and in harmony with these communities, the local authorities and significant stakeholders in order to minimise costs and losses in terms of reputation and image and to work towards common interests. This is accomplished through open, candid and regular dialogue and greater sharing of values.

## **STAKEHOLDER ENGAGEMENT INSTRUMENTS AND PROCESSES**

Effective engagement with stakeholders is essential to our understanding of the world around us as well as the genuine expectations they have of us. Accordingly, CIMPOR has been developing and assessing a number of programmes intended to maintain meaningful dialogue with key stakeholders, either on its direct initiative or indirectly through the various projects that the CIMPOR Group is involved in, such as the Cement Sustainability Initiative (CSI).

The Group is involved in regular dialogue with various groups of stakeholders, especially through its subsidiaries and respective OU's.

Hence, depending on the type or importance of the issues to be dealt with and the geographical situation of the operating units, greater or lesser priority is given to our relations with each of the different groups of stakeholders, or greater or lesser responsibility is delegated in the local management teams to lead the dialogue process.

The process of identifying the stakeholders of our industry, possible partnerships for the sustainability and maintenance of positive and productive dialogue with the stakeholders, even when at different paces, has progressed quite well in the different Business Areas, since it is a theme forming part of the daily concerns of all the managers of the CIMPOR Group.

## 02 Social Responsibility

Several examples of the type of engagement and partnerships that we intend to promote can be found throughout this report. In some cases, these encompass the provision of the necessary information, education and training to suppliers and customers, in order to ensure that a certain product or service is used in an effective and safe manner.

In other cases these partnerships take advantage of the technical and management capabilities of Group companies by involving them in social projects for vocational capacity-building. Such projects aim to foster economic development and to develop entrepreneurship skills among the population of the surrounding communities.

Our involvement can further include indirect aid, through philanthropy, to entities that are publicly recognised for their service to society. This indirect aid consists of donations in cash or in kind, services, study grants, prizes or investment.

There follow some examples of the forms of engagement that we have maintained and the relations' instruments most used:

Stakeholders	Main processes of engagement and relations instruments used in 2009
SHAREHOLDERS	Reporting quarterly and annual profits, and roadshows; Highlights; Investor Relations Office; Strategic Plan; Investor Conferences; CIMPOR Group Website <a href="http://www.cimpor.pt">www.cimpor.pt</a> ; Reporting on the theme of Sustainable Development.
CUSTOMERS	Commercial relations; technical/sales assistance; development of specific products for specific applications; Complaints procedures; Customer satisfaction surveys; Specific programmes for Customers+; Participation in activity-related trade fairs; Producing information brochures on the application of each product.
EMPLOYEES	Annual meetings of the Executive Committee with employees; CIMPORnet, the information portal of the CIMPOR Group; "CIMPOR News" Magazine on the activity of the CIMPOR Group in the world; BBT Magazine focusing on technical and management issues; Interaction with the unions; Code of Ethics and warning procedures, and reporting of irregularities whistle-blowing; Vocational training and skills development; International mobility; Health and well-being programmes; Prevention programmes and Swine flu contingency plans; Holiday camps for employees' children; Sports clubs focused on different sports; Activities organised by the company to foster team spirit; Programmes to support home ownership and the purchase of computer equipment, among others.
TRADE UNIONS	The CIMPOR Group, demonstrating its commitment and responsibility towards its workers and their representatives, periodically concludes and renews collective labour agreements with trade unions. Currently, around 61% of the Group's employees are covered by collective labour regulation instruments.

## 02 Social Responsibility

LOCAL COMMUNITIES	Various local community engagement projects; Volunteering by company employees in the communities; Public meetings and consultations on a wide range of issues; Surveys of the impact of operating units on the communities; Open Days; Environmental and Social Impact Studies; Complaints procedures and the reporting of irregularities (whistle-blowing); Study grants; Promoting vocational training placements for the best students; Varied economic, social, cultural and sports support (corporate patronage and sponsorship). Communication among local communities and local authorities of major projects to increase capacity or significantly change the manufacturing process.
GOVERNMENT AND LOCAL AUTHORITIES	Direct involvement or through relevant (national, regional and international) social-professional associations in a relationship of constructive cooperation; National and local initiatives; International partnerships; Presentations and studies on the sector.
INTERNATIONAL ORGANISATIONS	WBCSD through a sectoral project developed under the aegis of this organisation; Cement Sustainability Initiative (CSI); OECD through the SD Round Table; IEA (International Energy Agency) to prepare a technology roadmap for the cement sector; UNFCCC/CDM Executive Board to develop a new methodology for the cement sector; dialogue with the World Bank and IFC; Habitat for Humanity projects in local communities; World Monuments Fund for the preservation of classified historical heritage, among others.
NGO'S	Involvement in issues specific to each region and in various types of partnership (e.g. social-economic development, environment, biodiversity, HIV/AIDS, malaria and other basic healthcare, health evaluations, education, housing, drinking water to surrounding populations, among others). Some recent examples are: Ezemvelo KZN Wildlife, Organic Farms Group, Ecosida, Kerkenes Eco-Center.
SUPPLIERS AND SERVICE PROVIDERS	Commercial interactions; Consultation and compliance processes; Accreditation of companies and external entities for the provision of services and supplies; Development initiatives promoted by the subsidiaries of the CIMPOR Group; Safety training courses aimed at contractors and vehicle drivers.
UNIVERSITIES	R&D project partnerships; Support to R&D programmes on themes relevant to the company, especially in countries where the CIMPOR Group operates; Training employees; Educational support to university courses in the company's interest and providing professional training placements for the best students; Participation in seminars as part of university programmes.
MEDIA	Fostering a close and transparent relationship with local, national and international media; Permanent channels of institutional dialogue (e.g. DREC - External Relations and Communication Department). Publication of articles in international speciality magazines; CIMPOR Group website <a href="http://www.cimpor.pt">www.cimpor.pt</a> ; Press releases.

In relation to the mapping and segmentation of stakeholders at the local level, ascertaining their concerns and assessing the degree of engagement of our operating units (OU's) with each segment, we developed and implemented a corporate-wide set of guidelines/scorecards in 2008. These are intended to provide general guidance to our subsidiaries and allow each OU to carry out a self-assessment of its current status and, where necessary, take the corrective measures to improve its level of interaction.

From a corporate perspective, one of the largest and most important platforms of the CIMPOR Group for the interaction with stakeholders on a global scale is the WBCSD, of which we have been members since 1997.

Countless dialogue sessions with stakeholders have been held under the WBCSD/CSI since 2000. These sessions are intended to identify the main local, national and worldwide concerns regarding the sustainability of the cement industry.

As part of these joint projects, a general website ([www.wbcscement.org](http://www.wbcscement.org)) was developed to act as a permanent, up-to-date live source of reference of the CSI, its main projects, the question of sustainability in general and a forum for contact with an extended community of local and global stakeholders in the industry, through which all possible interested parties can come to the attention of the CIMPOR Group and find out about the activities that we develop.

## SUSTAINABILITY PARTNERSHIPS

Essential to the progress towards a model of sustainable development is the committed involvement of all sectors of society, as well as the different actors being willing to evolve towards common platforms of understanding on development models, the changes in attitude to adopt and the sharing of a common vision. Therefore, feasible sustainability solutions encompass continuous dialogue with all the Group's stakeholders at the local, regional or international level.

Despite the fact that the issues associated with sustainability are global, local and regional priorities and perspectives vary widely and should be taken into account. Accordingly, dialogue with stakeholders was integrated at CIMPOR into various activities, functions and regions of the company.

The process of stakeholder engagement demands a medium to long-term approach, which requires enough time being made available, on-going learning, specific skills and a solid and permanent commitment on our part in relation to the guarantee of the full transparency of those relations. The aim is, by this means, to ensure that the challenges we are face with are discussed at the most appropriate level, in dialogue between the company's experts and the corresponding stakeholder groups.

We develop strategies and solutions for each of the locations where they will be tested and implemented. The instruments, themes, duration and intensity of the dialogue process are aligned with the particular interests of each stakeholder group. This type of relationship provides the basis for mutual understanding and is an important source of ideas for the CIMPOR Group.

We intend to learn, through this principle, from the individual experiences of the subsidiaries of the CIMPOR Group, especially those most advanced in such processes. This will aid us in developing a more consistent corporate-wide approach that will, in the future, allow us to understand in essence the needs and expectations of people affected by our business and make more collaborative and better decisions.

The CIMPOR Group seeks, though still in a slightly informal manner in some cases, to understand and respond to the needs and expectations of people affected by our business, which is critical to the entire approach and decision-making procedure of the CIMPOR Group.

- Our mission statement clearly indicates that we want to create value for our stakeholders and not just for our shareholders;
- Our corporate goals include the need to keep active dialogue with governments, national and international governmental and non-governmental organisations, and the firm will to be acknowledged as an important partner of confidence;
- The environmental and social responsibility statements of the CIMPOR Group's subsidiaries commit us to maintaining permanent dialogue with stakeholders and to report the progress achieved on issues that directly affect them.

## REGIONAL ECONOMIC DEVELOPMENT

The issues related to regional economic development deserve specific attention in the CIMPOR Group and its subsidiaries. The extent of our contribution to the economic development of the regions in which we operate depends on the actual situation of their national and regional economies.

Accordingly, several young CIMPOR Group managers have participated in WBCSD programmes intended to identify ways of participating in and contributing to that development.

For some years now, some Group operating units have highly successful development and capacity-building programmes in several fields in the communities in which they operate. They are described in this chapter of the report.

## RELATIONS WITH OTHER ORGANISATIONS

The CIMPOR Group embraces the role of social partner with full responsibilities, and therefore upholds the approach of associating itself to organisations that foster improved performance of that role.

The CIMPOR Group, on the corporate level or through its companies of the Business Areas in which it operates, is an associate member of regional, national and international institutions working in the professional and socio-professional, technology development and research, and social responsibility fields. These entities are listed on the Group's site.

## MEASURING PROGRESS

### IMPACTS ON LOCAL COMMUNITIES

#### LOCAL IMPACTS

Percentage of operating units with regular local community engagement plans currently in effect: **85%** (34/40) (71% (27/38) in 2008). It should be noted that the consolidation perimeter increased in 2009 with the inclusion of one more OU in Spain and one OU in China.

#### GOALS AND NEXT STEPS

##### STAKEHOLDERS' ENGAGEMENT

In 2004, the CIMPOR Group established the goal of ensuring that 90% of its Operating Units possessed a **plan for the regular engagement of local communities and other stakeholders** by the end of 2009, and 100% by the end of 2010.

CIMPOR has recorded important progress in this field, though there are still some inconsistencies regarding the level of engagement of each OU with stakeholders. The number of OU's developing regular local community engagement programmes grew from **35%** to **85%** from 2007 to 2009.

CIMPOR uses a scorecard to measure that degree of engagement and the respective progress, in a more formal manner. The scorecard defines the minimum requirements of a local stakeholder engagement programme. That scorecard allows each OU to perform a self-assessment of its current degree of engagement, through 10 parameters evaluated according to three different scores (0, 1 and 2), and to take the necessary corrective measures, based on the result obtained, to improve the level of interaction. A minimum level of engagement with stakeholders is deemed to exist when a score of 10/20 is achieved. 34 of the 40 OU's of the CIMPOR Group achieve that score.

##### THE COMPANY'S IMPACT ON SOCIETY

Some of the Group's OU's regularly conduct, in addition to the above-referred internal self-assessment system, a survey of the "**Company's Impact on Society**". This survey is focused on the relevant communities (e.g. citizens, industrial and service companies, contractors, suppliers, customers, fire services, police, local commerce, schools, universities, municipal and parish councils, sports clubs and other public and private institutions).

This survey is an important tool that allows us to find out more about the economic, environmental and social impact of the company's activity on the external environment, enabling us to continuously monitor its development, maintain productive dialogue with other entities and steer the implementation of any necessary corrective measures. The aim is to extend this initiative further in the future, so as to expand relations with stakeholders.

## BUSINESS CASES

**SPAIN** | Open Days

**EGYPT** | Donation of Equipment to a Hospital

**EGYPT** | Community Awareness Programmes in Schools

**TURKEY** | Customer Relations: Face-to-Face "Customer Assessment" Surveys Make the Difference

**PORTUGAL** | Sponsorship of the Restoration of the Sculptures of the Gardens at Queluz Palace

**SPAIN** | Cementos Cosmos sponsors University course

**PORTUGAL** | Sponsorship: the Cloister of Tomar Convent / Art Restored with Great Skill (Phase 1)

**PORTUGAL** | Customers: The "CimpoRede" Commercial Initiative in Portugal

**TURKEY** | The Kerkenes Project (Ancient Pteria Site)

**INDIA** | Cultural Activities – "Navaratri Festival"

**CHINA** | OH&S Policy

**SOUTH AFRICA** | Safety at NPC-CIMPOR: "Near Misses" ... The Crystal Ball of Accident Prevention

**SOUTH AFRICA** | Foundations of Learning: Maths and Science Programme

**CHINA** | CIMPOR Cement China selected to be "Center for After Graduation Studies"

**BRAZIL** | Initiatives with Stakeholders in various Operating Units in Brazil



OUR  
EMPLOYEES



## HUMAN RESOURCES AND EMPLOYEE DEVELOPMENT POLICY

One of the major priorities of the CIMPOR Group is the strengthening of its workforce. We do this by promoting diversity and improving the qualifications and performance of our employees. The individual commitment of the employees in 13 countries in pursuit of the goals of the Group is the key to our success. The driving force behind our results is the existence of people with an entrepreneurial spirit and the strong motivation to tackle challenges. We foster a corporate culture based on equality, team spirit and mobility.

2009 brought added challenges for us all, forcing us to defer some decisions to make tough decisions and make important organisational changes. Unfortunately, these decisions also included in some cases workforce reductions that were necessary to ensure the growth, competitiveness and the sustainability of our Group in the long-term. It should, however, be highlighted that in some countries such as China, the number of employees grew as a result of business expansion on the start up of new OU's.

### HUMAN RESOURCES MANAGEMENT

During 2009, the CIMPOR Group sought to implement a worldwide Human Resources Management policy that might, on the one hand, ensure the respect for the particular locations and cultures of countries where the Group operates and, secondly, enhance the identification, commitment and the performance of all employees, irrespective of their nationality, gender or age.

The Group, adopting that aim, carried on implementing a range of measures and activities, always taking care to safeguard the following fundamental premises:

- Attract and retain the most capable people;
- Promote engagement and communication;
- Develop skills and qualifications
- Increase motivation and careers;
- Enhance international mobility and diversity.

## ATTRACTING AND RETAINING TALENT

"The growth and sustainability of CIMPOR depend on the ability to attract and retain the most capable people." The Group's recruitment model was compiled and circulated to all Business Areas (BA's) bearing in mind this premise recruitment model for the Group, which defines the directory of skills and tools to be applied during a recruitment process. This model is already being followed by several business areas of the Group, most recently Tunisia, Morocco and Egypt.

The "Engineers' Pool" programme proceeded during 2009, the primary objective of which is to provide young graduates with an opportunity to develop the necessary technical and behavioural skills to perform functions in the Group. During the program, young people have the chance to find out about different areas of the production process, both in country and abroad, discovering the best practices of the Group.

Several internal and external recruitment processes were also carried out with the aim of rejuvenating or maintaining the workforce of the various Business Areas. In total, more than 500 employees were admitted to work<sup>1</sup>, with China recruiting the greatest number.

Several initiatives were set in motion by the team of human resources in China to ensure the success of these processes, such as participation in job fairs and the development of welcoming and integration programmes (See related case study).

## ENGAGEMENT AND COMMUNICATION

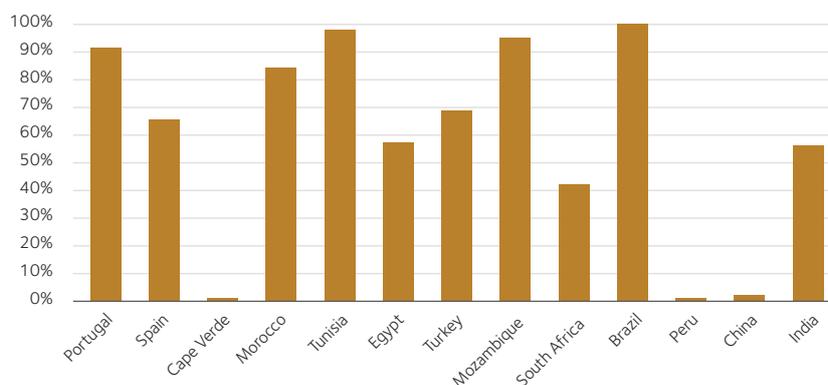
In terms of internal communication within the Group, the "Employee Portal" was created with the aim of promoting the dematerialisation of some human resources processes and therefore promoting the overall efficiency of the services. The "Employee Portal", which is initially intended only for employees of Portugal and Spain, allows employees to perform many tasks including the update of personal data, view and book training courses, as well as book and obtain approval for trips. It is, therefore, an excellent tool for fostering the engagement and involvement of employees. Considering the results obtained in this initial phase, the extension of this platform to the entire Group in the near future is planned.

Surveys of the company's employees are regularly conducted in various BA's by an external entity, under the communication policy. The tool used, "Employee Satisfaction Survey" has already been duly formatted by the Human Resources Department.

In 2009, various collective labour agreements were reviewed and negotiated, thus demonstrating a strong commitment by the Group to maintain the best relations with representatives, trade unions and workers' committees at both the global and local levels. Currently, over 65% of Group employees are covered by collective labour regulations, with Brazil, Tunisia and Mozambique the countries with the highest percentage of employees covered by such instruments.

<sup>(1)</sup> Admissions are deemed to be the number of employees admitted to work in the Group.

## 03 Our Employees

**PERCENTAGE OF EMPLOYEES COVERED BY COLLECTIVE LABOUR REGULATION AGREEMENTS**


As in previous years, CIMPOR continued to support and promote the performance of various cultural and sports activities.

These activities serve to motivate and involve employees as well as develop interpersonal relationship, teamwork, leadership and communication skills (See related case study).

Moreover, several awareness raising programmes in the household hygiene and health fields were also carried out in various countries.

CIMPOR also supported and encouraged the participation of its employees in some social programmes such as the "Revitalizing Ilha do Bispo" project in Brazil, and environmental programmes such as the "Little Friends of the Environment" project, also in Brazil, among others.

## DEVELOPMENT OF SKILLS AND QUALIFICATIONS

The training and qualification of employees continued to be one of CIMPOR's priorities in 2009. Various behavioural, functional and technical training courses were conducted, as in previous years. These courses focused on developing the skills and knowledge essential to the sustainability and growth of the Group's business.

The different Business Areas of the Group also developed training courses and programmes to support specific needs.

Some examples of these programs were the "Management Development Program" in the Brazil BA and training on the "Performance Assessment System" held in the Tunisia BA (see related Business Case).

CIMPOR continued to foster the qualification of its employees in 2009, through academic education support programmes and skills' certification programmes.

A total of more than 180,000 hours of training was provided to employees in all countries, an average of about 29 hours training per employee.

## MOTIVATION AND CAREERS

One of the major challenge currently facing CIMPOR is globally fostering the professional development of its employees, in harmony with local strategies and the specifics of each country.

In recent years, CIMPOR has sought to meet this challenge by fostering a corporate culture, through the implementation and dissemination of human resources tools and practices in all Business Areas (BA).

The SAP\_HR database, which includes the information of all Group employees, and the definition of key human resources indicators (KPIs), which enable the monitoring and comparison of resources practices, are some examples of the tools already implemented.

CIMPOR has developed integrated human resources projects in various countries, in addition to those tools, with the aim of aligning local human resource management with Group practices and guidelines. A project of this type is currently being completed in the Egypt BA (See case study).

The goal of the CIMPOR Group for the next few years is to implement a talent management model that identifies and develops key skills for the business and also performs career and succession planning on a global scale throughout the Group.

One of the company's concerns is to have a competitive remuneration policy that is also adapted to the reality of each country. According to this guideline, and as occurred in previous years, the Group undertook various salary surveys conducted by multinational consultants and it also developed internal equality studies.

## DIVERSITY AND EQUAL OPPORTUNITIES

CIMPOR seeks to make diversity and equal treatment a major strength of its human resources policy. We intend to establish the best teams regardless of age, gender and nationality of the members. Diversity, inclusion and mobility are key components of our culture.

International mobility and diversity are currently key factors for ensuring the success of the CIMPOR Group. Having staff with different cultures, different characteristics and skills is certainly an asset in driving the good results of the Group. We believe that the different cultures and skills of our employees help us to better understand our markets, customers and end consumers.

CIMPOR has sought to have at least one expatriate employee in each business area, in order to achieve this principle. The Group had approximately 60 employees posted abroad at the end of 2009. Around 65% of those expatriates were of Portuguese origin, with 13% Brazilian and 12% Spanish. The remaining 10% were of different origin. The business areas to which most expatriates were posted were Mozambique (19 expatriates), Egypt (9 expatriates) and Portugal (8 expatriates).

## 03 Our Employees

Over 80% of expatriate employees had higher education qualifications and were performing management, supervisory or technical roles.

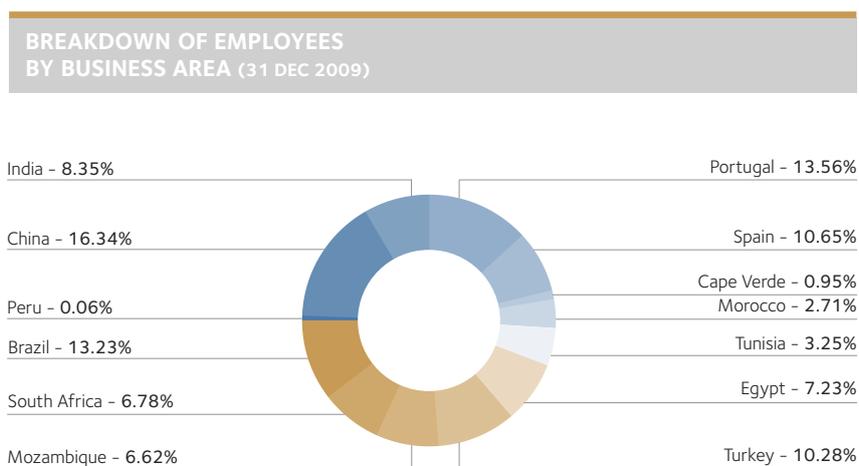
In this context, CIMPOR has also sought to include employees from minorities on its staff, thereby respecting the principle of equal opportunities laid down in its code of ethics.

The CIMPOR Group employed more than 70 employees with some form of disability at the end of 2009. In Brazil the quota set by law was met – of 5% permanent staff of the company with this profile.

### CIMPOR PROFILE

The cement<sup>2</sup> and central services staff of the CIMPOR Group had a staff of 6,432 at the end of 2009, which is equivalent to growth of 7% on the end of 2008 (an additional 435 employees).

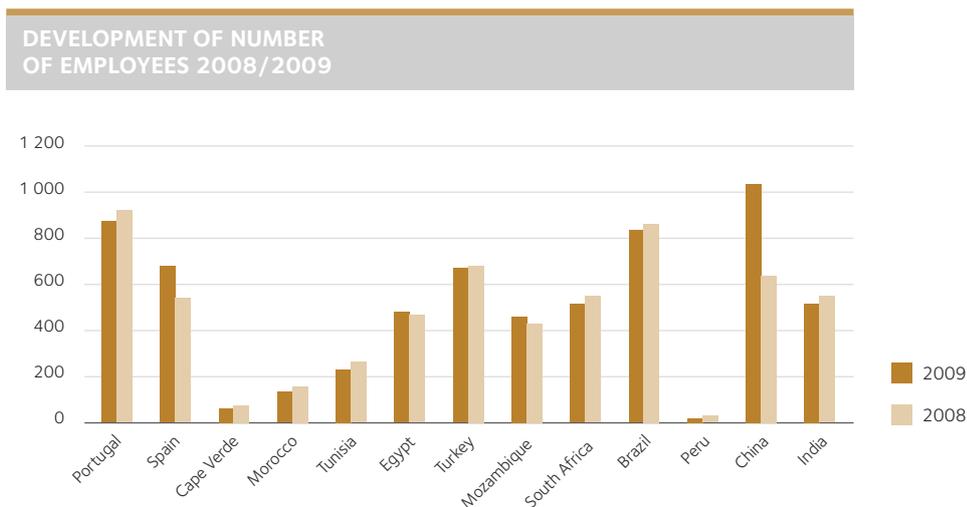
This growth was mainly due to the expansion of the business in China, which became the Group's business area accounting for the highest percentage of employees (16.34% of the Group's total employees).



<sup>(2)</sup> Also includes the Trading activity

03 Our Employees

Besides the China Business Area, only the Spain, Egypt and Mozambique Business Areas recorded growth in employee numbers. Spain registered overall growth of around 22%, while Egypt and Mozambique recorded increases of 1% and 2% respectively. In the remaining countries of the Group, employee numbers have stabilised or even fallen slightly.



About 77% of the total universe of employees of the Group were permanent staff and 22% on a fixed-term contract, in 2009. The remaining employees (1%) were on assignment or expatriates.

The population of employees remains predominantly male (86.6%), and the percentage of women is a minority (13.4%). China, Brazil, Portugal and South Africa are the countries with the most female employees. These four countries account for over 70% of the women employed in the Group. Compared with 2008, the growth of the female population is greater than the male population (16%, 6%).

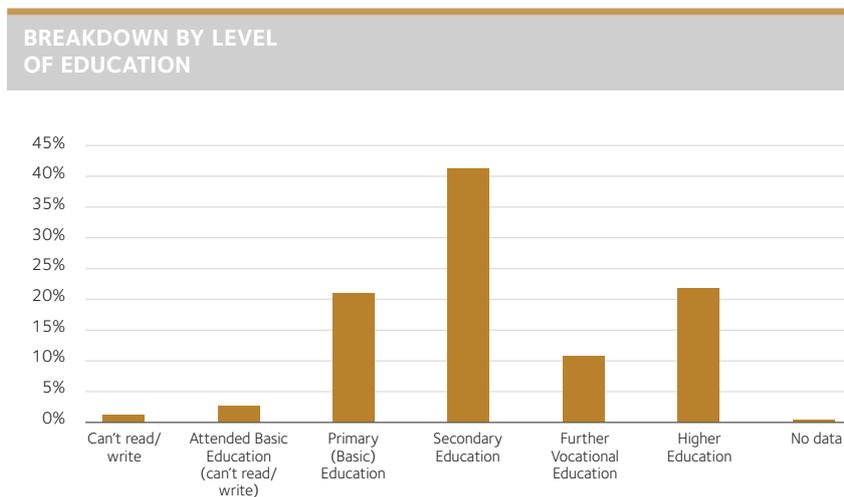
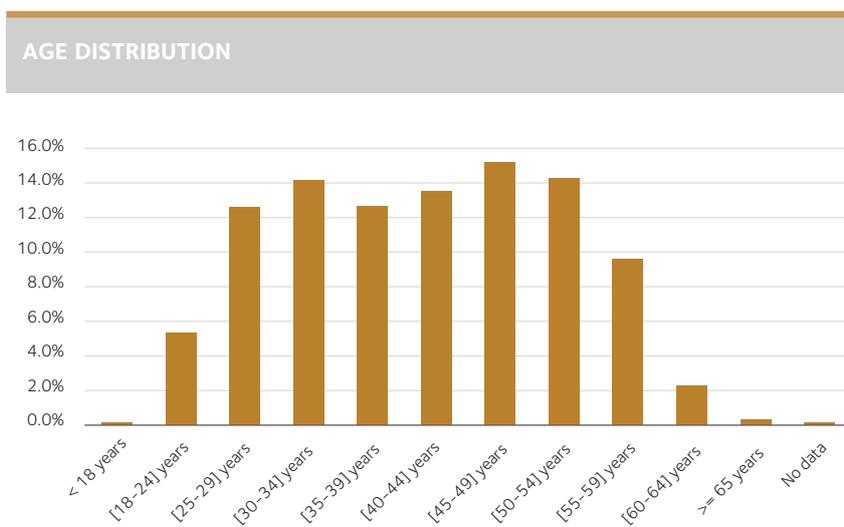
GENDER DISTRIBUTION



03 Our Employees

The majority of the CIMPOR Group's employees are aged between 24 and 54 years (82.2% of total employees). The average schooling is situated between basic and secondary education (62.1% of total employees).

In general, there is a trend of gradual improvement in schooling, which is the result of the Group's focus on the qualification and training of its employees, as well as hiring more qualified employees.



## MEASURING PROGRESS

### HUMAN RESOURCES

#### DEVELOPMENT OF HUMAN RESOURCES POLICY

The negotiations of collective labour agreements were concluded in Portugal and Mozambique in 2009, as expected. The agreement in Egypt is still to be reached.

The project to revise the Performance Assessment System in Tunisia began and was completed in 2009. The Human Resources Action Plan of the Morocco Business Area was approved in 2009.

In Portugal and Spain the HR Portal was implemented in 2009, and in Turkey and South Africa the SAP | Human Resources PY system was implemented.

An important increase in the number of training and qualification programmes of employees occurred in 2009, and various courses were organised aimed at developing both technical skills and behavioural skills. Some training programmes in Quality, Occupational Health & Safety were also developed.

Periodic surveys of employees are conducted in several BA's, by an external entity, as part of the Corporate Policy of Human Resources. The tool used has already been properly formatted by the Human Resources Department, and it is called the Organisational and Social Climate Audit, which is no more than an employee satisfaction survey.

#### GOALS AND NEXT STEPS

The CIMPOR Group aims to foster a corporate culture that promotes human resource talent, and the high performance of employees. It further aims to foster talent management and international mobility.

**2010:** Implementation of the corporate careers management policy, based on the methodology of describing and assessing roles and the management of skills; Following the implementation of SAP | Human Resources PY in Turkey and South Africa in 2009, the target is to now extend this tool to other business areas in coming years; Increased training and qualification of employees.

**2011:** Continued implementation of the corporate careers management policy, based on the methodology of describing and assessing roles and the management of skills; Expand the Organisational and Social Climate Audit to other BA's; All Group companies must have their own employee training and qualification programmes, based on the corporate concept.

**2012:** Implementation of the talent management model in the CIMPOR Group.

## EMPLOYEE SAFETY AND HEALTH

The 2002 report by the Battelle Memorial Institute regarding the Cement Sustainability Initiative (CSI) showed that the cement sector had the highest fatal accident rate and accident rate with loss of work days work, worldwide. It is also the industry that most uses service provider and transportation companies, where such accident rates are usually higher, though this may not constitute a mitigating factor.

At the end of 2004, the Executive Committee of the CIMPOR Group decided to take a firm stance to reverse this situation, issuing at the corporate level the so-called "Occupational Health & Safety (OH&S) Project" with the aim of incorporating in a systematic manner occupational health and safety aspects relative to internal and external collaborators in its management and decision-making systems.

The intention was, thus, to establish an internal organisation that raised awareness towards these matters, enshrining them as a fundamental value to be preserved by all the Group's subsidiaries through the adoption of the best practices known in the field and by acting to create changes in behaviour. The results that the CIMPOR Group has already achieved in this field have been very encouraging and confirm that it is on the right track.

### OCCUPATIONAL HEALTH & SAFETY POLICY

In 2009, the consolidation of the "Occupational Health & Safety" project continued, which has been implemented in a systematic way in the CIMPOR Group since 2004.

Many of the actions that began in previous years were concluded, and others continued and were developed further. A large number of new initiatives were also proposed and approved during the year, creating the foundations for the results obtained in the Occupational Health & Security field (OS&S).

The values of the OH&S performance indicators of the evolved favourably. This development is the result of the optimisation of procedures, the adoption of good practices and the adequacy of the organisational structure in providing all employees with a healthy and safe working environment. This would not have been possible without the commitment of all employees (direct, indirect and others) who have worked hard every day for the success of this project.

Special emphasis was given in 2009 to visible and perceived leadership as a way of encouraging and involving all employees, with the vitality, enthusiasm and encouragement necessary for developing a safety culture.

The top managers and all stakeholders along the chain of command are primarily expected to act and to send to the entire organisation consistent signs of their commitment, while also believing and demonstrating that Occupational Health and Safety is "PRIORITY No. 1".

### OH&S SUPPORT NETWORK

In 2009, as had been the case in 2008, the second meeting of the Occupational Health & Safety Coordinators of the CIMPOR Group was held, which was attended by 13 OH&S coordinators, representing the majority of countries where the Group operates.

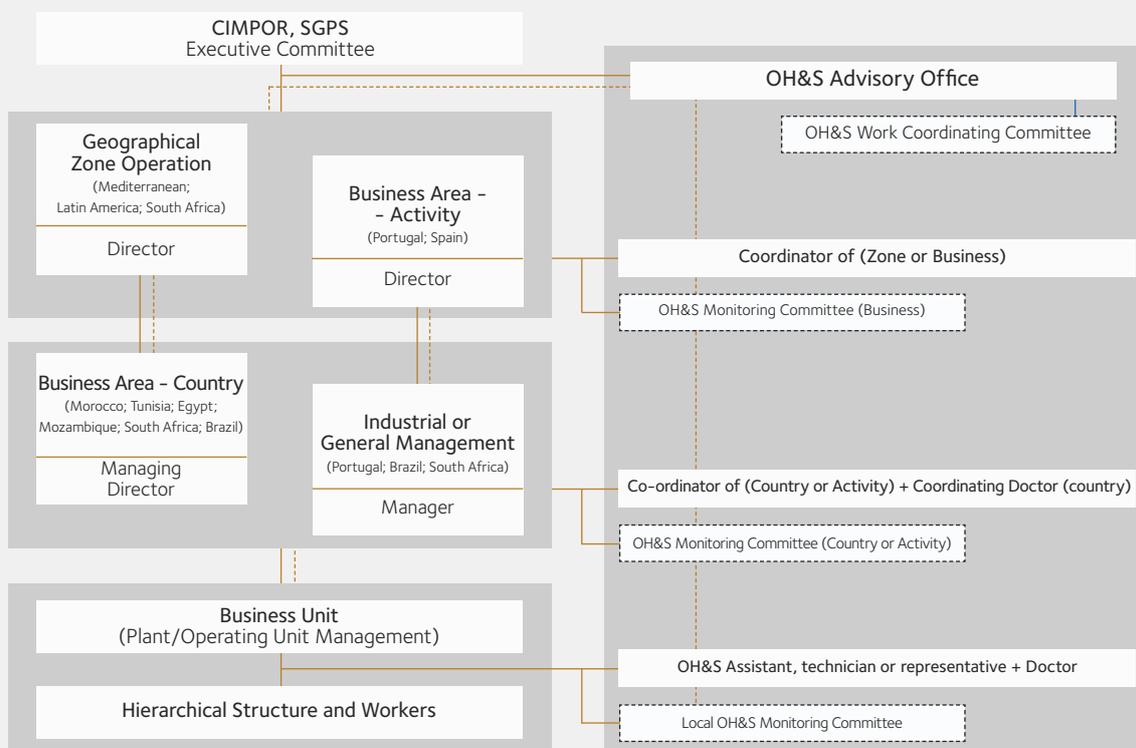
## 03 Our Employees

This event served to emphasize the mission of the OH&S Coordinating (for Business Area and/or Activity) as a factor of maximum importance of the hierarchical chain (Leadership) in supporting and developing actions that permit the improvement of safety conditions at all levels and lower the accident rate.

All participants considered this event to be an excellent opportunity to exchange experiences and know-how.

## ORGANISATIONAL MODEL OF OH&S SUPPORT

An organisational model to support the Occupational Health and Safety Management System (OH&SMS), which includes a strategy and action plan and thus permits the adoption of an actual preventive attitude, has been defined and approved.



The definition of the organisational model took into account:

- The experts of the Occupational Health & Safety support network, whose duties are allocated according to hierarchical and functional criteria, the diversity of the business activity and geographical location; these being defined as "competence centres" with in-depth qualifications in the OH&S field and which are available to the organisational structure of the Company of which they are a component part, providing technical support and promoting OH&S in general.
- The structure, based on the responsibility of the hierarchical chain (leadership and decision) of the company structure (from the top to the bottom of that chain).
- The OH&S Monitoring Committee, which aims to coordinate and monitor OH&S and ensure the involvement and integration of all in the health and safety culture.

## GOALS AND ACTION PLANS

Our long-term goal of "Zero Accidents", established in 2005, remains unchanged, since "a single accident is one accident too many". Interim targets and goals were established in Action Plans along the route to achieve this ambitious goal.

In 2009, similar to previous years, the results of all organisational units in respect of the Goals and Action Plans that had been proposed for 2008 were assessed and new goals set for the three year period of 2010–2012. From 2010 these plans will include the actions required to implement the Driving Safety Good Practices and Service Provider Safety Good Practices, approved in October 2009. Based on these two reference documents, a Gap Analysis assessment was carried out. This provided a detailed evaluation of the degree of implementation of the requirements inherent to those recommendations, as well as determine any necessary corrective action, over its lifetime, and the financial costs involved. The Gap Analysis is essential to discover the real situation in terms of "Driving Safely" and "The Safety of Service Providers" on all premises of the CIMPOR Group.

## COMMUNICATION

2009 was characterized by a strong focus on communication in order to give more visibility to the Occupational Health & Safety and strengthen this culture in all workplaces.

The Occupational Health and Safety page of CIMPORnet contains the CIMPOR Group's OH&S guidelines and policy, fatal accident reports, the operating instructions of several countries and business activity areas of the Group, key performance indicators, sundry health information and industrial benchmarking data. Other channels of communication besides CIMPORnet have also been used, such as the CIMPOR News magazine, various newsletters, electronic messages and a range of themed posters.

An institutional poster to disseminate the Occupational Health and Safety concept "PRIORITY No. 1" was created and distributed to all companies and activities of the CIMPOR Group internationally, together with a small gift aimed at promoting the new OH&S logo.

These initiatives helped to mark World Safety Day, which is celebrated on April 28 and aims to honour the victims of accidents in the workplace and occupational diseases.

Fatal accident reports concerning direct, indirect and third party employees have undergone extensive disclosure within the CIMPOR Group and outside the Group, as occurs through the Cement Sustainability Initiative (CSI) and other types of stakeholder. This practice has proven to be very important since it allows, besides the implementation of immediate corrective action in the OU where the accident occurred, lessons to be learned and the development of preventive actions in all other OU's of the CIMPOR Group, to ensure that accidents of a similar nature do not occur again.

The information on relevant events that occurred in the group was completed with the disclosure of Serious Occupational Accidents occurred in 2009 and the outlining of the general guidelines for the future development of "Best Practices" and "OH&S Alerts".

## INTERNAL AUDITS

Another significant milestone of 2009 was the success achieved with the internal audit programmes carried out in various Units of the CIMPOR Group.

14 internal auditors from various activities and countries (Portugal, Spain, Morocco, Turkey, South Africa and Brazil) were integrated into multidisciplinary teams of four members and they audited a total of 8 cement plants, 1 grinding facility, 4 concrete plants, 1 aggregates facility and 1 mortar plant in the countries of Portugal, Spain, Morocco, Tunisia, Mozambique, South Africa and Brazil.

## MONTHLY/ANNUAL PERFORMANCE INDICATORS – SAFETY

Under the commitments of the Cement Sustainability Initiative (CSI) as regards guaranteeing transparency, consistency and reliability of the OHS Performance Indicators communicated to the different stakeholders, the safety data relative to the preceding year (2008) was audited in 2009 by an independent, internationally recognized company meeting all the requirements demanded by the CSI. The checking of the data and the degree of implementation of the policies covered 30 organisational units of the cement manufacture, concrete, aggregates and other activities, located in 9 different countries.

14 of the 40 facilities of the Cement Activity have so far been checked.

## HEALTHY EMPLOYEES

Medical check-ups are regularly carried out on all employees of the CIMPOR Group under the specific OH&S programmes established by each business area, and preventive measures are taken, with the aim of promoting healthy living and the good physical fitness of employees, thus ensuring effective work capacity throughout their working lives. The implemented measures include the control of risks in the workplace that may result in occupational disease and the incapacity to work, and also warnings as regards tobacco, alcohol, and drug problems and a sedentary lifestyle.

Each of the various CIMPOR Group companies, in the different BA's, develops its own health programmes in order to focus on the most important local matters.

Besides programmes more tailored to physical health, some of these local programmes have started focusing on aspects related to stress and the mental load resulting from the pace of work, shift work and night work, monotonous and repetitive work, and overtime, among others, in order to prevent new diseases that have begun to appear more frequently in our society, including fatigue, sleep disturbances, depression and anxiety.

Among the various measures set in motion in 2009, particular emphasis was given to the development of the Flu Contingency Plan (MCP).

The aim of this contingency plan was prepare the management of CIMPOR for the impact of a possible pandemic situation in relation to swine flu, incorporating a consistent and structured operational response intended to minimize the risk of infection, ensuring the safety the company's employees and the continued functioning of the services and activities essential to business continuity, i.e. minimizing the impact of the flu outbreak on economic activity, keeping vital activity functioning during the crisis and preparing for the recovery of normal economic activity as quickly as possible on termination of the pandemia (**Business Continuity Plan**).

MAJOR AREAS	MAIN ACTION IN THE HEALTH AND WELFARE FIELD
CIMPOR HEALTH SERVICES POLICY	<ul style="list-style-type: none"> <li>• Disclosure in the corporate magazine CIMPORNews, edition no. 67 (p. 24 and subsequent), by interviewing the head of SOSp, on the current and future policy on the Health Services of CIMPOR in Portugal (Portugal BA) which is intended to be gradually used as a model for the Group's other BA's;</li> </ul>
MEASURES AGAINST NEW TYPES OF INFLUENZA	<ul style="list-style-type: none"> <li>• <b>Swine Flu Contingency Plan (PCG):</b> Published on "CIMPORnet", the intranet of the CIMPOR Group, <a href="http://cimpornet/sites/pt/SOSP/Gripe/Paginas/default.aspx/gripe">http://cimpornet/sites/pt/SOSP/Gripe/Paginas/default.aspx/gripe</a> was a Swine Flu Dossier containing a set of preventive measures and health cares (All BA's of the CIMPOR Group). Under the PGC, and from a perspective of business continuity, 23 detailed operational plans were prepared with the support of Mercer March Kroll, one for each key sector according to "various scenarios" (severity levels 1-3, according to the potential absenteeism rates in each sector), and the critical roles of each activity were defined. It is intended that this experience of planning and preparation for contingencies will be disseminated as a "good practice" in the future, whether in contingency situations arising from problems of high absenteeism due to sickness, as in the case of the Swine Flu pandemic, or in situations of disruption of the normal functioning of society due to another type of disaster involving not only a risk to human resources but also to infrastructures, and which must be implemented in all the BA's of the CIMPOR Group in order to guarantee business continuity.</li> <li>• Organizing and implementing Swine Flu training aligned with the documents published by the Directorate General of Health in Portugal and the World Health Organization. This training is provided to the entire universe of employees of CIMPOR in Portugal, regardless of their employment relationship. All health employees in the Portugal BA provided their support. This initiative was replicated in other BA's;</li> <li>• A program of periodic internal communication was prepared together with DREC (External Relations and Communication Department) to monitor the domestic and international situation and also to disclose the Swine Flu contingency plan. Edition no. 70 of the CIMPORNews magazine (page 33 and subsequent) published a text on swine flu, the preventive measures and cures. DREC also produced a poster for the entire universe of the CIMPOR Group, under the Swine Flu Contingency Plan;</li> <li>• Training was provided to the managers and those intervening in the production units with no permanent medical centre (e.g., Agrepor, Geofer, Concretos, etc.) in order to familiarize them with the provision of primary healthcare and referral in the event of the appearance of cases of Swine Flu (Portugal BA);</li> </ul>
HIV/AIDS AND MALARIA	<ul style="list-style-type: none"> <li>• HIV/AIDS and malaria awareness raising and prevention campaigns in Mozambique and South Africa;</li> </ul>

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TRAVELLER SUPPORT	<ul style="list-style-type: none"> <li>• Creation of traveller support services specific to this pandemic phase, disclosure of standards and provision of a kit of basic medication that can be used in various travel situations/contexts to areas where endemic diseases exist.</li> </ul>
SMOKING	<ul style="list-style-type: none"> <li>• Under the Internal Anti-Smoking Campaign, a "Brief Intervention on Smoking" was organised at the Alhandra OU Medical Centre, with the purpose of being copied at a later date in other Medical Centres of the Cement Activity over the next few years.</li> </ul>
ALCOHOL AND DRUGS	<ul style="list-style-type: none"> <li>• The Regulations for the Prevention and Control of Alcohol and Drugs has been progressively implemented as part of a prevention and information campaign on consumption and the provision of clinical support in situations of need;</li> </ul>
FOOD AND A HEALTHY LIFESTYLE	<ul style="list-style-type: none"> <li>• Campaigns in several BA's intended to promote healthy eating habits and the regular practice of physical exercise through the dissemination of advice and practical steps for the individual management of health and welfare, the control of hypertension, obesity and cardiovascular diseases, and quality ageing (e.g. "Remaining Well", aimed at the prevention of cardiovascular disease in women, "Healthy Heart" and "Weight Reduction and Control Plans").</li> <li>• Measures to prevent health problems due to stress and improper work postures.</li> </ul>
PERIODIC MEDICAL CHECK-UPS	<ul style="list-style-type: none"> <li>• Start-up of the system of regular medical check-ups for all CIMPOR employees in the China BA, similar to that already undertaken in the other BA's;</li> </ul>
EQUIPMENT OF THE MEDICAL CENTRES OF THE UOs	<ul style="list-style-type: none"> <li>• In Portugal, SOSp continued the task of equipping the Medical Centres of the OU's with the human and material resources needed to provide a quality service in health, which encompassed significant investment in internal and external training. All procedures are being checked and corrected to achieve this objective.</li> <li>• Similarly, work has been carried out to select health service providers on the basis of quality and cost-effectiveness of the services provided.</li> <li>• Moreover, the Medical Coordination trained and equipped the permanent medical facilities with all the resources needed to adequately respond to various possible scenarios that might be faced in the event of a swine flu pandemic (Portugal BA);</li> </ul>

## OH&S TRAINING

Strict compliance with our OH&S standards and the need to intensify the awareness-raising activities of our employees with regard to OH&S aspect continued to be required throughout the year. Our workers are made continuously aware through workshops, regular newsletters, and the local organisation of "OH&S Days" and "Celebratory Days", to act appropriately in hazard identification and the assessment of risks that might pose a physical danger both individually and collectively, and also to prevent accidents. Employees of external companies providing services in the CIMPOR OU's are also continually involved in the internal OH&S training programmes.

Besides the countless OH&S training courses developed locally by the Business Areas/Operating Units, a number of corporate training courses on Risk Assessment and Audits, aimed at managers, continue to be held. The adopted training method has been successfully applied in various OU's of the CIMPOR Group.

This initiative established the necessary conditions for the development of a regular audit programme in relation to the different premises, which was put into practice during 2009.

## OTHER ACTIVITIES

was also important in the affirmation of the CIMPOR Group in bodies such as the Cement Sustainability Initiative (CSI), which help strengthen the international position of the Group and its counterparts and, through the sharing of good practices, has contributed to improving our OH&S performance.

## OH&S PERFORMANCE INDICATORS

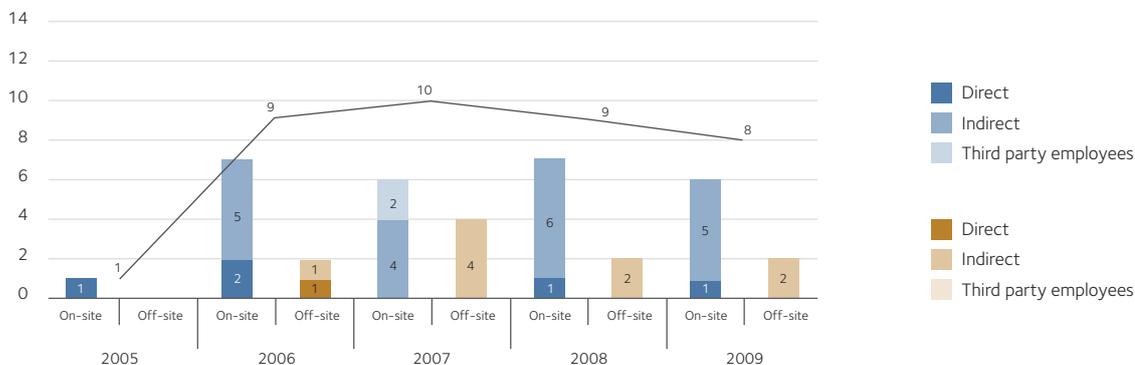
The scope of data collection for statistical purposes, benchmarking and communication to internal and external entities was broadened in 2008.

The data relative to direct employees, namely those concerning Health, Absenteeism, Training and Participation, was included and also new OH&S performance indicators were established for indirect employees and third parties and which have provided more information in 2009.

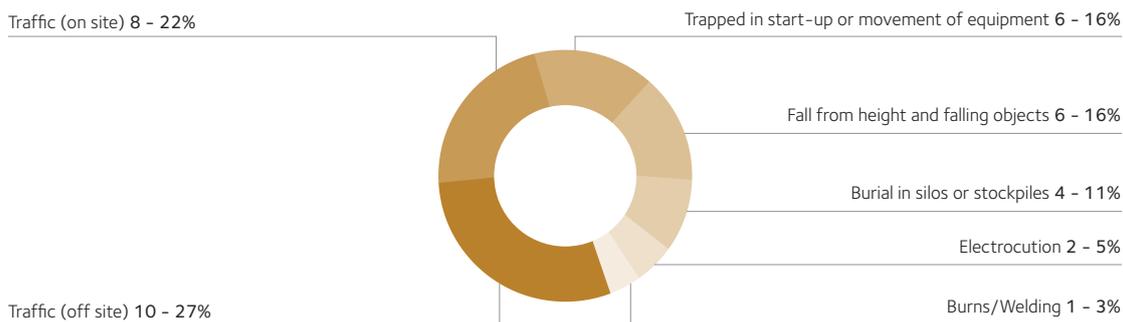
As had occurred in 2008, the safety data for 2009 were audited by an independent external entity. The audit was carried out in accordance with the criteria established in the Cement Sustainability Initiative (CSI) but this time, besides the extension to encompass all CIMPOR Group activities (cement, concrete, aggregates and other businesses), which was first introduced in 2008, the degree of implementation of OH&S corporate policy was also verified. The following charts illustrate the development of those indicators:

03 Our Employees

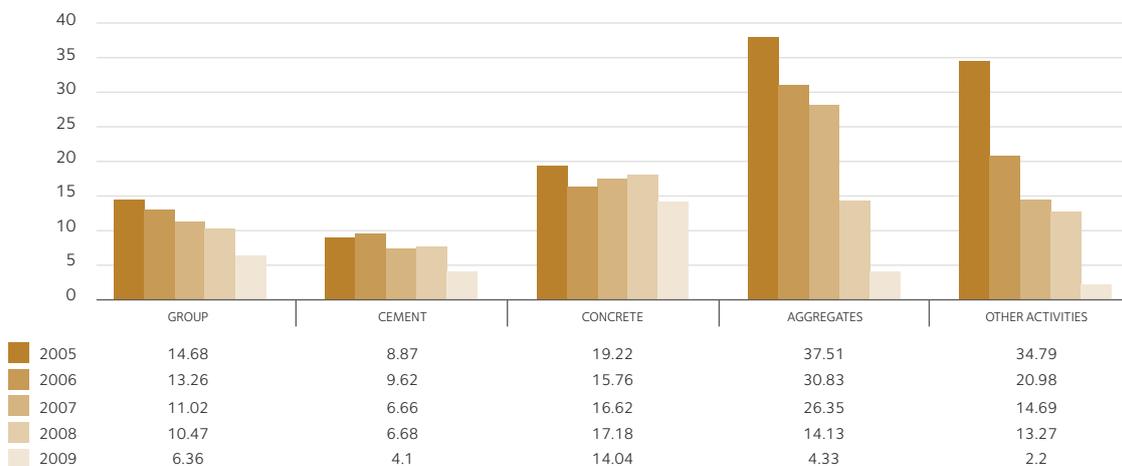
**FATAL ACCIDENTS / FACILITY**  
(DIRECT, INDIRECT AND THIRD PARTY EMPLOYEES) 2005/2009



**FATAL OCCUPATIONAL ACCIDENTS / CAUSE**  
(DIRECTLY EMPLOYED, INDIRECTLY EMPLOYED AND THIRD PARTY) 2005/2009



**FREQUENCY RATE / ACTIVITY**  
(DIRECT EMPLOYEES) 2005/2009



## MEASURING PROGRESS

### OCCUPATIONAL HEALTH & SAFETY

#### FATAL ACCIDENTS

1. Number of fatal accidents involving direct employees: **1** (0 in 2008) (the goal of 0 accidents was not achieved)
2. Mortality rate per 10,000 direct employees: **1.69** (0 in 2008)
3. Number of fatal accidents involving indirect employees (on contract and sub-contracts): **6** (8 in 2008) (missed target of 0 accidents)
4. Mortality rate per 10,000 hours worked for indirect employees: **6.66** (not available in 2008)
5. Number of fatal accidents involving third parties: **0** (0 in 2008) (target of 0 accidents was achieved)

The 6 fatalities of indirect employees were the result of: **3** due to falls from height, **1** due to road traffic accident off the plant premises, **1** due to electrocution and **1** due to being trapped during the start-up and movement of heavy equipment.

**NOTE:** The perimeter considered for OH&S purposes, as in the previous year, is the Group's cement activity, also including the entire management structure of each Business Area (e.g. head office) associated with cement production, besides the OU structure. China and India fell within the CIMPOR Group perimeter in 2009 with regards to OH&S.

#### ACCIDENTS WITH LOSS OF WORKING DAYS

1. Number of accidents of direct employees with loss of working days: **51** (60 in 2008)
2. Frequency rate of accidents of direct employees with loss of working days per 1 million hours worked: **4.10** (**6.68** in 2008) (the 2009 target of <5.74 accidents achieved)
3. Severity rate per 1 million hours worked for direct employees: **239.4** (320.0 in 2008) (the 2009 target of <256.0 accidents achieved)
4. Number of working days lost involving direct employees: **2975** (**2834** in 2008);
5. Number of accidents of indirect employees (on contract and sub-contract) with loss of working hours: **122** (123 in 2008)
6. Frequency rate of accidents of indirect employees with loss of working days per 1 million hours worked: **7.00** (no reference values for 2008 exist)

**NOTE:** The perimeter considered for OH&S purposes, as in the previous year, is the Group's cement activity, also including the entire management structure of each Business Area (e.g. head office) associated with cement production, besides the OU structure. China and India fell within the CIMPOR Group perimeter in 2009 with regards to OH&S.

### ACCIDENTS WITHOUT LOSS OF WORKING DAYS

1. Number of accidents of direct employees without loss of working days: **98** (no reference values for 2008 exist)
2. Number of accidents of indirect employees (on contract and sub-contract) without loss of working hours: **193** (no reference values for 2008 exist)
3. Total Recordable Accident Rate: **12.07** (no reference values for 2008 exist)

**NOTE:** The perimeter considered for OH&S purposes, as in the previous year, is the Group's cement activity, also including the entire management structure of each Business Area (e.g. head office) associated with cement production, besides the OU structure. China and India were included in the perimeter in 2009.

### GOALS AND NEXT STEPS

The targets set for 2009 were met in relation to the number of fatal accidents of third parties, as well as in relation to the frequency rate and severity rate of accidents for direct employees with loss of working days. The number of fatal accidents involving direct and indirect employees were, however, quite off-target.

Despite the Group's priority focus on OH&S, unfortunately **1 fatal accident involving a direct employee and 6 fatal accidents involving indirect employees were registered** in 2009, in the CIMPOR Group's cement activity. There were 8 fatal accidents in 2008, all involving indirect employees.

The number of accidents of direct employees with the loss of working days evolved favourably in 2009, decreasing from 60 in 2008 to 51.

The number of accidents of indirect employees with the loss of working days decreased slightly from 123 in 2008 to 122 in 2009.

**A number of actions implemented in 2009 will continue into 2010 and beyond:**

- Annual Meeting of OH&S Coordinators of the CIMPOR Group (2nd meeting);
- Establishment of four OH&S auditor teams to draw up the annual OH&S audit plan in 2009 and implement it, auditing 8 cement plants, 1 grinding facility, 5 concrete plants, 1 aggregates operating plant and 1 mortar plant;
- Have the OH&S data checked by an independent entity (the scope of verification of OH&S data was extended to other activities in 2009). 30 OU's, located in 9 countries were checked, in the Cement, Concrete and Aggregates Activities as well as Other Activities. 13 OU's of the Cement Activity were checked;
- Approval and implementation of the Good Practices Recommendations on "Driving Safely" and the "Safety of Service Providers" (with translation into Portuguese) and the drawing up of the gap analysis which will be translated into several languages and applied in all OU's;
- OH&S Goals and Action Plan Assessment Meetings;
- Celebrate "World Safety Day" on 28 April (gifts were distributed to all direct employees in 2009 and institutional posters depicting the celebration were posted in all Group units);

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- More detailed information on occupational accidents was collected (including a new chart for the detailed collection of data) and the institutional disclosure of all occupational accidents, whether fatalities or serious accidents, occurred in the OUs of the CIMPOR Group (previously this was done for fatalities);
- The implementation of a technological solution (software) to enable the processing of OH&S data, including statistics and reports of accidents, minutes, network of OH&S specialists, among others;

Under the "OH&S Project" corporate OH&S policy will continue to be implemented, the network of OH&S specialists expanded and initiatives developed for the implementation and continuous improvement of the OH&S management system, which integrates the entire strategy, action plans and procedures, ensuring both the minimisation of the risk of accident and disease and more effective and efficient prevention.

Planned for 2010 is the strengthening of the OH&S auditors team with new members to be trained in Risk Assessment & Auditing; the undertaking of further OH&S awareness-raising actions aimed at senior managers (visible & perceived leadership); the institutional dissemination of Good Practices and OH&S Alerts; drawing up new corporate OH&S procedures; defining a methodology for investigating occupational accidents, and continuing to develop initiatives that foster the involvement of all employees, including contests, tests and meetings, among others.

## BUSINESS CASES

**PORTUGAL** | Signing of the European Road Safety Charter

**CHINA** | Employees and Contractors OH&S Policy: "Csi Guidelines for Drivers and Contractors Safety" Implementation at Suzhou's Grinding Plant

**TURKEY** | Oh&S: 2009 Safety Quiz at Yozgat

**PORTUGAL** | The "Connosco" staff volunteer programme of CIMPOR's employees continues to be a success

**EGYPT** | OH&S: Occupational Health and Safety Policy at Amreyah

**PORTUGAL** | Medical Conference on the theme "Health... A Global Asset"

**CIMPOR Group** | OH&S Policy in the CIMPOR Group: Accident Reporting

**CIMPOR Group** | OH&S Policy in the CIMPOR Group: Visible and Perceived Leadership

**CHINA** | Team Activity - Sha Jiabang

**INDIA** | Inter-Department Cricket Tournament

**MOZAMBIQUE** | OH&S Policy: HIV/AIDS, Malaria and other disease Prevention Programmes at Cimentos de Moçambique

**INDIA** | Celebration of Safety Week at Sikka

**INDIA** | Cultural and Leisure Activities with Employees to Celebrate the Start of the Wet Season in Gujarat

**INDIA** | Employee OH&S: Shree Digvijay Cement Company (Sdcc) receives external Award during the "Mines Safety Week"

**INDIA** | OH&S: Celebration of the "Safety Week" at SDCC

**INDIA** | Apprenticeship Training

**SOUTH AFRICA** | Human Resources Professional Development Policy at NPC-CIMPOR and National Skills Development Award 2009 from the Mining Qualifications Authority (MQA)

**CHINA** | OH&S Policy: Strong Commitment in caring for Employees' Health and Safety

**MOROCCO** | Meeting with contractors organized

**TURKEY** | Safety Poster Campaign: "Safety Poster of the Month"

**PORTUGAL** | 2<sup>nd</sup> Annual Meeting of OH&S Coordinators of the CIMPOR Group

**BRAZIL** | Human Resource Development Projects at CIMPOR Brasil



# ENVIRONMENT

## INVESTMENT IN SUSTAINABILITY

Investments of the CIMPOR Group are classified in four major groups, investment in: Acquisitions, Organisational Growth, Sustainability and Current Investments, regardless of the Activity in question.

The criteria of the CIMPOR Group consider investments in sustainability(\*) to be investments that are not directly aimed at raising turnover but at the continuity of the business in a sustainable form. Examples of such are investments in land and quarries, investment in the environmental fields, social responsibility and safety, and investments in modernisation aimed at raising the level of efficiency of the operating units and ensuring the ongoing nature of operations.

As the focus on sustainability is an essential condition for the development of the CIMPOR Group, numerous investments have been made in this area, particularly in the Cement activity which constitutes the core business of the company. Investment in the Sustainability of the Cement Activity accounts for **92.5%** (80.5% in 2008) of the total investment in sustainability for all activities – cement, concrete, aggregates, mortar and others.- as shown in Chart 1.

Moreover, Investments in Sustainability in the Cement activity accounted for in 2009, **18.4%** (13.1% in 2008) of the total investment made by the CIMPOR Group (Chart 2), amounting to about EUR 265 million in 2009 (EUR 581 million in 2008). The 18,4% figure recorded this year represent an increase of nearly **147%** in the period 2004–2009, as shown in Chart 3), which demonstrates the commitment in this area, particularly if taking into account the need to substantially reduce the volume of investment of the Group in 2009 due to the international climate.

**CHART 1 - BREAKDOWN OF INVESTMENTS IN SUSTAINABILITY BY ACTIVITY (CEMENT, CONCRETE, AGGREGATES, MORTAR, OTHER)**

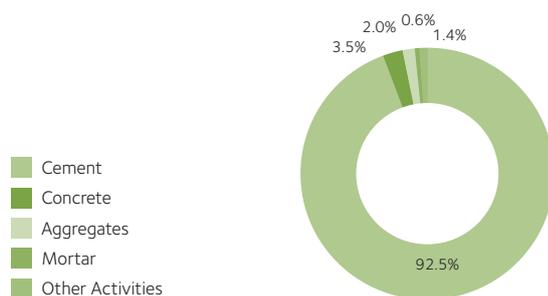


CHART 2 - BREAKDOWN OF INVESTMENT IN CEMENT ACTIVITY

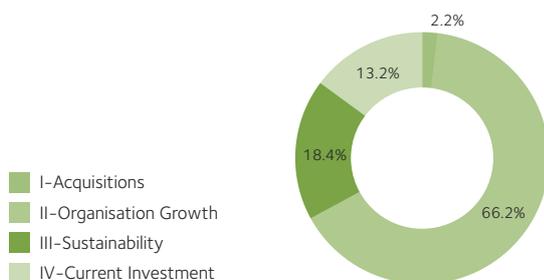
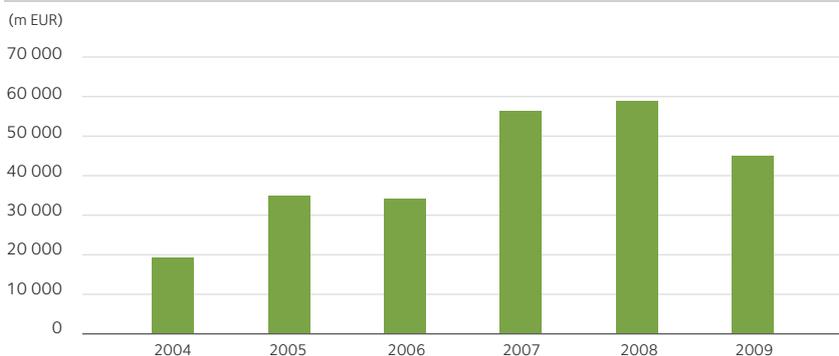


CHART 3 - INVESTMENT IN SUSTAINABILITY (CEMENT ACTIVITY)



Note: In accordance with the CIMPOR Group's criterion, investments in sustainability are investments that do not directly increase turnover, but are aimed at the ongoing nature of the business in a sustainable manner.

- **Investment in Land and Quarries:** guaranteeing the supply of raw materials (e.g. purchase of new reserve, defence and protection areas, new access roads to quarry faces and other investments in quarries that are not directly associated with environmental or social aspects but are intended to ensure the ongoing nature of the business);
- **Environmental/Social Investment:** abiding by the Group's sustainable development policy, i.e. protecting and/or improving the environment, rehabilitating quarries, preventing loss of biodiversity, re-landscaping, improving internal and external social conditions, ensuring safety and occupational healthy and other measures to meet the company's social responsibilities;
- **Investment in Modernisation:** increasing efficiency at plants and reducing their costs and/or increasing product quality by introducing or replacing manufacturing equipment, systems or processes to ensure the ongoing nature of operations.

## RESEARCH & DEVELOPMENT

The technological process for manufacturing cement, although stabilised and mature, has witnessed the introduction of a range of ever more sophisticated technologies.

On the one hand, the CIMPOR Group has acquired and developed know-how over the years that has allowed it to continually advance the performance of its industrial units in terms of their improved knowledge of and the increased longevity of the raw materials, the control of intermediate products, of productivity, of operational and environmental performance and the quality of the Group's products in a perspective of continuous improvement in the short and medium-term.

On the other hand, the long-term strategies are primarily based on research and development programmes (R&D), often directly managed by the CIMPOR Group and other times managed in partnership with research institutes of repute. Accordingly, the Group has been strengthening its commitment to universities and public (and private) research centres in the countries where it operates, through various R&D projects, support to doctorate and masters degrees and other types of sponsorship with the aim of developing key skills in areas defined as priorities. The level of investment in R&D has significantly increased over the past three years, and it represents a key pillar of the long-term strategy of the CIMPOR Group. In 2009, the projects continued to focus, in particular, on reducing CO<sub>2</sub> emissions associated with the cement manufacturing process, one of the great challenges of our industry in forthcoming years.

### MAIN R&D AREAS OF THE CIMPOR GROUP

The CIMPOR Group has developed a set of measures aimed at turning its R&D Programme into an integral part of the business strategy, organising it around two major vectors:

- **Incremental and continuous improvement**, focused on processes to optimize operational performance and the adoption of best available technologies, with the aim of reducing production costs, in order to increase competitiveness in the short and medium term, this being an area that is already well developed.
- **R & D Pre-competitive/competitive R&D and strategic technology observatory** focused on the main challenges of the industry, in a long-term horizon, this being an area still in the consolidation phase. The aspects related to pre-competitive/competitive R&D are being implemented through a series of partnerships with Portuguese and international universities/institutes in areas identified in a very tangible manner.

In relation to the the **first vector**, the Central Laboratory, an organisational unit of the Technical Centre of the CIMPOR Group, develops and optimises at the request of its clients or by recommendation of its technical services certain types of cement, including some blended cements, in order to suitably and economically meet a wide range of market requirements.

Effectively, the Central Laboratory, located in Lisbon, has undertaken a range of activities aimed at developing and improving the Group's products and formulating new types of hydraulic binders, performing capacity testing and assessing methods, taking on the role of reference laboratory. It also seeks out synergies with the laboratories of the various business areas responsible for the necessary adjustment of the products to meet raw materials availability and local market requirements. Examples of such include:

- The introduction of a new type of cement in Portugal - pozzolanic cement CEM II/A (V) 42.5 R with pozzolana additives, which is a cement of high chemical resistance used to make concrete and mortars that are subject to aggressive environments and used in work with specific requirements of durability;
- The development of a new type of cement to be used in the manufacture of railway sleepers for the GEOFER company, a subsidiary of the CIMPOR Group;
- A special mortar for effective application on expanded waste glass (foam glass), used to in the thermal insulation of buildings;
- The production of concrete with low environmental impact, incorporating, for example, pozzolana additives to reduce the cement content; the study of cement with low clinker content and requiring lower energy input levels;

The CIMPOR Group has been, in relation to the second vector, and from a long-term perspective, substantially increasing its investment in research and development (R&D) at prestigious universities in recent years, particularly in relation to projects on the theme of climate change, although not exclusively. The most notable of the various lines of research are the following:

- **Belitic Clinker:** involves the extensive study of technically and economically feasible solutions that make it possible to use a mixture of raw materials with low CaCO<sub>3</sub> content and higher SiO<sub>2</sub> content without affecting the quality of the end product. This process will not only help reduce the consumption of thermal energy required to decarbonise the raw materials, a chemical process that is heavily endothermic, but also reduce directly associated CO<sub>2</sub> emissions and the consumption of refractories.. The control of this process will enable the production of clinker richer in C<sub>2</sub>S and with higher grindability, known as belite clinker.

Moreover, along another tract, since it is necessary to analyse which is the most favourable solution, the Group has also been seeking to identify ways of substantially increasing clinker reactivity, with a view to incorporating more additives, and to expand on the study of producing clinker from new raw materials.

- **Geopolymers:** Another line of research concerns the analysis of the alkaline activation of aluminosilicates (i.e. so-called geopolymers, members of the family of inorganic polymers such as kaolinite, pozzolana and others) through the combination of sodium or potassium hydroxides (NaOH, KOH) and sodium or potassium silicates, for example.

- **C-S-H nanoengineering:** this is a line of research that is more oriented to technological aspects, encompassing the "decoding" of the atomic structure of CSH (calcium silicate hydrate), the "building block" of the structure of cement, aiming to identify and understand the scientific foundations and mechanisms on a "nano-scale" that determine the behaviour of the CSH structure and its characteristics and properties. Taking advantage of the "decoding" of the basic structure of CSH and a consistent molecular model for the CSH, developed by Massachusetts Institute of Technology (MIT) as part of this project, research is now focused on manipulating the chemical composition and molecular structure of cement in order to incorporate a less energy intensive hydraulic binder produced and, thereby, reduce the associated emissions of CO<sub>2</sub> without the cement losing its mechanical characteristics, durability aspects, widespread availability and use at a low cost that is characteristic of the cement we know today.
- **Production of artificial pozzolana:** The production and incorporation of artificial pozzolana in the manufacture of blended cements is a theme that, following the conclusion of the first trials for the production of artificial pozzolana (calcinated clay) and the assembly in 2002 of specific facilities for this purpose at Cajati and Cimepar in Brazil, enjoyed some commercial applications.
- **Carbon Capture and Sequestration:** Further to research directed at developing new products, the CIMPOR Group continues to assess various developing technologies such as various forms of capturing and the sequestration of carbon, though, to date, many of these technologies are not yet commercially available nor is there any clear idea of their full potential on an industrial scale. The Group has, in order to expand on its knowledge in this area, accompanied developments through working groups, studies and international projects in this field, and in 2009 it joined a large-scale R&D partnership led by the European Cement Research Academy (ECRA), which aims to construct, in the long term, a **demonstration plant of this type of technology (post combustion and oxyfuel)** for the cement industry.

CIMPOR also participates in a R&D partnership in Portugal which aims to develop a **ppilot facility for the capture and sequestration of CO<sub>2</sub> from the chimneys of clinker kilns with the production of bio-fuel and biomass by microalgae.**

- **Alternative Fuels and Raw Materials:** one of the projects of note is called the "Eco-fuel" project, which aims to **produce a new type of alternative fuel from municipal solid waste**, of uniform composition, by using artificial intelligence technology.

Aspects such as the **recovery of waste as a raw material** to produce clinker, cement and concrete and concrete recarbonising have been the subject of regular research.

One area that continues to deserve the special attention of the CIMPOR Group is the **recycling of construction waste and waste from the demolition of buildings**, by using them as aggregates in concrete production and as raw material for the production of clinker. Various trials have been run in this area. In relation to the use of waste as a raw material for clinker production, some OU's have developed projects to use the waste from the demolition of silos and buildings in older parts of the premises for clinker production, after crushing and screening.

The final goal of this set of actions would be to create in the short-term, in Portugal, in cooperation with universities and research institutes, a **research centre** of national/international standing devoted to environmental issues, covering the product we manufacture, climate change, renewable energy sources, alternative fuels and also the construction industry and biotechnology-related issues.

These initiatives and technological developments should contribute to reducing costs, enriching the portfolio of products and, in addition, they should be viewed by all of us as a responsibility that we as a socially respected company must be held accountable for on our journey towards sustainability.

## **EMISSIONS I: CLIMATE PROTECTION AND MANAGEMENT OF CO<sub>2</sub> EMISSIONS**

Climate change and energy security now represent major global challenges. All economies and sectors of society must equally contribute to solving the problem according to their technical and economic capacity and level of social-economic development. Combining the reduction of CO<sub>2</sub> with economic growth requires the improved efficiency of production, the products and consumption in terms of carbon and energy consumption.

Regardless of whether the gradual increase of CO<sub>2</sub> is today indicated as the chief cause of global warming of our planet it is our understanding that for an international group like CIMPOR, climate change should, from a strategic point of view, be increasingly perceived as a market transition and less as an environmental issue.

The signs of this market transition are beginning to be evident. The international commitments being negotiated to control the emission of greenhouse gases and the establishment of a market price for carbon will affect the price of energy, products, services and will have an impact on sectors, such as ours, that are heavily dependent on energy, creating a domino effect throughout the value chain.

As part of its climate change policy, CIMPOR monitors its carbon footprint in order to determine the level of exposure, set targets aimed at reducing that footprint by developing specific projects and assessing business opportunities and it ultimately seeks to participate and influence the development process of policies in this area through the participation in national and international forums.

### **CO<sub>2</sub> EMISSIONS MONITORING AND CERTIFICATION IN THE CIMPOR GROUP**

The CO<sub>2</sub> emissions of the CIMPOR Group have been calculated and monitored since 1990, according to the "CO<sub>2</sub> Protocol for the cement industry" developed by the World Resources Institute/WBCSD based on the GHG Protocol. Moreover, the Group's CO<sub>2</sub> emissions have been audited and certified by an independent external body with an approach identical to the IETA Verification Protocol Version 2.0 for the verification of EU ETS emissions reports and in accordance with the requirements of the ISO 14064-3 standard.

The process of verification of the emissions data for 2009 followed, as in previous years, a sampling system based on risk analysis, that the auditor determined in conjunction with CIMPOR. 16 cement plants were visited, representing about 67% of the Group's consolidated total emissions of the total of 40 operational units. Of the remaining 33% of total emissions of CO<sub>2</sub>, 79% were from installations covered by the EU ETS under which verification is compulsory and performed by accredited auditors, which is the reason why the audit was not duplicated.

In conclusion, 26% of the CIMPOR Group's total emissions undergo a "reasonable" check and 67% undergo a "moderate" check. 93% of all emissions are subject to at least one of the two types of audit.

The OU's involved in the checking process are rotated each year in order to guarantee that each OU is audited at least every 3 years.

The information generated in the CIMPOR Group was checked at different levels:

- **Corporate Level** (consolidation of the CIMPOR Group's data): Assessment of the reporting system of CO<sub>2</sub> emissions of the CIMPOR Group (e.g. collection methodologies for central data and the way in which data are gathered at operating units, compiled and set out in the final report), analysis of the different reporting perimeters, analysis of calculation protocol, the consolidation procedure and the corporate tools and documents used and made available to the different OU's.
- **Intermediate level** (consolidation of Business Area data): - Analysis of the controls performed at the intermediate consolidation level, corresponding to each country;
- **Facility Level** (Operating Unit) - Analysis of the data collection procedures at the operating unit level (e.g. collection process, handling and reporting of data); Verification of support documents and internal control processes; Analysis of the CIMPOR Group's annual CO<sub>2</sub> emissions report; Drawing up the verification report and data checking;

The auditor further confirmed that emissions had been calculated in accordance with the voluntary WRI/WBCSD Cement Industry CO<sub>2</sub> Emissions Protocol Version 2.0 / 05Jun2005 and abided by its principles in terms of relevance, integrality, consistency, transparency and accuracy. It also found that the data submitted for validation were free of material errors at the 5% material significance level agreed upon at the start of the process.

Although the 1990 baseline was recorded, it is not included in the scope of the verification process and is used as a best estimate (Kyoto Protocol) to measure the development of the CIMPOR Group's overall emissions.

## THE CIMPOR GROUP'S CONSOLIDATED CO<sub>2</sub> EMISSIONS

Total consolidated emissions of the CIMPOR Group have inevitably risen over the years due to acquisition policy and investments in organisation growth, however, the performance of overall specific CO<sub>2</sub> emissions is first class.

The evolution of these emissions from 1990 to 2009 is summarised in the following charts:



**NOTE:** The CO<sub>2</sub> emissions charts indicate the emissions of the CIMPOR Group year after year, since 1990, always considering the consolidation perimeter of the Group during the year in progress extended to preceding years. In other words, there is room for updating the 1990 and subsequent years' baseline whenever an OU has been newly acquired and that OU has been operating on that date or has been in preceding years.

## Total Emissions

The decrease in the value of total CO<sub>2</sub> emissions (net) from 18.4 million tons in 2008 to 17.7 million tons in 2009, considering the current consolidation perimeter, is due to the sharp decrease of production of clinker in Portugal, Morocco and Brazil, despite the impact of the start-up of two new clinker production lines in 2009, as referred to above.

Despite the increase of more than 61% in cement production between 1990 and 2009, overall gross total emissions of CO<sub>2</sub> increased by only around 50% in the same period, considering the current consolidation perimeter. This favourable performance is due to the significant improvement in energy efficiency in the manufacturing process, changes in fuel to ones with lower emission factors and, especially, the significant increase in the use of additives in cement.

## Specific Emissions

Taking the values recorded in 1990 as the baseline, the level of direct emissions of CO<sub>2</sub> by the CIMPOR Group has significantly improved in relation to the specific emissions (gross or net) of CO<sub>2</sub> either per ton of clinker or ton of cement product.

The specific emissions per ton of cement product (net) evolved from 680 kg in 2008 to 677 kg of CO<sub>2</sub>/ton of cement product in em 2009. The specific emissions (net) per ton of clinker developed from 872 kg in 2008 to 870 kg CO<sub>2</sub>/ton of clinker in 2009.

The improvements are due to the switch from coal to petroleum coke in several of the OU's of the CIMPOR Group, the progress achieved in many plants in the use of natural gas instead of fuel oil and coal (e.g. Egypt and Mozambique), the use of biomass (e.g. Portugal), the gradual replacement of non-renewable fossil fuels with alternative fuels (e.g. Brazil). It should also be noted that the increased exposure of the Group to countries like South Africa, India and China, which exclusively use coal as the fuel for kilns, and Turkey to a lesser extent, prevented a more favorable evolution of the value of specific CO<sub>2</sub> emissions.

The progress achieved so far is also the result of building new more efficient and modern production lines (e.g. in Egypt, South Africa, Turkey and Brazil), the remodelling of some existing lines (e.g. in Portugal, Spain, Morocco and Tunisia), the use of alternative raw materials, preferably already decarbonated, and the increasing use of additives in cement in countries where the product standards and availability of such permit that practice.

The CIMPOR Group, in relation to this latter point, has increasingly focused on the development of new types of blended cements (e.g. in Portugal, Spain, Brazil, Morocco, Tunisia, South Africa, Turkey and China) incorporating less clinker, replaced by fly ash from thermoelectric power stations, steelworks slag and a series of other additives, depending on their availability in each geographical area where the Group operates.

Specific indirect emissions have also improved due to the ongoing measures to rationalise energy consumption.

## CO<sub>2</sub> EMISSIONS FROM THE CEMENT MANUFACTURING PROCESS

The cement industry currently produces around 5% of worldwide anthropogenic emissions of CO<sub>2</sub>. Half of such emissions are produced by the chemical process of production, 40% stems from the fuel used and the remaining 10% is indirectly emitted through electricity use and transport.

The production of cement requires the intensive use of raw materials and energy and thermal power, which results in air emissions, with those of carbon dioxide (CO<sub>2</sub>) the most important.

Cement production starts in the quarry and ends at the cement grinder, passing through a series of operations of physical transformation and complex chemical reactions of the raw materials and fuels used.

The main chemical reaction is the creation of clinker, which occurs in the kiln using one or more fuel types and developing at a very high temperature (between 1450 and 1600°C). During this stage, the raw materials with suitable chemical composition, mainly limestone and marl, which can have some corrective minerals added are transformed into clinker, an intermediate product of cement manufacturing process.

The clinker production phase is responsible for the release of CO<sub>2</sub> from two sources. "Process CO<sub>2</sub>" is solely due to the process of decarbonation of the raw materials, during which the possibility of external intervention is very limited. On the other hand, "Thermal CO<sub>2</sub>" from the combustion of petroleum coke, coal, natural gas or other fuels required to promote drying, the decarbonising of the raw materials and the generation of the heat required for the subsequent chemical reactions to form clinker in the kiln, on which the possibility of external intervention to reduce emissions is slightly greater.

The amount of CO<sub>2</sub> emitted therefore depends on the chemical composition of the raw materials, the type of fuel used and the specific heat consumption of the kiln, which is consequently related to the type of technological process used on the production line.

The clinker obtained is then ground with other additives to produce cement.

## CLIMATE CHANGE POLICY OF THE CIMPOR GROUP

Our industry should not be directly affected by the physical consequences of climate change and any disruptions due to natural disasters related to climate change should be, in any event, temporary. However, the agreements and regulations on this matter will alter key elements of business strategy, such as the economic aspects of production, cost competitiveness, investment decisions and the value of different types of assets affecting, in this way, our operations, our products and our relations with customers and suppliers.

The CIMPOR Group has planned action in this field. CIMPOR has a Business Risk Management Plan which encompasses the various activities of the business and different types of risk, including the regulatory aspects of CO<sub>2</sub>. The plan helps to determine and control in a systematic way overall exposure to different types of risk and it functions as a support for the decision-making process. Moreover, the CIMPOR Group reviews its strategic position on climate change compared with its competitors in order to identify risks and opportunities and to prepare itself for this market transition.

The strategy to mitigate the CO<sub>2</sub> emissions of the CIMPOR Group is broadly based on a constant effort to invest in modernising the operating units and on energy efficiency measures adopted by many of the OU's for their day-to-day operations, resulting from the benchmarking of cement grinding and manufacturing plants within and outside the Group and the continuous adoption of the best industrial practices. The policy of reducing specific CO<sub>2</sub> emissions per ton of product (cement and clinker) is based on a series of short, medium and long-term strategies and goals that are extensible and regularly communicated to the entire organisation:

### SHORT-TERM STRATEGIES

**Reducing the quantity of clinker needed to manufacture one ton of cement by increasing the production of blended cements: clinker / cement factor**

Clinker can be partially replaced by the addition of other mineral compounds, usually known as cement products, to produce various standardised types of cement known as blended cements.. This procedure also generally means the reduction of the quantity of virgin raw materials required. This approach also means the reduction of the quantity of fuel required to produce one ton of cement and, in some cases, the reduction of electricity consumption by cement grinding facilities.

Market factors and rules in each country as well as the availability of these mineral compounds can often limit the capacity to improve performance in this field. As cement manufacture is governed by very strict rules, the variety of additives available for such use is very limited and they are not equally available in all markets.. The materials available for use as additives include fly ash and slag, by-products of thermoelectric power plants and the steel industry, respectively, as well as natural pozzolana.

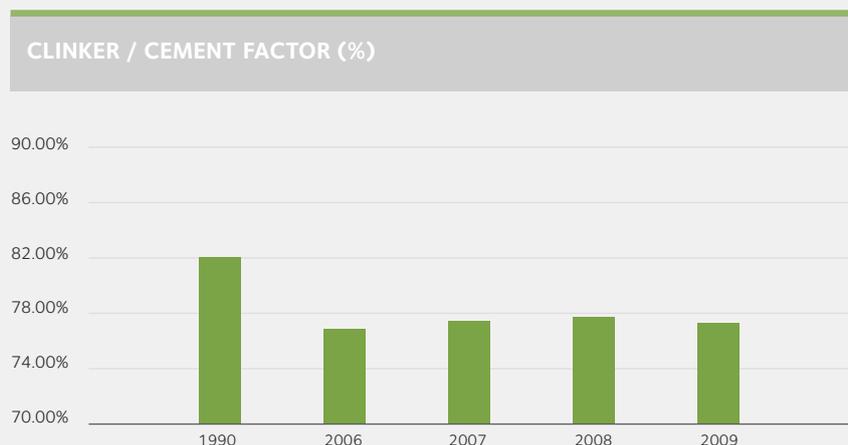
CIMPOR has been engaged in producing and creating the market for so-called blended cements, which are more competitive and sustainable than conventional products, and the product mix has evolved towards low-carbon cements. Between 1990 and 2009, the average rate of incorporation of clinker in cement in the CIMPOR Group fell almost 7%.

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The CIMPOR Group's good results in this area are due to its heavy exposure to markets like those of the Iberian Peninsula, Brazil, South Africa and China, where the use of blended cements has been achieving great success. The adoption of standards equivalent to European standards in other markets, as is the case in Tunisia and may occur in the future in Egypt, India and Turkey, will permit further development along this path.

The clinker/cement factor indicates the fraction of clinker present in the cement. Ordinary Portland cement (OPC) is the basic type of cement and it has a clinker/cement factor of around 95% (added gypsum accounts for the other 5%).

The average clinker/cement factor of the CIMPOR Group was 76.7% in 2009 (77.1% in 2008, considering the 2009 perimeter with the inclusion of new OU's), as can be seen in the chart below. This favourable trend is due in particular to the increased production of blended cements compared to 2008, in Portugal, South Africa, Tunisia, Egypt, Brazil, India, China and Turkey.



#### Increasing the percentage of energy from alternative fuels, especially fuels with a high biomass content: thermal substitution rate

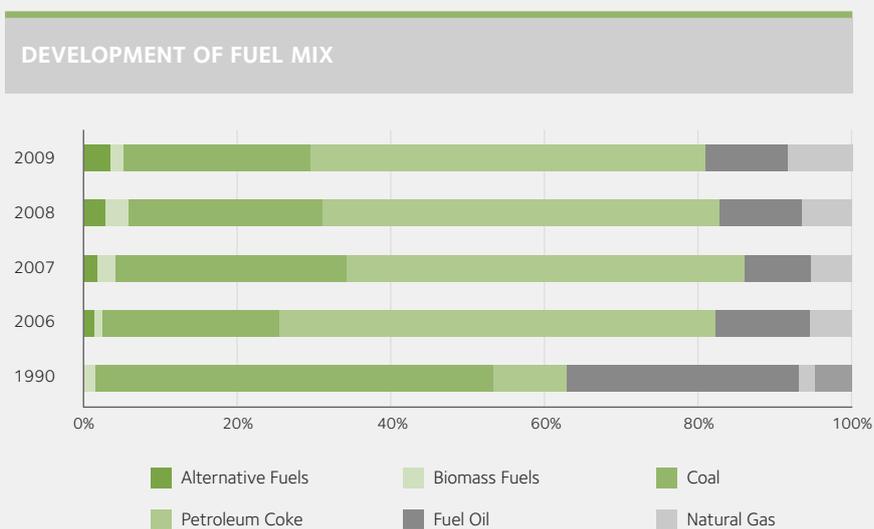
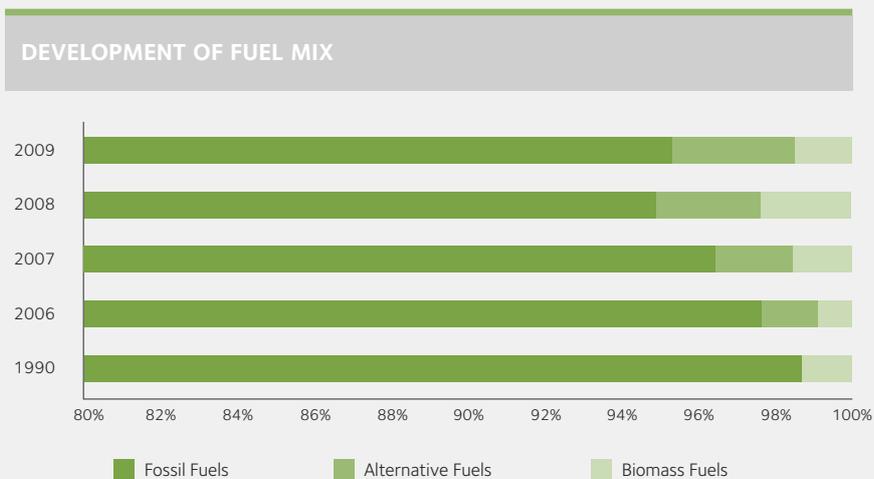
The substitution of non-renewable fossil fuels for alternative fuels originating from urban or industrial waste or by-products is quite common practice throughout the world and it is, together with blended cements, one of the cement industry's main leverages to reduce CO<sub>2</sub> emissions, especially if these fuels contain high biomass content.

Wastes with relatively high calorific values constitute an interesting business opportunity since their use as fuel permits energy recovery, reducing fuel costs, cutting CO<sub>2</sub> emissions and it also provides a safe service to society since it disposes of the waste generated, thus reducing waste disposal in landfill.

Shredded or whole used motor vehicle tyres and biomass are currently the main alternative fuels used by the CIMPOR Group.

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In 2009, the CIMPOR Group's overall rate of replacement of non-renewable fossil fuels for alternative fossil and biomass fuels was 4.6% (5.0% in 2008 considering the current perimeter). This result is a slight decline on the previous year due to the heavy surge of activity of the CIMPOR Group in countries that still do not use such alternatives and the decline in the use of biomass in the Portugal and Brazil Business Areas. The value recorded herein has significant margin for improvement and may begin to develop more favourably as soon as permits for the co-processing of waste are obtained in at least three of the countries where we operate.



#### Substituting fuels with high CO<sub>2</sub> emission factors for fuels with lower CO<sub>2</sub> emission factors: kg CO<sub>2</sub>/GJ emission factor

Several initiatives have been contributing to the reduction of CO<sub>2</sub>/t emissions from clinker between 1990 and 2009. An example of this is the increased use of petroleum coke in place of coal by various plants of the CIMPOR Group, the most recent case being the OU's in Turkey. Likewise, the start up in 2004 of the new production line at the Amreyah plant in Egypt, using natural gas and the successful conversion to natural gas of the Matola plant in Mozambique, have contributed to further reduction.

Simultaneously, the incorporation of alternative fuels has gradually increased. This includes the use of whole and shredded tyres instead of coal and petroleum coke at the plants in Brazil, the co-processing of meat and bone meal (biomass) at the Alhandra OU, use of biomass and refuse-derived fuels, as is the case of used tyres in Loulé, and industrial waste (oil solvents and sludge) in the Souselas OU, all in Portugal.

The suspension of the co-processing of tyres at the Oural OU in Spain, in 2007, as well as the inclusion in the consolidation perimeter of the plants in China (2007 and 2009) and India (2008), which almost exclusively use coal, slightly penalised this evolution. This may, however, be slightly offset by the Oural and Toral de los Vados OU's co-processing fluff from the motor car industry and the planned start of co-processing in the Morocco and South Africa Business Areas.

**Note:** The typical emission factors of the different fuel types are: petroleum coke (92.8 kg CO<sub>2</sub>/GJ), coal (96.1 kg CO<sub>2</sub>/GJ), shredded tyres (85 kg CO<sub>2</sub>/GJ) and natural gas (56.1 kg CO<sub>2</sub>/GJ).

#### Increasing the thermal energy efficiency of the clinker production process: specific thermal consumption

Specific thermal consumption is the total consumption of energy of the clinker production lines per ton of clinker produced. The thermal efficiency of plants is influenced, in the first place, by the type of technology used for production, though it is also quite affected by the regularity of the rawmix feed, kiln control stability and by the reliability of kiln operation. All the plants of the CIMPOR Group currently have production lines using the dry process with the most modern and efficient technology.

The thermal efficiency of the CIMPOR Group's kilns has improved by around 6% since 1990, achieving a value of **3,565 MJ** per ton of clinker in 2009 (**3,586 MJ** in 2008 considering the current perimeter).

The start-up in 2009 of two new complete cement production lines, in China and India, should have a positive impact in 2010, and the start-up of one new line in China in 2010, associated with the ongoing implementation of actions to raise operational improvement and optimisation (e.g. improving kiln reliability and their operating field, the optimisation of the heat recovery process in the clinker coolers of various operating units, among others) under the **CIMPOR Performance Programme** launched six years ago, will contribute to the continuing favourable development of this and other related indicators over the next year.

However, the planned growth in the use of alternative fuels may make it more difficult to provide progress in the specific thermal consumption of clinker kilns, though improved CO<sub>2</sub> emissions are expected.

The Group uses regular energy audits to study ways of improving the energy efficiency of the clinker production lines, the clinker coolers and the kiln bypasses that are used

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Furthermore, waste heat recovery systems from the hot gases were studied and successfully installed in some kilns to generate electricity. It is expected that this technology will be used in the future in more facilities.

#### SPECIFIC THERMAL CONSUMPTION MJ/ t clinker (CLINKER PRODUCTION)



#### Increasing the electricity efficiency of the clinker and cement production process to reduce indirect CO<sub>2</sub> emissions: specific electricity consumption

Electricity consumption accounts for around 12 to 15%, of the total energy consumed in the cement manufacturing process. The adoption of measures to rationalise energy use and investing in more modern equipment that continuously improves the energy performance of industrial equipment, form part of the CIMPOR Group's policy. Over the years, this policy has been the driver of voluntary agreements with the governments of some of the countries in which we operate.

The reduction of specific electricity consumption is an important way for the cement industry, as an intensive electricity consumer, to contribute to the reduction of indirect CO<sub>2</sub> emissions, i.e. the emissions by the electricity generators upstream of the operating units.

The CIMPOR Group's specific electricity consumption in 2009 was around 108 kWh/t cement.

#### MEDIUM-TERM STRATEGIES

##### Modernising the oldest clinker production lines and building new ones: specific thermal consumption

The improvement of specific thermal energy consumption from 1990 to the present day is due to the closing of some old lines, the construction of more efficient lines at Campo Formoso, Brazil and at Amreyah CCC, Egypt, and the renovation in the recent past of the production lines in Portugal, Spain, Morocco and Tunisia.

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The start-up in 2008 of one new line (in South Africa) and of three renovated lines (2 in Spain and 1 in Brazil), combined with the start-up of one new line in Turkey and also one new line in China, both in 2009, will contribute to the continued favourable development of this indicator and other directly related indicators over the coming year, together with the start-up of a new clinker production line in China.

#### Recovery of waste heat from hot process gases: specific electricity consumption

The recovery of waste heat from process gases to generate electricity has been under study for several years and the first project of this type in the CIMPOR Group was implemented in 2008, in China. The waste heat from process gases (pre-heating tower and/or kiln cooler) not required to dry raw materials, solid fuels and cement additives, began to be harnessed in 2009 for generating electricity. This indirectly reduces CO<sub>2</sub> emissions since less electricity from the national grid is consumed in the normal operation of the plant. Future projects of this kind continue to be studied.

#### Increasing the percentage use of totally or partially decarbonised alternative raw materials: raw material substitution rate

The Group will also seek, given the vital importance of the availability of natural resources to its business activity, and through a long-term quarry management policy, to follow the trends of the growing use of totally or partially decarbonised alternative raw materials - filter ash, ungranulated slag, SPL, coal tailings, and others - and the recycling of construction and demolition waste, using it as an alternative raw material for the manufacture of clinker whenever it is available in each Business Area. It is one of the possible courses of action for the CIMPOR Group to further reduce specific CO<sub>2</sub> emissions per ton of clinker produced, even though with a somewhat limited impact.

#### CDM/JI Projects, Carbon Funds and Emissions Trading

A set of internal inter-functional relationships have been set up with the aim of assessing the potential for CDM projects in the Group's different Business Areas. These relations concern the forming of contacts with local entities and the detection of project development opportunities, and involve the Business Area, the Group's Technical Centre (CIMPOR TEC), providing technical support to such initiatives, and the Corporate Financial Area for CO<sub>2</sub>-related financial aspects.

CIMPOR has sought to take advantage of the distribution of its asset base/cement production facilities in different countries (e.g. Morocco, Tunisia, Brazil, South Africa, Mozambique and China) in order to **exploit the flexibility mechanisms established by the Kyoto Protocol** (emissions trading and CDM projects) and to obtain the carbon credits for use in the European CO<sub>2</sub> emissions trading market (EU ETS). The highly restrictive nature of the CDM project rules have ended up crippling most possibilities that have been studied and make this aspect little interesting, leading to the abandonment of this route, at least while the future of this type of flexibility mechanism is unclear. Only one project, that of the Matola OU, in Mozambique, successfully navigated the initial screening and is undergoing assessment by the CDM Executive Board.

Nonetheless, CIMPOR continues, through the Cement Sustainability Initiative of the WBCSD and in cooperation with other members, to try to ensure the adoption of a new CDM methodology based on sectoral benchmarking that aims, without removing the degree of exigency required of a CDM project, to overcome the difficulties associated with the verification of the additionality and the baseline of such projects. This methodology has already been submitted to the CDM MethPanel.

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The CIMPOR Group has held, since 2007, a share in the **Luso Carbon Fund**, with the aim of and also as a means of diversifying the risk associated to the development of such projects and seeking to obtain financial gains on the CO<sub>2</sub> market. This carbon fund invests in a varied portfolio of CDM projects located in different parts of the world.

Furthermore, the CIMPOR Group has occasionally bought/sold allowances in the **CO<sub>2</sub> emissions trading market**, to manage the shortage/excess of emission allowances at any given moment depending on the production of the OU's in Portugal and Spain.

### LONG-TERM STRATEGIES

Long-term strategies are primarily based on research and development (R&D), sometimes coordinated directly by CIMPOR and other times in partnership with research institutes of repute.

Accordingly, investment in R&D has increased significantly over the past three years, and it represents a key pillar of the long-term strategy of the CIMPOR Group in response to the issue of climate change.

#### **R&D Projects: Development of clinkers and alternative products and Carbon Capture and Sequestration (CCS)**

The CIMPOR group has in recent years substantially increased investment in research and development projects (R&D) with prestigious universities, particularly in relation to projects on the theme of climate change, as is the case with studies on the production of belite clinker and geopolymers, nanoengineering investigation into calcium silicate hydrate (CSH), and carbon capture and sequestration. These projects will be tackled in more detail further on in this report.

## MEASURING PROGRESS

### CLIMATE PROTECTION AND CO<sub>2</sub> EMISSIONS MANAGEMENT

#### OVERALL CO<sub>2</sub> EMISSIONS

1. Number of CIMPOR Group operating units: **40** (38 in 2008) – **26 cement plants** (24 in 2008) and **14 grinding plants** (14 in 2008).
2. Percentage of operating units using the WRI/WBCSD CO<sub>2</sub> Protocol to inventory emissions: **100%** (100% in 2008)
3. Overall gross specific CO<sub>2</sub> emissions per ton of cement product: **677 kg CO<sub>2</sub>/t cement product** (680 kg CO<sub>2</sub>/t cement product in 2008 considering the new perimeter).
4. Overall **net** specific CO<sub>2</sub> emissions per ton of cement product: **677 kg CO<sub>2</sub>/t cement product** (680 kg CO<sub>2</sub>/t cement product in 2008 considering the new perimeter).
5. Overall **gross** specific CO<sub>2</sub> emissions per ton of clinker **870 kg CO<sub>2</sub>/t cement product** (872 kg CO<sub>2</sub>/t cement product in 2008 considering the new perimeter).
6. Overall **net** specific CO<sub>2</sub> emissions per ton of clinker **870 kg CO<sub>2</sub>/t cement product** (872 kg CO<sub>2</sub>/t cement product in 2008 considering the new perimeter).

#### GOALS AND NEXT STEPS

In 2004, the CIMPOR Group established the goal of achieving a 15% reduction in the value of overall net specific emissions of CO<sub>2</sub> per ton of cement product by 2015, taking 1990 as the reference year. This goal would represent, for the perimeter existing at that time (without the Turkey, China and India BA's and without the new production lines that have been built in the meantime in South Africa, Turkey and China), obtaining a value of less than 610 kg CO<sub>2</sub>/t of cement product. This will continue to be maintained as a reference despite the change to the 1990 baseline due to the entry of new OUs. By the end of 2009 the CIMPOR Group had recorded a reduction of around 8% in those CO<sub>2</sub> emissions

Overall net specific emissions of CO<sub>2</sub> per ton of cement product in 2009 were **677 kg CO<sub>2</sub>/t** of cement product, as opposed to **680 kg CO<sub>2</sub>/t** of cement product in 2008, considering the same perimeter. This was principally due to the improvement in the clinker/cement factor in various countries where the CIMPOR Group operates and the improvement in energy efficiency, which allows the Group to continue on the path to achieving the goal set in 2004.

The CIMPOR Group's policy of heavily focusing on producing blended low carbon cement as well as the expected improvement of a range of operating performances associated with the stabilisation of some of the new production lines, should continue the downward trend in specific CO<sub>2</sub> emissions that has been observed in recent years.

The consolidated CO<sub>2</sub> emissions of the CIMPOR Group have been annually audited since 2005 by an independent entity. These audits will continue to occur in the future, at least every 2 years, in accordance with the commitment undertaken.

## EMISSIONS II: MONITORING AND REPORTING OTHER EMISSIONS (PARTICLES, NO<sub>x</sub>, SO<sub>2</sub> AND MICRO-POLLUTANTS)

The production of cement generates, besides CO<sub>2</sub>, other types of pollutants of the surrounding environment, particularly in the form of atmospheric emissions, as is the case of the major particle pollutants, NO<sub>x</sub> and SO<sub>2</sub> and other micro-pollutants.

All these emissions by the CIMPOR Group's operating units are strictly monitored and reported according to an internal protocol and also in compliance with local, national, regional and often international environmental regulations.

This is fundamental to continuing to merit the confidence of the different stakeholders.

### MONITORING AND REPORTING EMISSIONS OF THE MAIN POLLUTANTS AND MICRO-POLLUTANTS

In the CIMPOR Group the emissions of **main pollutants** (particles, NO<sub>x</sub>, SO<sub>2</sub>) and **micro-pollutants** (metals, PCDD/F and VOCs) from the main chimney of the kiln are monitored and reported internally since 2004, according to the principles of the WBCSD/CSI Monitoring and Reporting of Emissions Protocol developed for the cement sector. This document comprises an internal reference, in order to ensure uniformity in the measurement, monitoring and reporting of emissions, as well as the setting of environmental performance targets for the Group.

The CIMPOR Group, aware of the environmental implications of its industrial activity and in order to achieve increasingly stringent pollutant emission targets, devotes a significant fraction of its multi-year industrial investment to reducing emissions of particles, NO<sub>x</sub> and SO<sub>2</sub>.

The monitoring of the **main pollutants** - particles, NO<sub>x</sub> and SO<sub>2</sub> - is, according to Group policy, continuously carried out, guaranteeing the correct operation of the analyzers with respect to calibration and maintenance. In the event monitoring is exceptionally made non-continuously, it must be conducted at least once a year.

In relation to **micro-pollutants**, metals, PCDD/F and VOC's, spot measuring is carried out which is designed to characterise the situation (fingerprints). New measurements should be made to characterise the new situation whenever there are significant changes in processes, raw materials or fuels used.

It is important to highlight the fact that changes in the data analysis and consolidation perimeter occur annually not only because of the Group opening up to new business areas but also due to the operational start-up of new production lines in already existing business areas, which often creates difficulties in meeting defined goals. Nonetheless, despite these situations, the goals that have been defined will not suffer any change, though the period of compliance may likely be slightly extended.

## ENVIRONMENTAL PERFORMANCE CONCERNING POLLUTANT EMISSIONS

According to the data for 2009, the following values for the performance indicators of the Group's consolidated emissions were obtained:

- **Overall Coverage Rate (KPI1):** indicates the percentage of clinker produced in kilns where the main pollutants (particles  $\text{NO}_x$ ,  $\text{SO}_2$ ) and micro-pollutants (metals, PCDD/F and VOC's) are monitored (sporadically and/or continuously). The value of this indicator for the CIMPOR Group was **95.0%** in 2009.
- **Coverage Rate Continuous Measurement (KPI2):** assesses the percentage of clinker produced in kilns in which the main pollutants (particles,  $\text{NO}_x$  and  $\text{SO}_2$ ) are continuously monitored.. This indicator was **95.0%** for the CIMPOR Group in 2009.
- **Main Pollutants' Emissions Data (KPI3):** is an indicator that quantitatively assesses the emissions of the main pollutants in absolute (t/year) and specific (g/t clinker) units. The table below shows the development of the figures since 2004, relative to the emissions of the main pollutants (particles,  $\text{NO}_x$  and  $\text{SO}_2$ ).

Main pollutants	KPI3a: Particles		KPI3b: $\text{NO}_x$		KPI3c: $\text{SO}_2$	
	Total units (t/year)	Specific units (g/t clinker)	Total units (t/year)	Specific units (g/t clinker)	Total units (t/year)	Specific units (g/t clinker)
2004	1 819.3	130.9	19 852.1	1 721.7	2 338.3	202.8
2005	2 020.8	137.9	22 139.0	1 895.1	4 822.7	412.8
2006	2 712.0	179.7	28 997.0	1 921.2	5 195.9	344.3
2007	4 523.1	243.1	35 808.0	1 924.4	6 991.1	375.7
2008	3 436.6	171.6	33 702.7	1 682.8	6 010.7	300.1
2009	3 242.0	161.6	31 593.0	1 656.9	3 881.8	193.5

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The geographic perimeter and the number of facilities under analysis has undergone a substantial evolution since 2004, the year when the consolidated emissions of the CIMPOR Group began to be regularly reported and targets set, as a result of organic growth and acquisitions made in the meantime:

- 2004: The first baseline analysis perimeter was defined (19 OU's/24 kilns) with targets set;
- 2006: Includes 1 more kiln at the São Miguel dos Campos OU (Brazil);
- 2007: Includes 3 more OU's of Turkey (4 kilns) and 1 OU of China (2 kilns);
- 2008: Includes 1 OU of India (1 kiln);
- 2009: Includes 1 OU of China (1 kiln) and 1 more kiln of the Simuma OU (South Africa), constituting the current analysis perimeter of 25 OU's (34 kilns).

**Note:** It is the case that at that the end of the third quarter of the year a completely new clinker production started up after the transformation of the former grinding unit of Hasanoglan (Turkey) into an integrated cement production unit. However, the calibration of the continuous measurement equipment already installed, the determination of the fingerprints and the performance testing and commissioning of the facility will only be carried out in 2010, which is why this new production line has not yet been included in the consolidation perimeter, although in real terms the CIMPOR Group has 26 OU's (35 kilns).

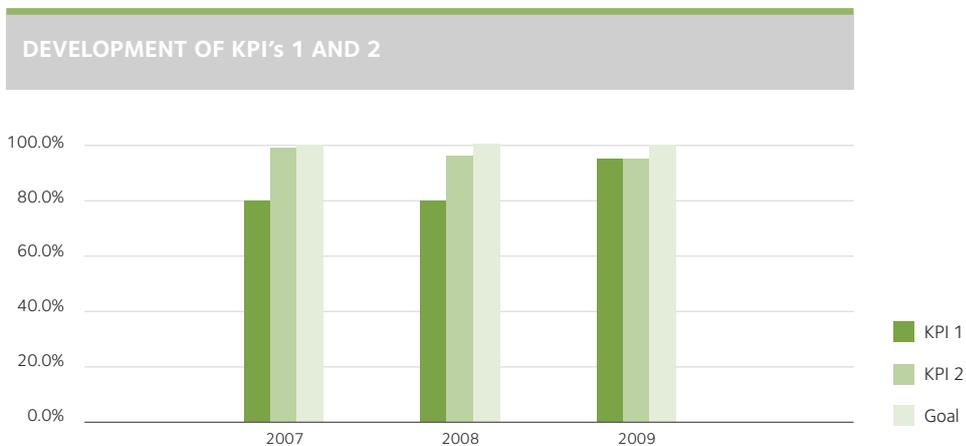
### Overall Measurement Coverage Rate and Continuous Measurement Coverage Rate

In 2004, taking into account the baseline perimeter, the target for KPI1 and KPI2 was defined as 100% to be achieved by the end of 2006. The varied action that need to be taken to achieve that goals was immediately implemented in the different OU's, and it ended up being achieved in the first half of 2007. The opening of the Group to new business areas meant that this goal could not be maintained either in 2007 or in 2008.

However, it is the policy of the CIMPOR Group to continue to abide by goals previously set, regardless of the inclusion of new OU's and new production lines in the consolidation perimeter. Accordingly, each new OU possesses a maximum period of two years to adopt the Group's internal regulations on this matter.

In 2009, despite the entry into operation of two new clinker production lines (Simuma and Liyang), the value of the KPI1 and KPI2 indicators was not penalised, compared to 2008, since the new kilns had installed from their start-up systems to continuously measure the main pollutants and they underwent spot measurements of micro-pollutant emissions (fingerprints) to characterize the situation of the kilns.

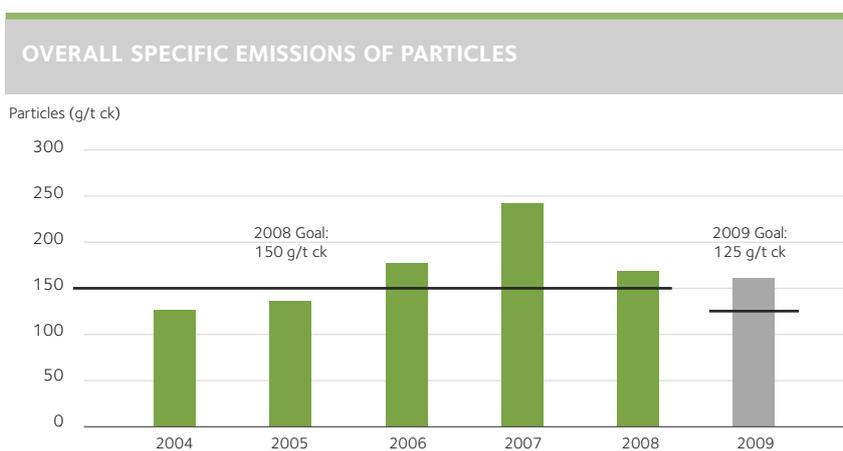
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It should however be noted that the goal of 100% was not achieved in any of the indicators, since the Sikka plant (India) has only taken, to date, spot measurements of the main pollutants. The continuous meters must be installed and operational by the end of 2010, and the same must also occur with the determination of the fingerprints.

**Main Pollutant Emissions**

In relation to KPI3, the following goals were defined for overall specific emissions for 2009: 125 g/t of clinker for particles, 1,750 g/t of clinker for NO<sub>x</sub> and 300 g/t of clinker for SO<sub>2</sub>.



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It can be concluded from the preceding charts that the entry into operation in 2009 of two new kilns (Simuma and Liyang) did not penalize the Group's results, and those results even improved from 2008.

In terms of compliance with objectives, only the goal relative to specific emissions of particles was not fulfilled. Nevertheless, if the baseline perimeter for analysis had been maintained, all emissions of main pollutants would have been located well below the new goals set in 2008 for 2009.

The implementation of the Emissions Monitoring and Reporting Manual (EMR) of the CIMPOR Group at the start of 2008, permitted a more reliable and consolidated database to be obtained, which is immediately reflected in the results for that same year. The implementation of the CIMPOR EMR continued in 2009, involving a heavier focus on training, particularly in the new OU's, with those of the China Business Area especially targeted.

## MAIN POLLUTANTS (PARTICLES, NO<sub>x</sub>, SO<sub>2</sub>) AND MICRO-POLLUTANTS (Volatile Organic Compounds, Metals, Dioxins and Furans)

### PARTICLES

The installation in many of kilns (and respective coolers) of dust removal systems employing the latest technology (particularly fabric filters) has allowed particle emissions in cement plants to decrease in recent years. Currently, in relation to the removal of dust from kiln gases, 47% of a total of 34 kilns are equipped with fabric filters and 53% with traditional electrostatic filters. That 47% includes a "hybrid" filter, the first ever installed by the CIMPOR Group, which was in 2009, and is a hybrid comprising a fabric and electrostatic filter.

41% of the production lines currently record specific particle emissions much lower than 50 g/t of clinker. However, the existence of older plants equipped with less efficient dust removal systems contributes to a higher average, of 162 g/t of clinker.

It was observed that despite the addition of two more kilns to the analysis perimeter, specific particle emissions did not worsen and even decreased slightly, as a result of recent interventions to optimise the efficiency of the electrostatic filter.

Of note are the investments already underway or completed that encompass the replacement of electrostatic filters for fabric filters, particularly in plants in Tunisia, Egypt and Mozambique (already completed).

### NITROGEN COMPOUNDS (NO<sub>x</sub>)

The formation of oxygen and nitrogen compounds (NO<sub>x</sub>) is associated with the combustion process, especially the combustion conditions and the fuel's characteristics. The reduction of emissions begins, therefore, with strict process control by optimizing burning conditions (e.g. flame temperature, ensuring excess oxygen and controlling the burning time).

Lower emissions are obtained by resorting to the use of chemical reduction techniques on the compounds already formed. One of these techniques, known as SNCR – Selective non-Catalytic Reduction, involves the injection of ammonia (or urea) into the process. This is only applied in the CIMPOR Group in the plants of the Portugal Business Area.

Currently, 67% of our production lines have NO<sub>x</sub> emissions much lower than 2,000 g/t of clinker. The average is around 1.656,9 g/t of clinker.

Of particular note in order to further reduce the value of these emissions are the studies and/or investments under analysis, namely for the plants in Spain and Turkey, and the start-up of SNCR facilities in plants of northern Spain is forecast for 2010. NO<sub>x</sub> emissions, like particle emissions, did not worsen with the new analysis perimeter.

### SULPHUR COMPOUNDS (SO<sub>2</sub>)

They primarily originate from the volatilization of pyritic sulphur contained in the raw materials and, to a lesser extent, from sulphur present in the fuel. Therefore, the primary measure to mitigate SO<sub>2</sub> emissions is to achieve excellent control and management of the mining of the raw materials used so as to reduce their average sulphur content.

Additional measures to reduce these emissions include the possibility of injecting into the kiln exhaust gas at the pre-heating tower an absorbent agent rich in CaO, a technique that is actually used at the plants in Portugal, as well as the installation of a wet scrubber, which is an investment in progress on one of the lines of the Souselas plant.

Currently, 76% of the CIMPOR Group's production lines register emissions well below 250 g/t of clinker. Nevertheless, since the Group has plants with stockpiles raw materials with a high sulphur content, the average obtained is 193.5 g/t of clinker.

A significant reduction in SO<sub>2</sub> emissions was achieved compared to 2008, primarily due to the calibration of the emissions value of one of the OU's in China which, due to it having 2 large kilns, had a significant impact on the Group's average.

### METALS

The presence of metals in cement kiln emissions originates from their being found in the raw materials and fuels. The content of metals in these system inputs is quite variable, though always at low levels. Their behaviour in the kiln basically depends on their volatility. This is why mercury, an extremely volatile metal, most frequently appears in gas emissions. Maximum limits for the emission of this compound have only been established by a few countries and basically apply to kilns that co-process alternative wastes. This limit is 0.05 mg/Nm<sup>3</sup>, and the CIMPOR Group average is well below that limit: 0.009 mg/Nm<sup>3</sup> (indicative value)

### DIOXINS AND FURANS (PCDD/F)

belong to a group of pollutants called persistent organic pollutants (commonly known as POP's), which have an adverse effect due to their toxicity and consequent impact on the environment and public health. Emissions of these compounds are fairly low in the cement industry. In the CIMPOR Group, all spot measurements conducted in the kiln chimneys have shown that PCDD/F emissions are markedly below the maximum limit of 0.1 ng I-TEQ/Nm<sup>3</sup> established by the European Union. The average value of the Group's PCDD/F emissions is 0.04 ng I-TEQ/Nm<sup>3</sup> (indicative value).

### VOLATILE ORGANIC COMPOUNDS (VOC's)

The cement industry is not a significant source of these compounds. However, small quantities may be emitted due to the organic compound content of the raw materials. The VOC content in kiln exhaust gases typically varies between 10 and 100 mg/Nm<sup>3</sup>, and legislation in most countries does not require the measurement of VOC's, except when alternative fuels or raw materials are used. The average value of VOC emissions in the Cimpor Group is 19.8 mg/Nm<sup>3</sup> (indicative value).

## MONITORING AIR QUALITY

Air quality is monitored by a range of sampling equipment forming part of the Air Quality Networks of the Group's operating units. This equipment includes online meters intended to continuously monitor emissions from fixed sources, as already referred to, as well as the monitoring of total particle concentrations in the atmosphere by special equipment installed all around the plant perimeter.

Due to the extremely low concentrations of compounds such as volatile organic compounds (VOC's), heavy metals and other micro-pollutants in the gases emitted by the main chimneys at our plants, the measurement of their concentration is only possible with relatively sophisticated equipment and advanced testing methods.

## MEASURING PROGRESS

### MONITORING AND REPORTING EMISSIONS

#### PERFORMANCE INDICATORS

The performance indicators (KPI1, KPI2, KPI3a, KPI3b and KPI3c) are calculated in 2009 for the geographical perimeter of 25 OU's/34 kilns which contains 6 more OU's and 10 more kilns than the 2005 baseline, as detailed above. The performance indicator values in 2009 are as follows:

1. Percentage of clinker produced by kilns with an occasional or continuous monitoring system for the main pollutants and micro-pollutants: **KPI1 = 95.0% (80.8% in 2008)** Though 100% had been planned by the end of 2009, spot measurements of metals, PCDD/F and VOC's at the plant in India (Sikka) were not possible, as so they shall be made in 2010. It is to be highlighted that this indicator is 100% for the originally established baseline perimeter.
2. Percentage of clinker produced in kilns equipped with a continuous monitoring system for main pollutants: **KPI2 = 95.0% (95.9% in 2008)** This indicator has not achieved 100% since the continuous measurement analyzer has not yet been installed at the plant in India (Sikka), which will be operational by the end of 2010, fulfilling the goal of 100%. As for KPI 1, this indicator would be 100% for the originally defined baseline perimeter.
3. Overall total and specific emissions of main pollutants (particles, NO<sub>x</sub> and SO<sub>2</sub>):

	Total units (t/year)	Specific units (g/t clinker)
KPI 3a: Particles	3 242.0	161.6
KPI 3b: NO <sub>x</sub>	31 593.0	1 656.9
KPI 3c: SO <sub>2</sub>	3 881.8	193.5

## GOALS AND NEXT STEPS

KPI1 improved 18% on 2008 due to the performance of the following spot measurements of micro-pollutants:

- Spain (Niebla): characterisation of line fingerprints after alteration to dry process;
- Egypt (Amreyah I/Kiln 1): characterisation of line fingerprints after revamping to 3,300 t/d;
- China (Zaozhuang / Kiln 1 and Kiln 2): characterisation of operating fingerprint of two lines;

The goal for KPI1 will be achieved by performing spot measurements of metals, PCDD/F and VOC's at the plant in India (Sikka), planned for 2010.

KPI2 is similar to 2008, and the goal of **100%** will only be achieved with the entry into operation of the continuous measurement analysers for main pollutants at the Sikka OU (India), which should be installed and operational by the end of 2010.

KPI3 had the following goals for 2009 defined in 2008: **125 g/t** of clinker for particle emissions, **1,750 g/t** of clinker for NO<sub>x</sub> and **300 g/t** of clinker for SO<sub>2</sub>.

These goals were established for the purpose of an overall reduction of each of these types of emissions, having set a more demanding level compared to the 2008 goals (particles: **150 g/t** of clinker; NO<sub>x</sub>: **1,900 g/t** of clinker; SO<sub>2</sub>: **300 g/t** of clinker), particularly in respect of the particle and NO<sub>x</sub> emissions.

Considering the actions and investment planned for next year, **the reduction targets defined for 2009 will remain the same for 2010:**

Particles: 125 g/t of clinker  
 NO<sub>x</sub>: 1,750 g/t of clinker  
 SO<sub>2</sub>: 300 g/t of clinker

The following **reduction goals for each type of main pollutant by 2015 were defined**, with the aim of reducing emissions of the main pollutants in the CIMPOR Group in the long term:

Particles: 100 g/t of clinker  
 NO<sub>x</sub>: 1,700 g/t of clinker  
 SO<sub>2</sub>: 280 g/t of clinker

The application in the CIMPOR Group of the rules and definitions of the Emissions Monitoring and Reporting (EMR) Manual from 2008, generated greater consistency and reliability relative to the values reported. The implementation of the Cimpor EMR continued in 2009, with the focus on training in the new OU's, particularly in China. In April 2010, an identical training course will be held in the Indian OU.

The first revision of the EMR manual will occur in 2010, with the update of the information relative to the new OU's (China and India), especially in relation to the legal obligations in those countries.

## BUSINESS CASES

**MOZAMBIQUE** | Environmental Management Plan of the Matola Plant: New fabric Filter for the kiln

**SPAIN** | Reduction of Particle Emissions at Toral de Los Vados by means of a "Hybrid" Filter

**SPAIN** | Cementos Cosmos and Toral Municipal Council establish Environmental Project Grant

**PORTUGAL** | Climate Change: Development of a New Type of Cement in the Azores with lower carbon content

**CHINA** | Emission Reduction: Fugitive Dust Mastering at Suzhou Grinding Plant's Wharf

## USE OF RAW MATERIALS AND FUELS

It is essential that industries become increasingly more innovative in how they approach the issues of energy use and the recovery, reuse and recycling of by-products that are currently available so that they can continue to meet, in a sustainable manner, the requirements of a growing world population with access to growing levels of consumption, while preserving, by these means, non-renewable natural resources.

In the cement industry, due to the unique technical characteristics of the process, there is a clear trend towards adopting the principles of so-called industrial ecology or symbiosis, which consist of the use of by-products from other industries as fuels and raw materials, inspired by the closed-circuit behaviour of most of the ecosystems in nature, where the concept of waste does not generally exist.

The recovery, reuse and recycling of industrial by-products or waste, through co-processing, thus reducing consumption of virgin raw materials and fuels, currently constitutes well accepted industrial practice followed all over the world, as long as very strict criteria are complied with, in particular the known hierarchy of waste management and the list of prohibited wastes.

### ALTERNATIVE RAW MATERIALS

The **conventional or natural raw materials** most used in the cement manufacturing process primarily come from our quarries and are essentially limestone, marls, clay and schist for clinker production and gypsum, limestone and natural pozzolana for cement production.

CIMPOR also acquires from outside the Group, in addition to those raw materials and in ever growing quantities, a sizable quantity of other types of raw material – the so-called **alternative raw materials** – for use in either the clinker production process or the cement manufacturing process.

In 2009, the CIMPOR Group used more than **3.7 million tonnes** of alternative raw materials, representing around **9.3%** (9.8% in 2008) of the total amount of raw materials used in our products (clinker and cement). This percentage is expected to increase slightly in the future, reaching and maybe even exceeding the **10%** goal that has been established.

The mining and steel industries and also the electricity generating industry produce some of the mineral by-products used most in the production of clinker and cement.

The main alternative raw materials used in the CIMPOR Group are:

- Fly ash from thermal power plants;
- Pyrite ash from sulphuric acid production plants;
- Industrial gypsum from the desulphurisation carried out in thermal power plants;
- Shale from coal mines;
- Used refractories from clinker kilns;
- Bauxite from the manufacturing industry;
- Filter ash from thermal power plants;
- Ungranulated slag from the steel industry;
- Electrostatic ash from clinker kilns
- Limestone produced as a by-product by the phosphate industry.

These alternative raw materials often permit a reduction in the mining of the virgin natural resources used. Alternative raw materials can be used as correctives in the clinker production process and as additives in the manufacture of certain types of blended cement, substituting clinker, natural gypsum (e.g. desulphurization gypsum) and natural pozzolanas. Moreover, they can also, in certain circumstances, constitute a good alternative to conventional raw materials in terms of cost, given that they can be a burden for some industries generating them and also due to the high flexibility of the cement sector in being able to incorporate them into its manufacturing process. Some of these alternative raw materials that are used can even contribute, albeit on a small scale, to reducing direct CO<sub>2</sub> emissions associated with the decarbonising process, provided they have a suitable chemical composition and some of their compounds have been decarbonised.



## ALTERNATIVE FUELS

Fuel has represented to now one of the major non-renewable natural resources used by the cement industry. The batch of **conventional fossil fuels** most used in our industry are coal, petroleum coke, fuel oil and, to a lesser extent, natural gas. However, their substitution for **alternative fuels** is becoming more frequent, in order to preserve non-renewable energy sources and exploit some economic advantages. The main alternative fuels used in the CIMPOR Group's kilns, partially substituting conventional fuels, include some with high energy contents, such as:

- Animal and plant biomass;
- Shredded or whole scrap tyres [See Box];
- Rubber waste from various industries;
- Used oil;
- Homogeneous mixtures of industrial waste;
- Solvents;
- Waste charcoal (chaff);

and others of lower energy content, such as:

- Some types of oil sludge and emulsions;
- Fractions classified as household, industrial or agricultural waste.

### USE OF SCRAP TYRES AS ALTERNATIVE FUEL IN CEMENT KILNS

According to a sector study developed under the auspices of the World Business Council for Sustainable Development (WBCSD), each person in the developed world generates, on average, one used passenger car tyre per year.

Furthermore, 1 billion used tyres are generated worldwide every year. It is estimated that about 4 billion used tyres are currently disposed of in landfills or dumped in an uncontrolled manner. This is an important environmental burden that can be turned into a resource, provided it is used to replace virgin materials.

Used motor vehicle tyres are currently the main alternative fuel used in the CIMPOR Group.

It is an alternative fuel with high energy content, as good as or even better than many conventional solid fuels, and its use in clinker kilns removes the accidental fire and public health risks associated with their illegal dumping or even the disposal in authorised landfills.

When this type of fuel is co-processed, the emissions from the kiln chimneys are identical to those of other fuels used. It has even been observed in some situations that the use of tyres leads to the reduction of NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> emissions.

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The natural rubber content of tyres (26% or more) is considered carbon neutral since the plantations of rubber trees sequester CO<sub>2</sub> during their lifetime, which has a favorable impact on the reduction of emissions of this greenhouse gas, though this effect is still not being taken into account in the emissions of the CIMPOR Group.

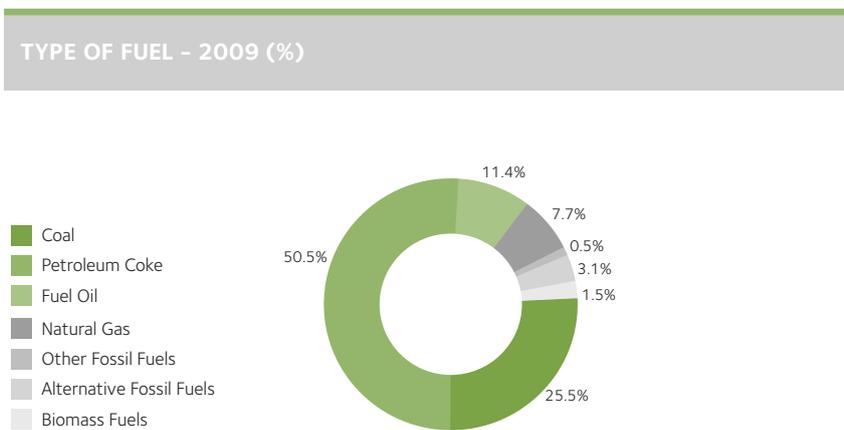
The ash ash resulting from the combustion process also contains a smaller amount of metals than the ash resulting from the burning of coal, and these are naturally incorporated into the make-up of the clinker and not generating any kind of additional waste. The iron and sulphur present in the tyre's composition are also incorporated into the clinker matrix.

The thermal cost resulting from the use of tyres is less than that of conventional fossil fuels such as coal, petroleum coke or natural gas.

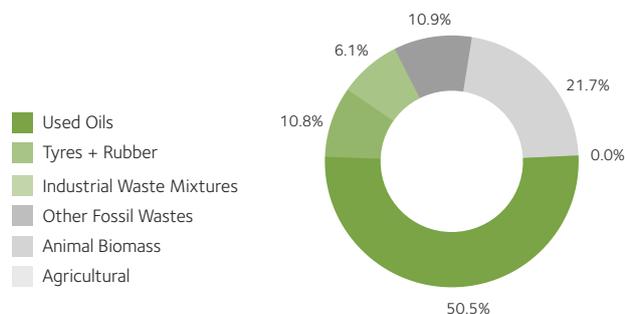
The plants of the CIMPOR Group seek to incorporate the shredded or whole tyres into its long-term fuel mix planning, with the evident advantage resulting therefrom for the company and for society, and provided that the quality and regularity of supply can be guaranteed.

Even though the used tyres of heavy or light passenger vehicles frequently provide a source of fuel at an interesting price, the weight and volume often limit its transport over long distances and therefore its availability.

The types of alternative fuel used in 2009 are shown in the following charts:



## ALTERNATIVE FOSSIL FUELS + BIOMASS - 2009 (%)



The high temperatures required for cement production lead to high consumption of thermal energy, therefore, for economic reasons and to mitigate environmental impacts, it makes total sense to use alternative fuels and alternative raw materials under a co-processing scheme. Co-processing is, as a matter of fact, a preferred encouraged and well disseminated practice in the majority of European countries, especially those in Northern Europe, as well as in the USA and Japan, where experience in this practice already exceeds 15 years and significant information on the subject is available.

Although the co-processing of alternative raw materials in the CIMPOR Group began quite earlier, the co-processing of fuel only started in 2004.

CIMPOR has so far only co-processed alternative fuels with notable success in three OU's in Portugal, six in Brazil and one of the OU's in Spain. It continued in 2009 to make investments designed to prepare for the introduction of co-processing alternative raw materials and fuels in the OU's of the Spain (North), Morocco and South Africa Business Areas.

Society can manage its own waste in different ways, depending on the physical and chemical nature of the waste and also the economic, social and environmental context in which the waste is generated. Thus, the specific decisions on the subject can be influenced by local circumstances, such as the availability of waste processing facilities, alternative markets for this type of by-product and the available infrastructures to foster the collection, management and transport of such waste materials.

The co-processing of waste in the CIMPOR Group is only promoted in the OU's where a set of prerequisites and legal, operational, environmental, health, safety and socioeconomic requirements exist. Moreover, technical specifications are adopted for each type of waste to be used, complying with the hierarchy of waste management and taking into account lists of wastes expressly prohibited from in-house co-processing, such as radioactive, electronic, medical and explosive wastes, chemical or biological weapons, acidic and corrosive substances, asbestos, and any other kind of waste not specified or unknown, in harmony with the guidelines developed under the Cement Sustainability Initiative (CSI) on the responsible use of alternative raw materials and fuels.

## MEASURING PROGRESS

### RESPONSIBLE USE OF RAW MATERIALS AND FUELS

#### ENERGY USE

1. Specific energy consumption in clinker production: 3,565 MJ/ton of clinker (3,586 MJ/t in 2008 considering the new perimeter).
2. Alternative fuel use (including biomass) as a percentage of total thermal consumption: 4.6% (5.0% in 2008 considering the new perimeter).
3. Biomass use (i.e. quantity of biomass consumed as a percentage of total thermal energy consumption): 1.5% (2.3% in 2008 considering the new perimeter).

#### RAW MATERIALS USE

1. Alternative raw materials use as a percentage of total consumption of raw materials: 9.3% (9.8% in 2008)

**NOTE:** This percentage rate is calculated by dividing the total quantity of alternative raw materials, by-products from other industries, used to correct the raw mix for clinker production (e.g. slag, filter ash, pyrite ash and foundry sand used as correctives) and as additives for cement production (e.g. blast-furnace slag, fly ash and synthetic gypsum) by the total quantity of raw materials used, which also includes conventional raw materials (e.g. limestone, marl, schist, clay and sand).

2. Clinker/cement factor calculated in accordance with the WRI/WBCSD CO<sub>2</sub> Protocol (i.e. ratio of clinker consumed to cement produced): 76.7% (77.1% in 2008 considering the new perimeter).

#### GOALS AND NEXT STEPS

The CIMPOR Group's main goals in this field are 10% overall use of alternative raw materials by 2008 and, by 2010, 5% overall use of alternative fuels (including biomass).

Specific goals were also set for 5 of the CIMPOR Group's Business Areas (Portugal, Spain, Morocco, Brazil and South Africa), which are those that currently have co-processing projects in progress. These goals are to achieve by 2010 5% overall use of biomass, and 10% overall use of alternative fuels (alternative fossil fuels and biomass).

In relation to the use of alternative raw materials, the percentage achieved - 9.3% - was very close to the 10% goal established, though it did decrease compared to 2008 because of the economic climate.

The result for the overall use of alternative fossil and biomass fuels in 2009 regressed compared to the goals set due to the significant increase of Group activity in countries that do not use alternative fuels. In terms of the total perimeter of the CIMPOR Group and also the overall use of alternative fuels (alternative fossil and biomass fuels), the value achieved was 4.6% (5.0% in 2008 considering the new perimeter with India) which is a step backwards in relation to the 5% goal forecast for 2010.

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There was a major decline in the use of biomass in the Portugal and Brazil Business Areas, and it is doubtful that the goals already established may be achieved by 2010 despite the expected contribution from the Spain and South Africa Business Areas.

In terms of the perimeter of the abovementioned 5 BA's, the value obtained for the use of alternative fuels (alternative fossil fuels and biomass) in 2009 was 9.4% (9.3% in 2008 considering the new perimeter) (in view of the 10% goal in 2010) and the value for the use of biomass was 3.1% (4.3% in 2008 considering the new perimeter) (in view of the 5% goal in 2010).

The CIMPOR Group shall continue to increase the percentage of alternative fuels in the mix it currently uses. When compared to other cement groups it is still at a rather incipient level.

In any case, the increased Group production in countries where the use of alternative fuels is still far behind will prevent significant progress of the thermal substitution percentage in the near future. Accordingly, a new target was set for 2015, for a group of 8 BA's (Portugal, Spain, Morocco, Brazil, South Africa, Tunisia, Egypt and Turkey), alternative fuel use (alternative fossil and biomass fuels) of 10% and biomass use of 2.5%. Surpassing these goals will naturally have very positive repercussions on the CIMPOR Group's overall CO<sub>2</sub> emissions.

## BUSINESS CASES

**PORTUGAL** | Ecofuel Project: An Alternative Fuel generating Environmental Gains by using Renewable Resources

**SPAIN** | "Cema" workshop in Toral: Cema in Toral de Los Vados to publicise use of alternative fuels

**SPAIN** | Replacement of natural gypsum by thermal gypsum from the desulphurisation of gases from thermoelectric power stations as a setting regulator at the Oural and Toral de Los Vados plants

**TUNISIA** | Construction of a Waste Storage Depot

## IMPACTS ON LAND USE

Quarries are often visible from a great distance due to their size and the fact that they operate in the open-air, and they are frequently, together with the plants with which they are associated, the main reference mark on the local landscape for a radius of several kilometres.

The operation of a quarry, besides the visual impact, can create dust, solid, soluble and insoluble materials, vibration and noise, with negative consequences on the environment unless appropriate measures are taken to mitigate those impacts.

The impact generated by the operation of the quarries of a cement plant is thus, in terms of public opinion, among the most important, if not the most important impact of an industry of this type. This fact makes the harmonisation of operating activities with respect for the environment a concern in the daily management of our quarries.

## ASSESSMENT AND MINIMISATION OF IMPACTS ON LAND USE

The main impact felt by the communities where the quarries of the Group are located, besides the transformation of the landscape resulting from the removal of vegetation and the extraction of raw materials, encompasses the daily operating activities which generate airborne noise, vibration, dust and traffic. Accordingly, a study methodology based on the assessment, monitoring and planning of measures to minimize these impacts and monitoring them has been gradually adopted in all quarries.

A manual with guidelines for the environmental rehabilitation of the CIMPOR group's mining operations is being finalised by a work group set up in 2007, involving staff from the raw materials area. This handbook is the result of the merger of the laws existing in each country with CSI guidelines (\*) and general company policy in this area, and it will provide general implementation guidance for all operating units.

Moreover, a manual of examples of good practices of rehabilitation existing in the CIMPOR Group is being drawn up along with a diagnosis, monitoring and activities registration programme which will indicate compliance with the guidelines defined in the manual and the agreed schedule.

**NOTE (\*):** Relatively comprehensive guidelines have been developed under the CSI concerning factors to be taken into account when drawing up Environmental and Social Impact Assessments (ESIAs). These were disseminated to all subsidiaries of the CIMPOR Group on their publication.

These guidelines will enable the Group's subsidiaries and their stakeholders to work together in the normal cycle of setting up, developing, operating and closing plants.

## OPERATION AND REHABILITATION OF QUARRIES

Cement plants are industrial complexes planned for long life cycles due to the capital intensive nature of their assets and it is therefore essential to guarantee the control of sources of raw materials with a dimension that is suited to that cycle and which can be cost effectively and optimally exploited.

Accordingly, the identification of deposits with volumes of reserves and meeting the quality requirements necessary for the manufacture of cement is a crucial strategic aspect for the success of this industry.

The intrinsic low commercial value of these materials means that the deposits tend to be located alongside the cement plants in order to remove the burden of transport costs.

The increasing environmental pressure, embodied in ever more restrictive legislation and land planning regulations that often minimise the social and economic importance of mineral resources is a factor that increasingly restricts the areas available for exploitation.

The success of the cement business is therefore intrinsically linked to its ability to exploit the available mineral resources in a cost-effective and sustainable manner, and using increasingly less environmentally harmful operating means and practices.

Even though the commencement of a quarry may initially represent the “destruction of the existing environment”, such sites may even prove to embody greater economic, environmental and social value at the end of their respective service life, provided the appropriate measures are taken.

The environmental rehabilitation of a quarry is an important part of our contribution to the conservation of biodiversity and the protection of existing ecosystems. The mitigation of impacts over the service life of a quarry and permanent dialogue with the stakeholders of rehabilitation projects in progress or set for the future is of fundamental importance.

The CIMPOR Group has been implementing a set of environmental practices, such as the Environmental and Social Impact Assessments (ESIA) and Environmental/Landscape Rehabilitation Plans (ERA), in order to aid in the understanding and minimising the pressure on the physical environment at quarries and in the surrounding areas.

These studies, specific to each quarry, involve the identification, quantification and mitigation of the impacts caused during the lifetime of each quarry and the identification of effective project to convert or rehabilitate the exploited areas in order to give them a different future use.

The criteria followed in the preparation of these Environmental Rehabilitation Plans (ERA's) cover three broad areas:

- **Technical-Economic:** rehabilitate considering the particular characteristics of each quarry, considering the economic factor of continued maximisation of the worth of the assets existing there, taking into account the interaction with the environment it forms part of.
- **Environmental:** make a commitment to meet minimum legal requirements, but not limited to that objective, identifying sensitive areas in terms of biodiversity and define a strategy for preserving them.
- **Social:** consider the potential end use of the area in the rehabilitation process, taking into account the social-economic background of the zone, directly or indirectly involving the community in the process of environmental rehabilitation. Safety aspects are an important topic of the ERA.

ERA's are drawn up according to two specific situations of the areas of raw materials to exploit:

- Areas with an extended service life;
- Areas with all reserves depleted or at the end of service life.

For quarries with a long service time, rehabilitation plans are being developed that may be subject to certain periodic revisions since the social-economic environment and the potential end uses of the land may change over time.

These rehabilitation plans serve as tools to control and minimise impacts arising from the exploitation and recovery of degraded areas.

Moreover, the temporary rehabilitation of quarries with an extended service life must be considered, whenever feasible, as a means of minimising the environmental and visual impacts arising from operation, but also as an opportunity to create a positive image of the work carried out, for the benefit of the general public and especially the local communities.

For the areas where the reserves are exhausted or little service life remains, their rehabilitation as well as the definition of potential end use of the land on the basis of the region's social-economic context, in accordance with the approved ERA, constitute priority goals of the CIMPOR Group.

These methods must also be a vehicle to promote the company's image among the general public and the local communities in particular. Thus, the establishment of partnership protocols with public and private entities (e.g. government institutes, universities, schools, etc.) aims to permit greater involvement by the local communities in projects such as environmental education centres, visits of cultural and scientific interest, heritage development initiatives, while simultaneously publicising the work undertaken by the company and the community itself.

The involvement of external entities in the phase of drawing up the ERP is an added asset for the design of environmental rehabilitation projects, particularly on projects close to large local communities, in areas with specific environmental legislation (protected areas of high ecological value) or even areas with use defined in advance by legal instruments.

## 04 Environment

In 2006, the CIMPOR Group committed to ensure that by the end of 2010 all OU's associated with the Cement Activity had prepared an appropriate Environmental Rehabilitation Plan (ERA) for their quarries, and which has been communicated to stakeholders and approved by the authorities. Significant progress was made in this regard and the percentage of approved ERA's was 78.3%, in 2009.

Moreover, in 2009, all the OU's created and disseminated, with the aim of measuring the progress of the Group in terms of the development of ERA's, the preparation of ESIA, the characterisation of the areas being quarried or which have been exploited in terms of rehabilitation and biodiversity, and actions underway aimed at enhancing the rehabilitation and biodiversity of exploited areas, a new corporate reporting procedure for this area (Reporting Instruction DS005) which aims to create more precise definitions on the subject and to standardise criteria. This corporate procedure, which is intended for the Cement Activity though it may subsequently be extended to other activities (Aggregates and Concrete), adopts four key performance indicators (KPIs) to assess the status of quarries in relation to environmental rehabilitation plans and aspects of biodiversity:

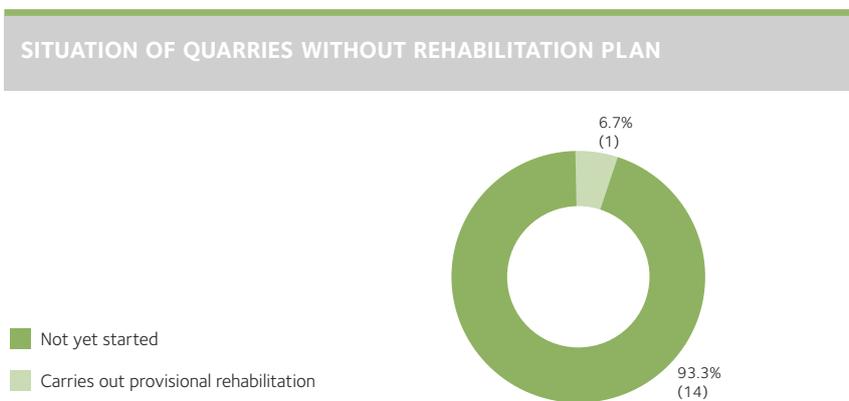
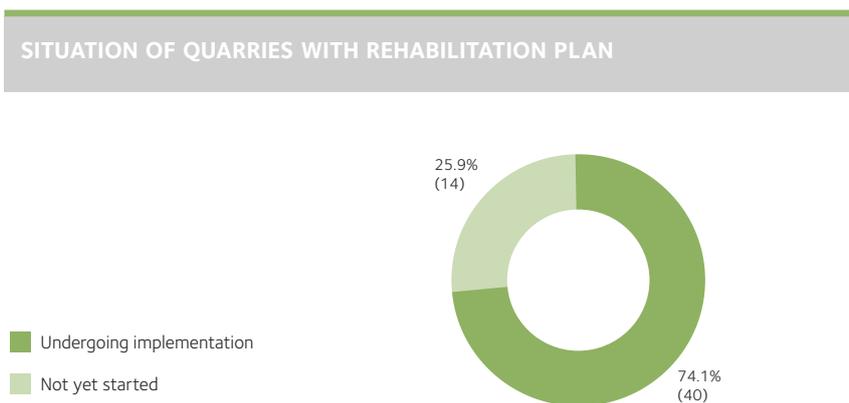
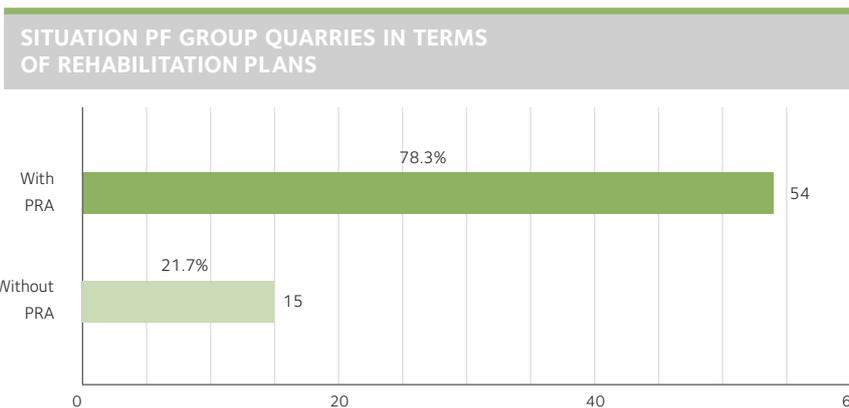
INDICATORS	(KPIs) USED
<b>ENVIRONMENTAL REHABILITATION PLANS (ERA) FOR QUARRIES/COMMUNICATION OF PRA'S</b>	
1. Percentage of quarries with Environmental Rehabilitation Plan	78.3% (72%)
2. Percentage of quarries with Community Engagement Plans (CEP's).	16% (not available)
<b>BIODIVERSITY</b>	
1. Number of active quarries located fully or partially in areas identified as sensitive or of high biodiversity value, or adjacent to such areas. The classification may result from local, national or international legislation.	11 (not available)
2. Percentage of sensitive or high biodiversity value sites (quarries) in which Biodiversity Management Plans (BMP) are implemented	36% (not available)

Besides using the first two indicators to characterise the general situation of the Group's quarries, as has been done to now, the latter two indicators associated with biodiversity have also begun to be included from this year.

The number of cement quarries associated with the Cement Activity increased to 69 in 2009 as a result of the acquisition of the Liyang OU, with the opening of Matoubei Quarry which will provide the limestone for the new Shanting (Zaozhuang) OU in China, and the acquisition of the cement grinding plant in Tenerife and its pozzolana quarry, in Spain, and the opening of the quarries to supply raw material to the new clinker production line of the Hasanoglan OU. While these acquisitions are quite recent, work has already begun on aligning these new OU's with the Environmental Policy of the Group, and in particular with regard to the policy of rehabilitation of their quarries.

04 Environment

At the end of 2009, **78.3%** (72% in 2008) of the quarries of the Cement Activity of the CIMPOR Group possessed an Environmental Rehabilitation Plan (ERA). Of those, in **74.1%** the relevant ERA is undergoing implementation (see charts), since current operating conditions already permit such.



## 04 Environment

The involvement of local communities in activities related to the rehabilitation of quarries and the communication of ERA's to stakeholders are aspects that have achieved greater attention within the Group through the implementation of several information sessions.

In this context, in addition to other initiatives of lower media impact associated with the Open Doors project, CIMPOR participated in World Minerals Day (European Minerals Day), held from 17 to 19 May 2009 in several European countries. The Group organised a large scale initiative at the Bom Jesus Quarry of the Alhandra plant (Portugal), which is a living example of good environmental rehabilitation of quarries practices in the CIMPOR group.

During this event, which has strong Europe-wide media coverage, the general public had the opportunity to observe in situ the fact that the environmental rehabilitation of quarried areas is performed simultaneously with the extraction of the mineral resource, through a careful process of planning, implementation and monitoring of progress, which helps maintain a unique biological asset of the region.

## PROTECTING ECOSYSTEMS AND BIODIVERSITY

The protection of ecosystems and biodiversity during and after the activity of extracting the reserves of quarries is an important policy goal of the sustainability policy of the CIMPOR Group and it is controlled in most OU's through the Environmental and Social Impact Assessment (ESIA) performed by our OU's when opening up new quarry areas and when the size and impact of new projects justify such.

The Group has also been developing and implementing, on a regular basis, a broad set of practices that serve to minimize the pressure on natural habitats and restore degraded areas by, for example, removing weed species, establishing nurseries for tree seedlings and other plants, planting native species instead of exotic species, monitoring plant and animal species and in addition, where possible, creating habitats for plant and animal species that are frequently displaced from surrounding agricultural landscapes.

The various ongoing actions in this area in the CIMPOR Group that deserve particular attention include:

- **Regular use of biologists, tree experts and other specialists** in order to study aspects related to the protection of ecosystems, biodiversity and the recovery of degraded areas in classified or protected zones beside our operating units. The aim is to achieve, in a cost effective manner and through the best techniques, the growth of vegetation in these areas and thereby promote soil retention to prevent its erosion, prevent landslides, control the flooding flows, and enhance the services provided by ecosystems;
- **Preservation of areas of Atlantic Forest** (e.g. Cajati, João Pessoa and São Miguel dos Campos);
- **Preservation of Mangrove Forest areas** (e.g. João Pessoa);
- **Preservation of nature reserve areas** (e.g. Oribi Conservancy and Idwala, which are reserve located alongside the Simuma plant in South Africa). Of particular note are the reserves rich in several animal species (e.g. nyala, kudu, antelope, snakes,

## 04 Environment

python, zebras, etc.) and plant species, the eradication of invasive plant species, with the involvement of the companies specialised in such matters and the participation of CIMPOR employees and local communities on a voluntary basis in organised and entertaining activities.

- **Recovery of the Mata Ciliar (Riparian Forests)** on the banks of the Jacupiranguinha River (Cajati), Brazil;
- **Creation of self-sustaining natural ecosystems** (e.g. forest rehabilitation and redevelopment of the Bom Jesus quarry in Alhandra, Portugal, with the creation of ecological corridors, environmental rehabilitation of the Fazenda da Graça in Joao Pessoa, Brazil);
- **Creation of ponds, reservoirs or artificial lakes** to allow the use and collection of rainwater for irrigation of areas undergoing rehabilitation, promote greater biodiversity and allow recreational activities such as fishing, bird watching and other animals, Portugal (e.g. Souselas, Loulé and Alhandra), Spain (e.g. Córdoba) and Brazil (e.g. Cezarina and Cajati);
- **Reassessment of mining plans in order to anticipate, whenever possible, the rehabilitation of areas already exploited and increase the service life of existing quarries** (eg, reusing barren rock in some of the quarries and/or changing the extraction methods, harnessing the waste from other industries as raw material to replace natural raw materials (e.g. Cajati plant) removing mounds of barren rock) that fully utilizes as the main raw material a by-product resulting from the operation of a quarry of the phosphate industry;
- **Adapting the geometry and size of the extraction fronts** (e.g. development and height of terraces) in order to facilitate their subsequent rehabilitation;
- **Regular or occasional monitoring of various types of impacts** in relation to water, noise, vibrations, particle emissions, biodiversity, among others;
- **Mitigating the impact of impulsive noise (airborne sound waves) and vibrations** caused by blasting with explosives (e.g. surface mining at Joao Pessoa, Brazil, and at SDCCL, India, see Noise) for neighbouring communities and in the habitat of some animal species.

## MEASURING PROGRESS

### IMPACTS ON LAND USE

#### LOCAL IMPACTS

1. Percentage of operating quarries with approved environmental rehabilitation plans (and communicated to local stakeholders) according to CIMPOR Group guidelines: **78.3%** (72% in 2008), considering the new perimeter with the Liyang OU (China) and respective quarries, the Hasanoglan OU (Turkey) and the Tenerife grinding facility (Spain). **16%** of these possess plans with the minimum level of engagement of the community.
2. Number of active quarries located wholly or partly in areas identified as sensitive or of high biodiversity value, or in areas adjacent to them where the development of a specific programme is required: **11** (5 in 2008) (\*).
3. Percentage of sites (quarries) of high biodiversity value where Biodiversity Management Plans (BMP) are implemented: **36%** (4/11).

**Note (\*):** As outlined in RS2008, this aspect was being assessed since more detailed guidelines on the subject were being developed. The number had been 5 quarries up to last year, however after a detailed examination conducted in all plants of the CIMPOR Group, considering a new definition that is more comprehensive (resulting from local, national or international legislation and contained in the guidelines on the subject being developed) and considering the inclusion of new quarries in the analysis perimeter, 14 quarries were potentially found to be in this situation, which represents about 20% of all quarries of the Cement Activity.

Furthermore, the indicator used in the previous year referred to the number of OU's with quarries located in classified areas and not the actual number of quarries.

The CIMPOR Group decided in 2009, given this new situation and in order to combine the targets on both arms, to reschedule the actions and targets for the conclusion of the environmental rehabilitation plans (ERA) for the quarries.

#### GOALS AND NEXT STEPS

The CIMPOR Group set the somewhat ambitious target in 2005 of 80% of the quarries of active operating units (OU) of the Cement Activity having Environmental Rehabilitation Plans (ERA) drawn up, communicated to stakeholders and duly implemented (though subject to regular reviews and updates), in accordance with the standards approved by the CIMPOR Group, by the end of 2008. The target of 100% by the end of 2009 was established at that same time.

The addition of 3 cement plants (Çorum, Sivas and Yozgat) and 3 cement grinding units (Samsun, Nevsehir and Hasanoglan) in Turkey and 1 in China (Zaozhuang (Shangdong)) in 2007; 1 new cement plant in India (Sikka) in 2008; and 1 new cement plant in China (Liyang), 1 cement grinding plant in Tenerife (Spain), the start-up of a clinker production line in Turkey (Hasanoglan) and the opening up of a limestone quarry to supply the new plant at Zaozhuang, China, in 2009, account for a significant increase in the number of active quarries and change in the current consolidation perimeter of the CIMPOR Group. These changes also explain the failure to meet the target in 2008 and in 2009, although there has been significant progress in this field.

## 04 Environment

The growing awareness of the degradation of ecosystems due to human activity, with the consequent loss of the important assets they provide, have brought this issue to the forefront of environmental concerns worldwide and 2010 was declared the International Year of Biodiversity.

Making quarrying compatible with the upkeep of ecosystems is a major challenge for any industrial activity. The analysis of issues related to loss of biodiversity and the drawing up of **Biodiversity Management Plans (BMP)** is an area that will be increasingly taken into account in the Group's quarry operation projects, especially on the land of operating units where such is warranted, namely the preservation of some protected or classified animal species and forest areas (e.g. Atlantic forest, mangrove forests, riparian forest, nature reserves, Euronatura 2000 sites, etc) on neighbouring land or even land farther away, provided that the CIMPOR Group's subsidiaries recognise them as being of possible natural interest and obtaining offsets may be possible. The reorganisation of forests on company land and removal of invading species that may possibly jeopardise biodiversity will continue to be taken into consideration.

Internal initiatives related to biodiversity will also continue to be established, case studies on this theme drawn up, legislation that might have an impact on the activity will be identified and prepared a communication tool prepared for internal and external initiatives related to biodiversity.

In 2009, in view of that stated above and the new real situation, it was decided to update the goals previously set for the conclusion of the environmental rehabilitation plans (ERAs) for the quarries. Thus, it was decided to establish a set of new goals in order to harmonise the development of the ERA's and the BMP's, seeking to identify opportunities for improving biodiversity through the rehabilitation process:

- Percentage of active operating units with approved Environmental Rehabilitation Plans (ERA) for quarries  
**New Goal 90% of quarries with ERA by 2015;**
- Percentage of sites (quarries) located in sensitive areas or areas of high biodiversity value in which Biodiversity Management Plans (BMP) are implemented **65% of quarries (7 quarries out of 11) by 2015.**

## BUSINESS CASES

**SOUTH AFRICA** | Rehabilitation of Virgo Dolerite Quarry

**PORTUGAL** | Open Days/European Minerals Day

**INDIA** | Impacts on Land and Communities: Mining with a Surface Miner

**INDIA** | Quarry Rehabilitation: Plantation in Mined out Areas in Sikka

**TURKEY** | Quarry Rehabilitation in Sivas

**PORTUGAL** | Rainwater sedimentation pond at Bom Jesus Quarry in Alhandra

## IMPACTS ON LOCAL COMMUNITIES

The impacts caused by the normal activity of our cement plants and associated quarries have different facets. On the one hand, the positive aspect of creating jobs, local economic and social development, the supply of quality products and services to society and on another less positive note, there is the pressure on the landscape, ecosystems and biodiversity, traffic congestion, noise and the emissions of pollutants such as dust, NO<sub>x</sub> and SO<sub>2</sub>.

The manner in which our operating units anticipate, assess, manage and communicate the impacts inherent to the activity, from the phases of site selection, acquisition and construction through to operation and closure, has a fundamental effect on the quality of life of the communities involved and the reputation of our Group.

The mitigation of the impacts caused by the cement manufacturing process is a constant concern of employees in all CIMPOR Group subsidiaries at all levels of responsibility. Keeping our "operating licence" is largely dependent on the ability of our operating units to be able to win and deserve the support and trust of the local people. This means ensuring permanent dialogue with the local community and handling the surrounding communities and environment with the respect they deserve.

## MAIN IMPACTS ASSOCIATED WITH THE CEMENT MANUFACTURING PROCESS

The back of the printed supplement of this report contains a concise description of the main phases or stages of the production process and some of the major impacts associated with each of them which have been the object of major mitigation measures in many of the OU's of the CIMPOR Group, often anticipating specific legislation on the subject.

## OVERALL INPUTS / OUTPUTS ASSOCIATED WITH THE CIMPOR GROUP ACTIVITY IN 2009

RAW MATERIALS		
INPUTS	<b>Natural</b>	
	Limestone	27 298 247.44 t
	Marl	2 148 759.14 t
	Clay	1 947 498.32 t
	<b>Corrective</b>	
	Bauxite	21 881.74 t
	Iron ore	289 639.61 t
	Sand	451 024.92 t
	Schist	393 975.81 t
	<b>Alternatives</b>	
	Carbonated alternatives	615 868.52 t
	Decarbonated alternatives	975 337.65 t
	Partially decarbonated alternatives	745.52 t
	<b>Cement additives</b>	
	Gypsum	1 144 628.40 t
	Anhydrite	349.98 t
	Artificial Gypsum	224 821.81 t
	Limestone	2 499 935.19 t
	Filter dust (internally generated by the OU)	180 317.65 t
	Slag	633 941.67 t
Fly Ashes	851 396.55 t	
Pozzolana	284 672.40 t	
Other Components	213 391.07 t	
<b>ENERGY</b>		
	Electricity	2 706 920 MWh
	<b>Conventional fossil fuels</b>	
	Pet coke	1 087 710.57 t
	Coal	713 339.44 t
	Fuel Oil	202 725.24 t
	Diesel	614.80 t
	Natural Gas	156 609.25 t
	Other fossil fuels	12 589.27 t
	<b>Alternative Fuels</b>	
	Industrial Waste	121 381.93 t
	Biomass	66 968.05 t
	<b>WATER</b>	6 958 662.65 t
<b>ATMOSPHERIC EMISSIONS</b>		
	CO <sub>2</sub>	17 692 972 t
	NO <sub>x</sub>	31 593.0 t
	SO <sub>2</sub>	3 881.8 t
	Particles	3 242.0 t
<b>PRODUCTS</b>		
	Clinker	20 342 585
	Cement (Incorporated Clinker)	24 953 176 (20 342 585)
	<b>Landfill disposal</b>	
	By-pass dust	170 520.00 t
OUTPUTS		

## LANDSCAPE INTEGRATION AND REHABILITATION AND INTERIOR AND EXTERIOR REPAIR OF OPERATING UNITS

We have painted operating units in special patterns, painted or covered building façades with heat-coated sheets, planted screens of trees and plants around plant perimeters and created vast garden areas inside and outside plants, set up new internal road networks and access roads to the plants, improved lighting and signage, as well as designed new architectural frameworks and painting schemes studied by architects and other specialists in order to improve the exterior and interior visual impact of the CIMPOR Group's operating units. This type of solution has contributed substantially to improving the integration of buildings and plants with their environment.

Likewise, when new operating units are being built, one of the aspects deserving special attention during the planning of the best location, the environmental and social impact assessment (ESIA) and the project design is the issue of aesthetics and integration with the surroundings in order to mitigate the visual impact as much as possible.

### NOISE

Generally, noise reduction at plants has been achieved through the adoption of stricter requirements in the purchase of equipment, the installation of silencers on a range of large fans and enclosures on diverse equipment (e.g. compressors, suppressors, generators etc.), the installation of natural and artificial sound barriers around plant perimeters, the insulation of grinding facilities with acoustic panels, and through the adoption of the latest maintenance techniques and monitoring of the operational status of industrial equipment.

The Group has also been evaluating measures to reduce noise when blasting quarry faces. In addition to the traditional systems based on explosion detonators with "micro-delays", which are intended to mitigate the levels of vibration and noise resulting from the blasting of the raw material, for some years now an alternative method to blasting has been successfully combined with the use of explosives at Graça mine in João Pessoa, Brazil and more recently at Pachhtar quarry in India. This alternative method consists of the mechanical quarrying of the limestone at the work faces using a continuous surface miner. This approach has permitted the extension of the service life of the quarries.

The noise charts of the OU's of the CIMPOR Group are updated whenever there are significant changes either to the facility or in the environment, which allows the effectiveness of the measures taken to be assessed and to select new ranges of possible solutions to minimise noise pollution.

### AIRBORNE DUST

Airborne dust, often referred to as "fugitive dust", is generated and released during the handling (loading and unloading), transfer, transport, storage and extraction of raw materials, clinker and cement.

All OU's have implemented action plans to mitigate this problem. These plans include the coverage of carriers, improving dust removal at material transfer points, the enclosing of the structures of various buildings used for the storage of raw materials and clinker and the elimination, as far as possible, of open air storage areas for material (e.g. for raw materials, clinker and solid fuels). In relation to solid fuels, open air storage has been gradually replaced by the construction of silos and enclosed storage buildings, specifically designed for this purpose and equipped with systems for the automatic handling of materials and efficient dust removal systems. Automatically closing gates have been installed at clinker, raw materials, solid fuels and other intermediate and final products unloading points. Where the immediate withdrawal of open air storage areas has not yet been possible, then atomised water spraying systems have been installed with great success to spray water on the stored materials; these systems can harness rainwater that has been properly treated.

The construction of new internal and external concrete roads and the creation of a number of green zones, to replace dirt roads, has decisively contributed to solving this problem.

## WATER

The environmental impacts associated with the use of water in a cement plant are relatively low, especially in the most modern units where the circulation of water occurs in a closed circuit system and the improved harnessing of rainwater for some industrial and domestic consumption as well as other typical uses is promoted.

The cement manufacturing process does not generate industrial waste water. Domestic and other wastewater from washing operations and vehicle maintenance workshops are generated, as well as rainwater run-off in raw material, fuel and solid waste storage areas, which do not have a significant environmental impact but should undergo special treatment.

Most of the Group's OU's have wastewater treatment stations and systems to preserve the quality of water and prevent contamination, especially in the raw material, solid fuel and waste storage areas.

The quality of water discharged is monitored regularly according to plans that comply with minimum legal requirements in terms of analysis and sampling intervals.

Since water is an asset for all there is the constant concern to preserve and control it, particularly in regions where it is a scarce resource.

Although CIMPOR is not a major consumer of industrial water it promotes, in the countries where it operates, the rational use of water and tries to contribute, through example, to the establishment of strict water use standards.

The consumption of process water is actually measured and monitored in a systematic and reliable manner in almost all the OU's of the CIMPOR Group.

## WATER CONSUMPTION BY THE CEMENT INDUSTRY AND IN THE CIMPOR GROUP OU'S

**Water for industrial use** accounts for about 75–90% of total water consumed. It is primarily used in the oil cooling circuits of the mechanical components of equipment, in the irrigation systems of the satellite coolers for the kilns (at the plants where they exist), in gas conditioning towers and, at plants using the wet process, for preparing the raw materials (paste). The water introduced into the conditioning towers or that present in the raw materials is evaporated during the manufacturing process without generating any liquid effluent.

Besides the above mentioned industrial uses, water is still needed for domestic uses and the irrigation of green spaces, gardens and vehicle traffic roads at quarries, as well as in other automatic sprinkler systems to minimise airborne dust emissions.

The water used in the operating units for industrial purposes generally comes from the plant's own abstraction of groundwater or surface water, which is appropriately treated beforehand, where necessary.

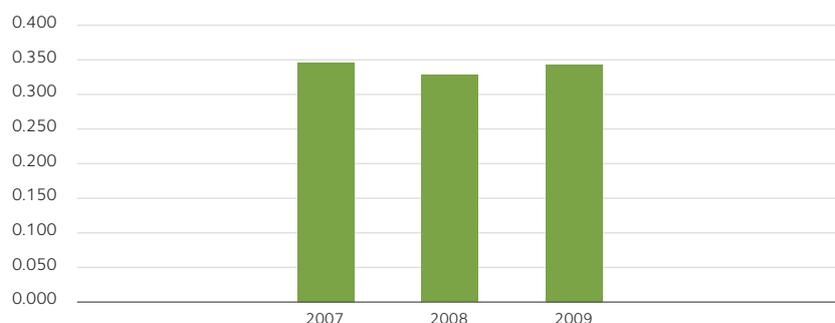
Almost all plants, following a policy of the conservation and rational management of water and to minimise the quantities of water abstracted, have closed circuit water circulation systems, which thus permits water reuse and substantially reduces the impact of liquid effluents of the process.

**Water for domestic use** is obtained from municipal water supply systems, where such exist.

**Water for other uses** other than industrial or domestic use, as is the case of water to irrigate green areas, quarry rehabilitation areas and for spraying on dirt roads to control airborne dust, nowadays comes from specially created networks to recover rainwater existing various of our OU's in many of the countries where we operate.

The CIMPOR Group's total specific consumption of industrial and domestic water was **0.347 m<sup>3</sup>/t of clinker** in 2009 (**0.327 m<sup>3</sup>/t of clinker** in 2008) which represents a 6% increase from the previous year, for reasons that are explained further on in this report.

WATER CONSUMPTION (m<sup>3</sup>/t clinker)



## WASTE

The vast majority of waste is relatively small in terms of quantity, mainly consisting of card, office equipment, packaging, paper bags and plastic bags, wooden pallets, used oils and refractories, scrap, conveyors belts, electrical cables, among others, resulting from equipment maintenance, lubrication and dismantling operations. The final destination of the waste is either for recycling, landfill or internal recovery.

Part of the waste, such as office and bagging waste, can be recovered for use in the clinker kilns of the cement plant and another part, primarily that generated by maintenance and repair operations, is channelled to the most appropriate treatment depending on its composition and in accordance with law, if it cannot be recovered.

The quantity of waste generated by our plants has been falling over the last four years. All waste generated by the ordinary operation of the different production areas and sections of our OU's is managed pursuant to legislation in force in the country in which the CIMPOR Group operates, which varies quite considerably from one country to the next, and according to the standards established in the respective Environmental Management Systems, where these have already been implemented.

## TRANSPORT

It is necessary to constantly find solutions for the creation of special access roads to the OU's, thus preventing the movement of large vehicles (tanker trucks and open-trailer trucks) through the centre of the main local population centres. This would minimise traffic congestion, noise pollution, exhaust fume pollution, airborne dust and increase road safety, particularly in rural areas.

The transport of large quantities of raw materials and goods by road is often at the top the list of concerns of the communities where we operate. Accordingly, the OU's of the Group frequently discuss with their neighbouring communities alternative transport routes (e.g. building new access roads and viaducts to the OU) and preventive measures (e.g. training and raising the awareness of the drivers of heavy goods vehicles regarding safety and good practices), so as to limit the disturbance caused by road transport and keep the road accident rate at a fairly low level.

In relation to quarries located within a radius of 5 km of our OU's, the raw materials are systematically transported by the most efficient means possible, i.e. via conveyor belt. This is the case for most of the plants in this situation.

Transport by rail, whenever justified by cost, can also be a good alternative for road transport. This is the case in Portugal, where the CIMPOR Group possesses an excellent rail infrastructure connecting a network of plants and sales depots.

## MEASURING PROGRESS

### IMPACTS ON LOCAL COMMUNITIES

#### LOCAL IMPACTS

Overall specific water consumption: **0.347 m<sup>3</sup>/t of clinker** (0.327 m<sup>3</sup> / t of clinker in 2008). Since it began regular measuring water consumption in all OU's, the Group has been gradually reducing consumption in recent years. The operating units and their quarries currently monitor the consumption of water for industrial and domestic purposes from their own underground and/or surface water abstractions and from the mains water supply, as well as the levels of water tables at the quarries. This value, however, increased on the previous year due to the fall in the production of clinker, despite the increase of the consolidation perimeter, the negative impact of water consumption by the waste process gas recovery unit at Zaozhuang (China), and, to a lesser extent, the continued improvement of the metering of consumption at some of the OU's.

#### GOALS AND NEXT STEPS

##### MONITORING WATER CONSUMPTION

The CIMPOR Group has been methodically improving its systems for monitoring and gathering information on **water use and consumption** so that this data can be regularly reported. All operating units and their quarries, though with varying reliability, monitor the consumption of water for industrial and domestic purposes from their own subterranean and or surface water sources and from the mains water supply, as well as the levels of water tables at the quarries.

An achievable goal is pursuit of the target of a minimum reduction of 5% of water consumption on an annual basis, provided waste process gas recovery systems are not installed (a water-cooled condenser installed after the turbine), since that system has, besides numerous environmental advantages, the disadvantage of permitting the evaporation of an appreciable amount of water from the cooling tower (about 1.2 to 1.4 m<sup>3</sup> of water per kWh generated).

Precise water consumption data for each one of our OU's will be gathered in order to mitigate that negative impact. This will provide us with more detailed data on consumption, allowing us to adopt, on a case-by-case basis, the most appropriate water conservation techniques. The improvements that have been achieved to date have resulted from the adoption of conventional water conservation techniques, including the repair of leaks in pipes, the installation of flow meters and installation of low flow water systems.

In the future, within the above context, initiatives aimed at reducing the current value of specific consumption should be launched until a value lower than **0.300 m<sup>3</sup>/ton of clinker** is achieved by 2015. These initiatives will comprise a set of conservation measures, for example, increasing the awareness of plant employees, the improvement of the sprinkler systems of conditioning towers, remodelling some of the industrial water networks, optimising and time controlling the quarry irrigation systems and the improved harnessing of rainwater for industrial purposes.

The CIMPOR Group plans to develop new scorecards during the next two years to measure other impacts related to the activity of the respective OU's.

## BUSINESS CASES

**BRAZIL** | Rehabilitation of Mata Ciliar

**SPAIN** | CIMPOR organizes information event relative to the recovery of waste at the Toral de Los Vados plant

**SOUTH AFRICA** | Bhoohoyi Emerging Farmers Project

**SOUTH AFRICA** | The Value of our Simuma Nature Reserve

## INTERNAL MANAGEMENT SYSTEMS AND OTHER TOOLS

The CIMPOR has heavily focused on the excellence of its internal management systems as a means of improving the information quality, internal communication and the decision-making process. Accordingly, it has proceeded to extend the Information Systems of the CIMPOR Group to the new BA's/OU's.

Moreover, the implementation of quality management, environmental management and occupational health and safety management systems in the operating units (OU's) and their certification according to the ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007 standards, respectively, are a corporate-level decision and have proven to be a significant driving force on the path to sustainability.

### INTERNAL MANAGEMENT SYSTEMS

Management excellence and the improvement of operating performance are underpinned by strict principles of corporate governance as well as the adoption of sound and auditable management systems that are certified according to internationally accepted standards.

In the field of Information Systems, the long-defined strategy to uniformise the solutions adopted in this field by the various Group companies has continued, with the highlights being the launch of new projects for the full installation of the ERP solution of SAP in the new business areas.

The process of implementing a new Industrial Statistics system in the OU's also continued, and a new database was also developed that will permit the automatic generation of benchmarking reports among the OU's of the CIMPOR Group.

While operational, environmental, occupational health and safety and quality management are still decentralised in the CIMPOR Group, corporate rules and guidelines have been adopted to quickly develop a common language and practices.

### QUALITY MANAGEMENT SYSTEMS (QMS)

Currently 36 of the 40 OU's of the CIMPOR Group have quality management systems meeting the requirements of the ISO 9001 international standard. The CIMPOR group had defined the target of 100% of the QMS certified by 2008. In 2009, 90% have received certification. QMS certification has not been achieved by only 1 OU in the Portugal Business Area, which closed down this year, 2 OU's in the Mozambique Business Area (expected in 2011) and 1 OU in the China Business Areas (expected for 2010), which has been recently acquired.

CIMPOR TEC, the CIMPOR Group's corporate technical centre, which provides technical assistance to the Group's OU's, created in 2005, obtained certification of its quality management system in accordance with the ISO 9001:2008 standard in the first quarter of 2009.

## ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)

The process of adapting Environmental Management Systems to the requirements of the ISO 14001 standard was commenced by nearly all the Group's operating units, except for the OU's in Turkey.

Certification covers all industrial activities performed by the OU's, from the extraction of raw materials, the transport of limestone and marl to the plant, the storage and loading of cement and the transport vehicles.

27 of our 40 operating units have, to date, obtained the certification of their environmental management systems according to the international ISO 14001 standard and a further 3 should obtain it during 2010.

The Cezarina and Campo Formoso OU's of the Brazil Business Areas and the Tenerife OU's of the Spain Business Area, were the 3 UO's that contributed to the Group goals in 2009, by obtaining certification of their environmental management systems according to the requirements of the ISO 14001 standard.

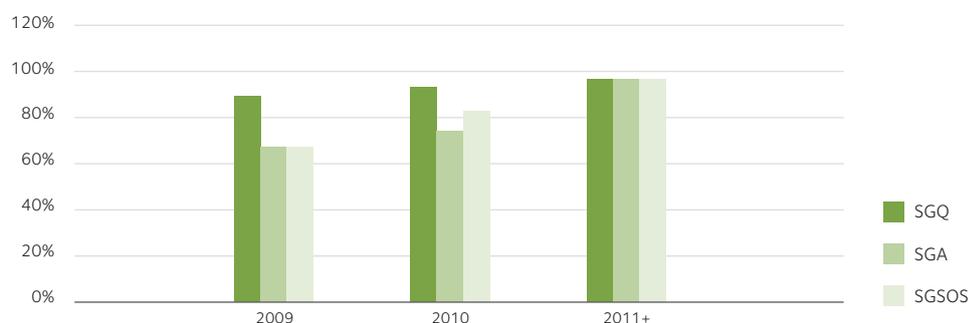
## OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEMS (OH&SMS)

Various Operating Units of the CIMPOR Group are currently intensively working on adapting their occupational health & safety management systems to the requirements of the OHSAS 18001 standard.

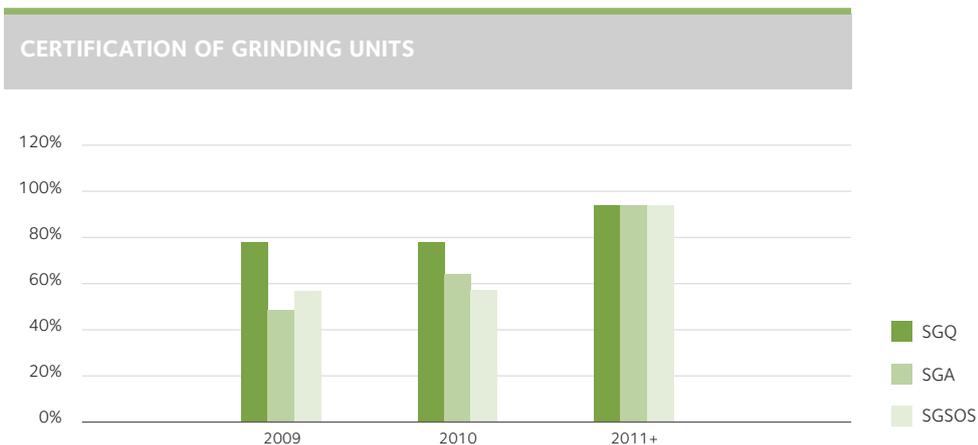
In 2009, The five new certifications obtained in 2009 meant that 27 of our 40 operating units have their OH&S management systems certified according to the OHSAS 18001 international standard. Another 6 should have their management systems certified in 2010 and a further 5 by the end of 2011.

The five OU's that obtained certification of their occupational health and safety management systems in 2009 were the OU's of Narón (Spain), Amreyah I and Amreyah II (Egypt), Campo Formoso and Cezarina (Brazil).

### CERTIFICATION OF CEMENT PLANTS AND GRINDING UNITS



04 Environment



## INTEGRATED MANAGEMENT SYSTEMS (IMS)

Some of the Group's Business Areas have been working towards integrating the different management systems that are already implemented and evolving to Integrated Quality, Environmental and Occupational Health & Safety Management Systems. This approach provides the possibility of obtaining synergies that standardise the culture among units acquired at different times, it simplifies the management system, reduces the volume of documentation and the quantity of system audits and, accordingly, it cuts overall system costs.

## OTHER TECHNICAL AND MANAGEMENT TOOLS

The CIMPOR Group has, besides focusing on the management systems' certification process and the implementation of other systems referred to above, also continued to develop and implement a broad range of other technical and management tools aimed at standardising a number of internal practices and processes in order to create a common technical and management language.

Selected, and ever more detailed, parameters have been increasingly integrated into the management systems of the CIMPOR Group. Industrial performance indicators and measurements of all kinds of the BA's and OU's, relative to the established goals, are included in annual reports and monthly corporate flash reports for the executive committees and intended for the preparation of business plans and investment decisions.

Some of the tools most used, besides the traditional financial report tools, are for example:

- CIMPOR Performance programme and respective corporate reporting and analysis tools (technical performances and industrial costs) compared to goals;
- CIMPOR Sustainability Programme and respective corporate reporting instructions (Sustainability Report) and performance progress reports and analysis compared to goals;
- CO<sub>2</sub> Emissions Protocol (standard for monitoring and reporting the Group's CO<sub>2</sub> emissions)
- Emissions Reporting and Monitoring Protocol (standard for monitoring and reporting the Group's other emissions) and the EMR Manual (Emissions Monitoring and Reporting);
- Code of conduct for the use of alternative fuels and raw materials (Guidelines on the responsible use of raw materials and fuels in cement kilns)
- Environmental and Social Impact Assessment (ESIA) guidelines;
- Stakeholders Engagement Scorecard;
- Training programme for specialist staff / seminars

## MEASURING PROGRESS

### INTERNAL MANAGEMENT SYSTEMS AND OTHER TOOLS

#### MANAGEMENT SYSTEMS

1. Percentage of operating units with quality management systems certified according to ISO 9001:2008: 90% (92% in 2008) Goal established in 2004: 100% in 2008
2. Percentage of operating units with environmental management systems certified according to ISO 14001:2004: 68% (63% in 2008) Goal established in 2004: 100% in 2009
3. Percentage of operating units with occupational health and safety management systems certified according to OHSAS 18000:1999, or equivalent: 68% (58% in 2008) Goal established in 2004: 100% in 2010

#### GOALS AND NEXT STEPS

The CIMPOR Group will continue to report annually on its performance in relation to a broad range of sustainability indicators as well as on the respective progress goals and to improve those same reporting systems.

Simultaneously, it will proceed with the process of certification of the management systems in order to achieve certification of all management systems by 2011 (new goal set in 2009), on having missed the goal set in 2004, which was to have all QMS certified by 2008, the EMS by 2009 and the OH&SMS by 2010. The inclusion of new recently acquired operating units in the perimeter of the CIMPOR Group delayed achievement, in several cases, of the targets set, while in other cases there was a delay in already planned certification processes.

The CIMPOR Group, under its Cement Sustainability Initiative commitments, will continue to improve the degree of implementation of the various guidelines that have been jointly developed, integrating them into the Group's policies and internal processes.

The verification of a growing number of report indicators is one of the aspects to be taken into account in the future. the CO<sub>2</sub> emissions were audited this year for the fifth time and the OH&S data/information for the third time.

The CIMPOR Group intends to extend, in the near future, the process of verifying the consolidated CO<sub>2</sub> emissions and the OH&S consolidated data to all the data included in the Sustainability Report.

## BUSINESS CASES

**PORTUGAL** | Alternative Fuels: Facility for Alternative Fuels recovery at Loulé

**TURKEY** | Reduction of Particle Emissions at Yozgat by means of a Fabric Filter

**BRAZIL** | Conclusion of the Process of Integrated Certification of the Quality, Environmental and Occupational Health and Safety Management Systems of CIMPOR Brasil

**INDIA** | Renewal of the Environmental and Safety Certification at Shree Digvijay

**INDIA** | Energy Efficiency Initiatives: Equipment Retrofitting and Product Portfolio Change at Shree Digvijay Cement Company (SDCC)

**TUNISIA** | Construction of a Natural Earth Barrier to protect the Petcoke Storage Depot at Jbel Oust from prevailing winds

**BRAZIL** | Rehabilitation of Green Areas at several brazilian Plants

## SOCIAL RESPONSIBILITY

### SPAIN | Open Days



On 26<sup>th</sup> September 2009, an Open Doors event took place at our cement grinding unit in Santa Cruz de Tenerife. It was specially dedicated to the local residents of Cueva Bermeja, Santa Cruz de Tenerife, the district neighbouring the plant.

Company workers' families also participated, as well as retired employees, who took the opportunity to spend a few hours of leisure time at their former workplace.

During the event, guided tours were organized around the grinding facilities, explaining the production process, quality control and environmental monitoring measures. The company's new corporate image, which emphasizes the renowned and historic "Cementos TEIDE" brand, was also disseminated.

The presence of a large number of children was an opportunity not only to teach them how cement is made, but also to provide various types of entertainment and amusement, which proved to be very popular. The event ended with a meal served in the grinding facilities, bringing neighbours and employees together in an atmosphere of enjoyable conviviality.



## EGYPT | Donation of Equipment to a Hospital



During contacts between Amreyah's Board of Directors and the shareholders, the possibility of the company making donations in the medical field in the areas surrounding the plant was raised. After consulting certain organizations in need of equipment, the company decided to donate an ultrasound scanning device to the operating room of the Medical Research Institute - MRI (Anaesthesiology Department), of Alexandria.

Through this donation, Amreyah made a significant contribution to keeping the MRI at the forefront of research, as this machine is the only one in Alexandria. This support has also enabled the MRI to take the first step towards achieving the goal of establishing an acute pain unit.

Since the Institute offers courses on pain and anaesthesia (at Licentiate and Master's degree levels), the device is also used for education and training activities, as well as in research work on local anaesthesia, an unexplored area in Alexandria even though it is a component part of the Department's doctoral theses.

## EGYPT | Community Awareness Programmes in Schools



Over a one month period Amreyah opened the plant's doors to visits from neighbouring schools of Old and New Borg Al Arab, and from the town of Hammam. Over 760 students and their teachers, divided into 38 groups, visited the plant, participating in a programme that included an introductory session, a study visit to the Amreyah and CIMPSAC (paper sack) plants, lunch and the presentation of souvenir gifts.

The purpose of the school awareness programme, a result of cooperation between plant employees and the local community, is to provide young people and the community with information on how the company operates and to demonstrate that it is aware of their needs and concerns and also, for some, it shows them their parents' workplace.

The company complies with government regulations and local laws, guaranteeing procedures that enable the neighbouring community to enjoy a better living and working environment.

Following this initiative, Amreyah has received many drawings and projects from students, expressing their gratitude for the visit and reflecting their understanding of the information they received about the company and the plant.

### TURKEY | Customer Relations: Face-to-Face “Customer Assessment” Surveys Make the Difference



The “Customer Satisfaction” Surveys at CIMPOR Yibitaş are now conducted face-to-face with key account customers, resulting in significant improvements in service.

CIMPOR Yibitaş (CY) has been conducting “Customer Satisfaction” surveys since 2003, in order to monitor customers’ assessments of its products and services as well as determine their future needs and expectations. In 2008, the company decided to make some changes, which included conducting face-to-face surveys or interviews with key account customers of strategic significance in the company portfolio, while continuing postal surveys with other customers. Different surveys were also prepared for bagged cement and bulk cement customers.

The interviews were conducted by sales managers, technical service teams and marketing managers. Each sales manager or member of the technical services carried out interviews with customers located in a different sales region from his/her customer portfolio.

As a result, most customers (about 80% of the company’s 2008 turnover, excluding the Group’s concrete area) were visited on their own premises.

The customers were pleased to be able to explain their problems, needs and expectations directly to a CIMPOR Yibitaş (CY) staff member.

In this way it was possible to discuss areas of satisfaction and dissatisfaction in greater detail.

Another advantage was that CY sales and technical service staff met customers from different sales regions, familiarized themselves with another type of customer and gained a better understanding of the working environment of their colleagues in the sales team. Furthermore, the CIMPOR Group marketing team was able to directly contact with customers and experience a real sales environment.

The overall customer satisfaction with CY's products and services exceeds 80%, every year. In 2008, the customer reply rate was 68%. The assessment of the company's performance in ten areas shows that CY improved in most criteria in the 2006–2008 period.

One of the major areas of dissatisfaction was the loading system at the Sivas plant, while some customers also complained about the waiting time during loading. Moreover, roughly one-half of the complaints made via the Customer Complaint Line, and relating to the Sivas plant, were focused on loading performance.

Given these circumstances, technical studies were carried out with the participation of the sales department, the plant's technical team and the investment department. The following actions were seen as essential to improving performance: - the upgrade of the Motor Control and Distribution Centre and installation of the Programmable Logic Controller in the plant's bagging unit to increase sack packing speed; - the installation of a new cement silo for Cimpower (a special type of cement) with 1,000 ton storage capacity, to increase the speed of bulk loading.

The project, representing an investment of about EUR 1 million, began in July 2008 and was completed in March 2009, before the peak sales season.

The loading speed increased to 90 tonnes per hour (from 55 t/h) and the speed of bulk loading to 110 tonnes per hour (from 65 t/h). Bulk loading time decreased from 40 to 10 minutes for 30 tonne tanker trucks. Furthermore, the better control provided by the logic controller resulted in a safer system, due to the elimination of manual operation, and a better working environment given the absence of dust during loading.

The improvement to the performance of the Sivas plant's product loading system has already started to generate results – in 2009 there were no customer complaints relating to loading delays.

## PORTUGAL | Sponsorship of the Restoration of the Sculptures of the Gardens at Queluz Palace



After five years of work the Queluz Palace gardens have taken on new life now that most of the restoration has been completed, and they were re-opened to the general public in May 2009.

The work, involving the restoration of the lead and marble statues, fountains and natural heritage was carried out by the World Monuments Fund Portugal and World Monuments Fund Britain, with the crucial support of a number of Portuguese sponsor companies, including CIMPOR.

The work was funded entirely by the World Monuments Fund Portugal and by the sponsors that so enthusiastically cooperated in this initiative, in particular CIMPOR. A total investment of over two million euros was made by the World Monuments Fund.

In 2009, the Institute of Museums and Conservation, which has been responsible for the Palace for some time, invested EUR 600,000 mainly for the recovery of the vegetation and physical sustainability of the Palace's outdoors areas.

The lead sculptures by John Cheere, the restoration of which was sponsored by CIMPOR, are the ex-libris of these magnificent gardens. Only 11 of the 56 sculptures commissioned from Cheere in 1756 have survived to today. Despite the reduction, it is the most coherent known group of the same commission of Cheere's work anywhere in the world, which makes this set of sculptures a very important collection in the international art arena.

John Cheere was an English sculptor, born in London in 1709 and deceased in 1787. He is the sculptor of the statue of King William III in St. James Square, London, but he became famous for his statues, mostly replicas of Greek and Roman sculptures, intended for private gardens. He also created a life-size statue of William Shakespeare for the jubilee celebrations in 1769 in Stratford-upon-Avon. There are Cheere sculptures in various museums, such as the Victoria & Albert, and in various National Trust parks, gardens and palaces, but this is the most coherent group.

## 05 Business Cases

The conservation and restoration work of the stone sculpture in the upper gardens and the comprehensive conservation and repair of John Cheere's lead sculptures have now been completed. The restoration work on the fifteen ponds and fountains, on the other hand, is a project that will last between twelve and fifteen months, and will extend until mid-2010. The rehabilitation of the natural heritage is an ongoing project.

The work on the lead statues took five years. After the group had been studied, it was removed to London and restored at the Rupert Harris Conservation studios, a specialist in the restoration of this kind of sculpture. It involved replacing the internal iron structure, significantly damaged, with stainless steel. Then the posture of the sculptures was rectified – many had drooping necks or arms – and the identifying features they had lost were incorporated, such as tridents and arrows, important detailed elements for an overall understanding of the sculptures. Lastly, a neutral protective finishing was selected, making it possible to properly monitor the pieces over time.

There was also some infiltration of biological matter, vegetation invading the sculptures, fissures over the whole structure and it was necessary to open and restructure them and repair the cracks – which in some cases were quite severe – and deal with all the biocolonisation of vegetal elements that were infiltrated. Only six of the larger groups of sculptures were restored in London. The individual figures were worked on in Portugal.

Furthermore, this project also had the advantage of providing the opportunity to develop skills in this area in Portugal as well as run very popular training workshops involving Portuguese conservators and restorers and university students.

## SPAIN | Cementos Cosmos sponsors University course



CEMENTOS COSMOS sponsors a course focusing on photography as a work tool in engineering and architecture.

For the second year running, Cementos Cosmos has sponsored a course organized by Universidad Internacional Menéndez Pelayo. The aim of the course, held in Sarria during August, was to study the relationship between photography and works of engineering and modern architecture.

Some 20 students took the classes which were held at Sociedad Recreativa La Union, an association with close ties to Sarria.

Well-known personalities like Xurxo Lobato, one of the most renowned photographers in Galicia and Spain, and the artist Antón Patiño lectured. The course was of great academic importance because it allowed the students to get free-choice credits for their university degrees.

During the two-day course, the teachers stressed the use of photography as a work tool in engineering and architecture.

Cementos Cosmos has close ties to Sarria, since the only integrated cement plant in Galicia is in its parish of Oural.

### PORTUGAL | Sponsorship: the Cloister of Tomar Convent / Art Restored with Great Skill (Phase 1)



The Convent of the Order of Christ is a complex of monumental and monastery buildings and a masterpiece of Portuguese architecture since the foundation of Portugal. It has always played an important role in the country's history, its discoveries, art, architecture and Portuguese culture. It was classified as a national monument in 1907 and a UNESCO world heritage site in 1983.

The cloister, the castle's original church, was modelled on the Mosque of Omar in Jerusalem. It is an example of the attitude of the Knights Templar, who devoted their lives to the quest for knowledge about other religions, cultures and civilizations. The architectural surfaces of the cloister constitute a unique work of art measuring around 2,000 square metres.

The arts patronage policy of the CIMPOR Group over the years has been to support the major national initiatives to restore heritage.

The protocol signed by the Ministry of Culture (IGESPAR) and CIMPOR for the restoration of the artwork of a world heritage classified monument, which is the case of the Cloister of the Convent of Christ, in Tomar, is considered by the company to be an emphatic example of this type of policy and the participation of civil society in the restoration of heritage.

CIMPOR is the sole patron for the restoration and conservation of the Cloister. Its financial contribution of EUR 750,000 will make it possible to complete a process that began in 1988 with successive phases of restoration.

CIMPOR's choice of this project concerns the historical value of the monument and its state of decay, the complexity of the restoration operations and the amount of investment required, as well as the heritage and culture impact it can have, including the benefits it would bring to polytechnic education in the area, thanks to support to the teaching of art and art history courses.

On 18 September, a public ceremony was held at the Cloister of the Convent of Christ in Tomar to publicly present the concluded first stage of its restoration, which included a guided tour to observe and appreciate in loco the result of the restoration work in the Ambulatory and Triumphal Arch.

## CONSERVATION AND RESTORATION OF THE CLOISTER

The interior of the Cloister serves as a medium for a large, very fine collection of figurative and decorative paintings, stucco art and work in other materials, which were in a very poor state of repair and needed urgent attention. In addition to the problems involved in restoring the vast quantity and variety of artistic pieces and materials, it was necessary to think of the aesthetics and reading of the whole interior and respect the superimpositions and juxtapositions of the different works contained there.

### HISTORY

In 2001 and 2002, a pilot workshop was set up to carry out conservation and restoration work on two adjacent spans of the outer ambulatory. This provided an opportunity to address the main aesthetic and conservation problems and solutions were studied on site. It was then possible to draft the general programme for the treatment of the other spans. They were then restored one by one, another four spans in total.

In the first conservation and restoration campaign following an international call for tenders, sponsored by CIMPOR, it was possible to work on two large areas of the Cloister:

- > The triumphal arch and its intrados, from November 2007 to April 2008. The painting on stone was highly fragmented due to deterioration and loss of the pictorial layer on the joints between the blocks of stone. The work focused on re-establishing the continuity and aesthetic reading of the composition through the reintegration and chromatic treatment of the gaps in the painting.
- > In the outer ambulatory (six spans) from November 2007 to May 2008. The work affected around one-third of the wall surface and was aimed at conserving and restoring the figurative and decorative murals on stone, polychrome stucco, polychrome stone, stonework, gilt and wood carvings and other, more unusual materials such as engraved and polychrome leather. The public call for tenders for the conservation and restoration of the last spans of the outer ambulatory, the second campaign, is currently in the assessment phase. The work is expected to last around 180 days and is scheduled to begin in October or November 2008.

For the third and subsequent campaigns, the call for tenders is already being prepared for the exterior and interior surfaces of the central drum. There are two scheduled work periods, the first in 2009-2010 and the other in 2010-2011.

## PORTUGAL | CUSTOMERS: The “CimpoRede” Commercial Initiative in Portugal

The current slump in the domestic construction market is characterized firstly by a period of general decline in activity, which is causing a sharp change in conditions of market competitiveness. Furthermore, a major evolution in distribution and retail sales has been found in all activity segments, generating several changes in the organization of markets and sales processes.

The bagged cement segment accounts for about 40% of the cement market in Portugal, and this segment is characterized by distribution through a network of resellers. There is, therefore, no direct contact between CIMPOR and the end consumer. For this reason the efficient distribution of our products depends not only on the quality of the commercial relationship between CIMPOR and its distributors, but also between those and the end consumers.

Thus, it was the intention CIMPOR to lead a process of continuous improvement in the attitudes and processes of its distributor network, adjusting its trade policy to changes that will occur in the construction market, trying to integrate all business activities of the company with that of its resellers, following a marketing concept based on three key elements:

- Consumer orientation, forcing the distributor to know and evaluate the requirements and needs of consumers, seeking to answer these fully and totally;
- Coordination of efforts, forcing the distributor to comprehensively perform all plans and activities to maximize their effectiveness;
- Goal-based orientation, forcing the distributor to set goals and devise appropriate strategies to achieve them.

Accordingly, CIMPOR implemented a programme to develop and evaluate service quality and enhancement addressed to its distributor network, with the following goals:

- Increase the sales efficiency of the network of distributors;
- Increase the organizational efficiency of the CIMPOR product distribution companies;
- Encourage the continuous improvement in the distributors' structure;
- Contribute decisively towards CIMPOR distributors complying with legislation in the fields of occupational health, safety and hygiene, the environment and licensing, so that the CIMPOR products are stored, handled and used according to the legal requirements.

The CimpoRede action programme was composed of the following phases:

- Phase 1: Survey and characterization of the current network of distributors
- Phase 2: Design and implementation of a manual of procedures and assessment grid
- Phase 3: CimpoRede training programme for distributors
- Phase 4: Assessment audits and reporting.

## TURKEY | The Kerkenes Project (Ancient Pteria Site)



Kerkenes, located in central Turkey, was chosen for the foundation of an Iron Age capital, probably ancient Pteria, about 600 B.C. Inscriptions, graffiti, architecture and objects suggest Phrygian origins, although the city was never, perhaps, part of the Phrygian state. Caught up in the conflict between Croesus, King of Lydia and the Persian conqueror Cyrus the Great in 540 B.C., Kerkenes was looted and burnt, its circuit of strong stone walls destroyed and the city deserted. Since 1993, international teams of archaeologists and students conduct annual campaigns of remote sensing and targeted excavation.

Yozgat's cement plant, from Cimpör Yibitaş, has been supporting this archaeological project, the so-called "Kerkenes Project", in the ancient Pteria site. The Median city of Pteria, probably placed in this site, was only discovered in 1999 and archaeological studies have been continuing since that time. The archaeological site is located above the village of Sahnuratli near Sorgun, a municipality of Yozgat, since early 2000. The support being given is both financial and social, contributing the plant also to public events taking part every year at the site, being represented with a stand in the opening ceremonies.

Innovative new research at the city of Pteria on Kerkenes Mountain began, however, in 1993. Archaeologists have made unexpected discoveries of sculpture, inscriptions, ivory and metalwork which are a central attraction of the Yozgat Museum.

The city, the largest of its day in Central Turkey, was founded by Phrygians about 600 B.C. as the capital of a new state. It played an important part in the conflict between the Median and Lydian Empires that lasted for years. According to Herodotus (around 500 B.C.), it was ended by the "Battle of the Eclipse" in 585 B.C. A solar eclipse took place during the war when it was near Mount Kerkenes, as Thales had predicted years before. The event led both sides to conclude that the Gods did not want the war and that is why they turned the day into night. Peace was the decision following the extraordinary event.

About 40 years later the city was captured, looted and burnt by Croesus, King of Lydia before the "Battle of Pteria". Archaeology is now revealing the astonishing magnificence of palace architecture and one of the seven gates in the 7 km of stone defences at this spectacular mountaintop capital.

In 2009 a substantial program of architectural conservation and site development was initiated at the Cappadocia Gate. This combination of research, heritage management and village development brings together village residents, local and state officials, NGOs, students and academics who work together for the protection of cultural and environmental assets in this dynamic rural setting of Sahnuratli. Some photos of this important archaeological site are given below.

A monthly Bulletin – “Kerkenes News” – describing the evolution of the research, is published with CIMPOR Yibitas’ sponsorship.



### INDIA | Cultural Activities – “Navaratri Festival”



SHREE DIGVIJAY CEMENT COMPANY (SDCC) organizes and promotes, all over the year, different religious and cultural activities such as the Navaratri Festival, Janmashtami Festival, Holi Festival, Gangore Festival, Ganesh Chathurthi, and so on which are aimed at the participation of people from surrounding villages.

In what regards the Navaratri Festival, one of the most participated of these kind festivals, men, women and children in groups sing and dance, during the nine consecutive nights, to invoke the blessing of Goddess “Durga” in an event which stands for the longest dance festival in the world. According to Hindu mythology, a demon called Mahishasura was blessed by Lord Shiva so that he could not be destroyed by humans. The demon therefore decided to torment the population. In order to put an end to this persecution and cruelty towards the population, Vishnu, Shankar and Brahma (the main Hindu gods) created Durga (the goddess of power and strength), who waged a war against Mahishasura for nine consecutive days and finally destroyed him, freeing the population from the demon’s brutality and persecution. Every year, during September / October period, the popular “Navaratri Festival” is held to commemorate this victory through special prayers and dancing in order to invoke Durga’s blessing.

This dance is a specialty of the Indian state of Gujarat, but in recent years it has also begun to be celebrated in other states – Rajasthan, Maharashtra, Madhya Pradesh, Haryana and in Delhi, etc. Besides its religious connotation the Navaratri Festival also has a strong social, cultural and community significance which helps to foster the links between all the community members. It is an occasion for for all the company's employees, their family members and nearby villagers to get together and contribute towards a social cause – those who can contribute financially make donations to a common fund. The contributions received are used to distribute gifts to all those present, including consumer goods that can be used in daily life.

## CHINA | OH&S POLICY

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### Road Safety and Community Well-Being at Suzhou Grinding Plant

In 2009, the Wanting government, in order to ensure the road traffic safety of the neighbouring residents and enterprises that often use the Yuecheng Bridge, decided to dismantle it for rebuilding in 2010. As part of CIMPOR's corporate OH&S and Community Well-being policies, our affiliate company voluntarily donated cement (RMB 0.3 million) for the construction of this new road that will provide significant benefit for all the main users of it. This initiative got the praise of the local government, and also enhanced plant's social influence and contribution for community's well-being, one of the company's sustainable development axes.

### World Day for Safety and Health at Work

Our company responded actively to arrangement of Cimpor Group and held related activity corresponding to World Day for Safety and Health at Work on April 28th covering Shandong Plant and Zaozhuang plant. The staff, thus, can get known to safety, pay attention to safety and take care of themselves constantly.

Our company made great effort to build enterprise's safety culture, improved safety awareness of workers continuously. In addition, implement firmly responsibility system relating to safety production and conscientiously strengthen basic management and field work management regarding safety production. Furthermore, observe safety production rules and regulations strictly, inspect and handle potential danger and loopholes in production timely; carry out three-Violations Rectification program; prohibit operation and command against regulations and labor rules; strive to work without hurting self, others and also not to be hurt by others.

## SOUTH AFRICA | Safety at NPC-CIMPOR: “Near Misses” ... The Crystal Ball of Accident Prevention

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In the era of 70's, safety gurus, F.E. Bird and R.G. Loftus, analyzed incidents across a variety of industries. Arising from the research, a pattern developed.

The learnings depict that proactive measures, such as the identification of near miss incidents, the reporting thereof, and systematic analysis and investigation, will assist Safety Practitioners to anticipate where their focus will be most effective in accident prevention initiatives.

This philosophy is the underlying principle of NPC-CIMPOR'S pre-emptive accident prevention program. These “near miss” incidents have not resulted in an injury or damage to property. The information can be categorized so as to allow Safety Practitioners to pre-empt potential accidents or damage to property. “Near-miss” reporting has started well, with incentivized employees using NPC-CIMPOR'S safety tool. Seen below is the employee who reported the most number of near miss incidents.

## SOUTH AFRICA | Foundations of Learning: Maths and Science Programme

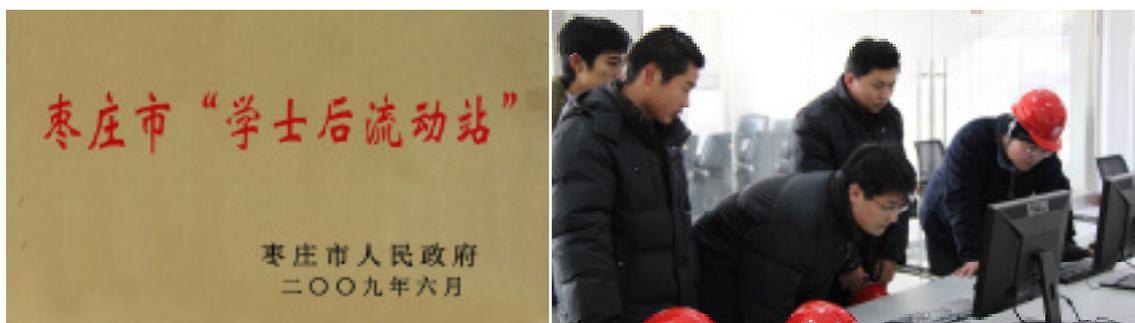
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The project commenced as a partnership between the company and the Department of Mineral Resources (then Dept of Minerals and Energy). The objective was to encourage and entice girl learners to develop interest in mining related fields by improving their mathematics and science knowledge. The programme targeted girl learners in Grade 8 during the year 2007.

In 2008 Saturday classes were introduced and tutors were engaged with the assistance of the Department of Education, for each of the three districts, for math, science and English. The programme was monitored and evaluated quarterly with the assistance of school principals and the subject advisors. 46 learners remained in the programme and continued to work hard and have the potential to succeed in their chosen career studies.

The programme was a success; results show that of the 46 learners, 45 passed their matric with 35 obtaining acceptance to Bachelor's Degree studies and 11 obtaining acceptance to diploma level studies. Three learners received full bursaries from NPC to study towards mining related qualifications (Geology and Bsc Engineering).

## CHINA | CIMPOR Cement China selected to be "Center for After Graduation Studies"



Since June 2009, CIMPOR Cement China (CCC) has started to assist Zaozhuang government to carry on the work of building a Centre for Post-Graduation Studies. The work not only represents a contribution for the society which released the employment pressure of undergraduates, but also helps fulfilling excellent youthful talent pool for the company successfully.

It created "win-win" situation for both society and the company efficiently and received a high reputation and appreciation from the local government and the undergraduates.

The Centre for Post-Graduation Studies, which idea is derived from the "Center for Post-PhD Studies", is a new way to resolve temporary employment for the undergraduates, established by Zaozhuang Government of Shandong Province in China.

The centre was mainly created for undergraduates who couldn't find jobs immediately in the aftermath of their graduation due to a lack of practical working experience and it is intended to help them in having a first contact with local well-known organizations and start a paid activity. This will help them release mental pressure of unemployment and accumulate working experience at the same time.

This policy has been carried out for less than one year now, and there are only 10 companies selected for this first group of centres. With two large scale local plants at Zaozhuang, recognized management practices and good public reputation, CCC was chosen to be included into this first group companies and the initiative got immediate support of company's management team.

As recognition for this CCC's engagement the government gives us privilege to freely publish vacant positions anytime on Zaozhuang's Education Bureau Official Website and to select as trainees the best college students for the vacant positions. The company has also the priority in signing labour contracts with these college students. Until now, CIMPOR Cement China has selected more than 20 undergraduates to start work and professional training at Zaozhuang's plant.

## BRAZIL | Initiatives with Stakeholders in various Operating Units in Brazil



CIMPOR Brasil has been making efforts to implement more initiatives involving its stakeholders.

2009 represented a new milestone in this area for this subsidiary of the CIMPOR Group, with the launch of a number of new initiatives. These included volunteering, educational campaigns targeted at transporters, initiatives aimed at the Environment in partnership with municipalities and Open Door programmes.

The highlight is the DEPOLLUTING PROJECT, which is aimed at raising the awareness of the transporters working with CIMPOR Brasil to adopt good practices, in order to gradually improve the safety and environmental performance of companies of this sector.

In addition to inspections, the drivers are made aware of environmental issues, practices to improve the performance of transport vehicles on roads and in towns, road safety and financial savings achieved through inspections and preventive maintenance of their vehicles, and safer driving.

Also relevant was the environmental awareness campaign among the community of Brumado, which consisted of informing the people living around the Brumado OU of environmental issues and the various initiatives undertaken by the unit. The project was conducted in partnership with the Municipal Secretariat of the Environment of Vitoria da Conquista/Bahia through various initiatives such as lectures on environmental education, workshops on tapestry using plastic bags, paper craft workshops, craft workshops using PET drink bottles and Bio-soup and Composting workshops.

At Campo Formoso, the OPEN DOOR PROGRAMME generated several visits to the plant by members of the local community, who besides getting to know the entire industrial structure of CIMPOR, attended educational lectures focused on the environment.

## EMPLOYEES

### PORTUGAL | Signing of the European Road Safety Charter

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Following the commitment made with the signing in 2008 of the European Road Safety Charter and embodied in the implementation of the company's Occupational Health and Safety Management System, which is expected to be certified next April, TRANSVIÁRIA, the road haulage firm of the CIMPOR Group promoted an awareness raising session on the theme of Occupational Health and Safety, in January 2010.

This session was intended for all TRANSVIÁRIA road transport service providers, which currently stands at 160 companies, 96 of which attended this training session.

The following principles underlay the organization of this action:

- A framework for the Global policy of CIMPOR with regard to Occupational Health and Safety;
- Demonstrate TRANSVIÁRIA's approach to Health and Safety and to identify / recall the relevant requirements;
- Systematize and update all the requirements for the provision of road transport service where the obligations of suppliers and their drivers are concerned;
- Present ideas and concepts relating to cost-saving and defensive driving.

The session also included talks on various topics including the framework for raising the awareness of occupational health and safety at TRANSVIÁRIA, the occupational health and safety policy of the CIMPOR Group, and cost-saving and defensive driving.

After the presentations had concluded there was also a period to clear up any doubts or concerns, and a number of ideas for improvement emerged, which are pertinent and will be adopted.

A further benefit was the fact that many transporters have been asking for additional documentation so that they can use it in the training of their own drivers.

### CHINA | Employees and Contractors OH&S Policy: "Csi Guidelines for Drivers and Contractors Safety" Implementation at Suzhou's Grinding Plant

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As part of the internal initiatives for implementing CSI's guidelines for drivers and contractors safety, developed during 2009, Suzhou's grinding plant set up a lot of safety warning signposts to raise the awareness of its employees, drivers and contractors on different ways to operate safely within the plant, and to drive safely inside and outside the industrial perimeter. Some speed barriers on the roads were also set up aiming at lowering significantly the speed of trucks and cars that are passing daily through the plant's yard. Moreover, a lot of training courses were carried out for raising people's awareness on safety topics.

The Group's Occupational Health & Safety (OH&S) logo was also painted on the walls of the main workshops with the purpose of reminding all employees and contractors to keep a continuous safe attitude in every operation for reducing work injuries effectively.

## TURKEY | Oh&S: 2009 Safety Quiz at Yozgat



In order to raise safety awareness and to measure the effectiveness of the trainings provided during the all year, a “Safety Quiz”, whose contents were the toolbox talks, was prepared. Toolbox talks are specific to job and a specific topic is decided for each month (Hand tools, Emergency, Work at Height, etc.) Toolbox talks enable to keep “knowledge about work and work related risks” up to date. This was a plant’s wide organization and all employees participated in this OH&S activity.

Eight teams, three blue collar workers in each, competed in this “Safety Quiz”. The quiz was structured in two different sections. In the first section, 15 multiple choice and true/false questions aiming to measure the knowledge were considered. Pointing out the maximum risks from a picture covered the second section of the quiz. The “Safety Quiz” was carried out at the same room, where all the teams were present. So, each team was competing answering at the same to the same questions in a fair way.

It was the first time such an event took place at Yozgat.

A very positive feedback was received from direct participants, auditors, area responsible, even though some points will have to be improved. The launching of this quiz in a competitive manner enhanced a new interest in people for safety topics and future events like this one were seen as very useful tool by everyone.

## PORTUGAL | The “CONNOSCO” staff volunteer programme of CIMPOR’s employees continues to be a success



About to close the year 2009, the balance of CONNOSCO, CIMPOR’S Staff Volunteer Programme, still proves to be surprising – by mid-November, eighty aid proposals had been fulfilled and contributions totalled over EUR 332,000, including around EUR 41,000 from the pockets of our own staff.

The institutions of the geographical area of the Alhandra plant continue to account for a very significant slice, having received EUR 108,000 in support over this period.

CONNOSCO, started in 2007, has already provided aid to dozens of institutions that develop valuable work in the social, educational, cultural and sports fields.

Under this programme, set up to encourage voluntary work in all of the Group’s companies in Portugal, over EUR 1.148 million has been raised over a period of nearly three years.

All of the many initiatives are a source of great pride to us. Not only are they clear evidence of a socially responsibility attitude from our employees, but it also gives us great satisfaction to see some of the results of the assistance provided – the photographs are of “Ajuda de Mãe” (“Mother’s Aid”), one of the several institutions that have already benefited.

## EGYPT | OH&S: Occupational Health and Safety Policy at Amreyah



Occupational Health and Safety policy at Amreyah is considered to be the top priority. In 2009, the company implemented a Safety Week, during which all employees were invited to participate in evaluating the industrial safety level of all sectors.

Organized into ten groups, each comprising ten members of staff from different departments, they inspected the level of safety in the workplace in each area of the company.

The groups attended a talk on First Aid, given by members of the Occupational Health and Safety team, and then examined the area allocated to them, evaluating each point mentioned on the inspection sheet. At the end, they attended a talk on fire-fighting.

The five best groups were chosen and the leader of each one presented a summary of the most negative and most positive aspects of the company's safety level.

Amreyah's Managing Director presented the prizes to the winning group and gave a brief speech on developments in safety in the company since September 2007. The Occupational Health and Safety and Environmental Officer gave a lecture on the importance of safety.

Amreyah also invited Dr. Kamal Mhmoud, President of the Cardiology Unit of the Medical Research Institute, to speak to the company's employees about public health, the main occupational diseases and methods of protection.



## PORTUGAL | Medical Conference on the theme “Health... A Global Asset”



The 2<sup>nd</sup> CIMPOR Health Conference was held in the auditorium of the Company’s headquarters on 22 and 23 May. It was attended by 47 out of more than 50 health professionals who provide services at the Group’s various business units in Portugal.

The theme of the conference was “Health ... A Global Asset”. The meeting was attended by the Chief Executive Officer who spoke to the participants of the importance of improving cooperation among the many internal and external actors, encouraging and expanding the discussion of health management and promoting articulation between the CIMPOR Group’s various industrial and service activities: “We must be bold, innovative, persistent and determined, since this is the key to improving the wellbeing and quality of life of our employees and their families”. He also emphasized that “at CIMPOR health is seen as an investment and not a cost”.

With the aim of assuring the provision of vocational development and training, the meeting continued with the presentation of the work carried out during the year in the various sectors, including the “Implementation of the Alcohol and Drug Regulations” and the “2008/10 OHSP (Occupational Health and Safety — Portugal) Activities Plan”, with special reference to the anti-tobacco campaign and the “Healthy Diet” and “Physical Exercise” programmes. As usual at this kind of meeting, the issue of more complex clinical cases also led participants to reflect on and discuss daily medical practices.

For the first time, all the health professionals in the service of CIMPOR (some of whom have been working with us for many years, in various parts of the country) had the opportunity to take part in a meeting of this scope. They were able to get to know one another personally, share their experiences and explain their difficulties and the solutions found at each workplace.

In a perspective of the future development and organization of the health services, proceeding with standardizing procedures in line with the best solutions, optimizing resources and disclosing best medical and nursing practices, this type of technical/scientific meeting should, if possible, be an annual event. Indeed, the high level of contributions received from all participants represents an incentive to the continuation of this model of working meeting.

## CIMPOR GROUP | OH&S Policy in the CIMPOR Group: Accident Reporting

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In recent years all fatal accidents have undergone extensive disclosure within the CIMPOR Group and through external initiatives, as is the case of the Cement Sustainability Initiative (CSI) and also with other stakeholders.

The reporting of such accidents has proven to be very important since it allows, besides the implementation of immediate corrective action in the OU where the accident occurred, the development of preventive actions in all other OU's of the CIMPOR Group, so that accidents of a similar nature do not happen in the future.

In 2009, the reporting of relevant events that occurred in the OU's of the CIMPOR Group in the occupational health and safety field was extended to include serious accidents and in 2010 good practices will begin to be disseminated and also warnings on various themes. These actions are aimed at strengthening a health and safety culture in the CIMPOR Group, which is aimed at achieving excellence.

## CIMPOR GROUP | OH&S Policy in the CIMPOR Group: Visible and Perceived Leadership

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The CIMPOR Group has been constantly developing a culture of safety since 2005 founded on visible and perceived leadership, in a commitment of the entire hierarchical line and a high degree of participation from all direct, indirect and third-party employees.

Initially, Occupational Health and Safety (OH&S) has to be considered as an integral part of the core business of the company and underlying its very existence. This recognition is intended to have a profound effect on all employees who, knowing the impact of their attitude and behaviour within the organization, become an active part in building the culture of safety

Visible and perceived leadership starts at the top through the demonstration of the effective commitment of managers to OH&S and from there it spreads throughout the organization. The message is clear: employees are the organization's most valuable resource.

The commitment of the top management is continually demonstrated through: - Action and Communication - Leadership by example - Compliance with legal requirements, internal rules and procedures; - Regular visits to facilities, interaction with employees and observing their reactions - Monitoring unsafe situations and following up on the implementation of necessary corrective action; - Participation in inspections and identifying hazards and assess risks; - Refer to safety issues at the beginning of any meeting/communication; - Personal involvement in accident investigation work and active participation in determining the corrective measures to deploy - Setting individual OHS Targets and Objectives and for the chain of command under their control; - Review OHS data reported at the local and corporate levels, as is the case with production data, costs and others;

- Acknowledgement of their role as an educator/trainer; - Development of individual competencies in OHS; - Confirmation of Occupational Health and Safety as Priority No. 1; - Motivation and engagement of all employees; - Celebration of successes in OHS - Continued pursuit of the "Zero Accidents, Healthy and Safe Workplace" goal.

Visible and perceived leadership is key to the continuous improvement and sustainability of the safety culture in the organization. The leader is the catalyst that initiates and maintains the enthusiasm and commitment of the team, and top managers must therefore transmit their own motivation and commitment to the entire chain of command under them.

### CHINA | Team Activity - Sha Jiabang

In November 2009, all employees of the headquarters in Shanghai, as well as several visitors to the offices of CIMPOR, attended the first organized opportunity to promote team spirit. All participants enjoyed the life and beautiful scenery of the riverside area of the city through a boat ride that showed off the beautiful landscape and promoted interpersonal relationships.

An amicable relationship was built between all following a day's journey to Sha Jiabang, marked by open and free communication between team members and visitors to the Shanghai headquarters of the Group, which will prove to be very beneficial for efficient collaboration in the future.

### INDIA | Inter-Department Cricket Tournament



Shree Digvijay Cement Company (SDCC), the Indian subsidiary of the CIMPOR Group, organized an inter-department cricket tournament, a very popular sport in India, at the Cricket Ground of Digvijaygram, in February 2009, in order to improve team work.

Four teams played in two matches. In the first match, the Technical I team played the HR, Mines, School & Sales team. In the second match, Technical II team played the Marketing team. The first match was won by the HR, Mines, School & Sales team and the second by the Technical II team. The final, between the winners of the two matches, was won by the Technical II team. The teams and players received various prizes, including that of winning team and best player.

## MOZAMBIQUE | OH&S Policy: HIV/AIDS, Malaria and other disease Prevention Programmes at Cimentos de Moçambique



CIMENTOS DE MOÇAMBIQUE, a subsidiary of the CIMPOR Group, promoted a series of actions focused on employee health at the two-day regional OH&S meeting of the cement manufacturers of the CIMPOR Group in the Southern Africa Zone, held in Dondo (Sofala province), in March 2010. This half-yearly meeting was chaired by Pieter Strauss, Chairman of the Board of Directors of NPC-CIMPOR and the CIMPOR Group Coordinator of the Southern Africa Region, and assisted by Steffen Kasa, CEO of CIMENTOS DE MOÇAMBIQUE (CM). The meeting was attended by plant managers and safety officers of the manufacturing units of the CIMENTOS DE MOÇAMBIQUE SA and NPC-CIMPOR companies, subsidiaries of the CIMPOR Group in Mozambique and South Africa, respectively.

The involvement of the private sector in the fight against HIV/AIDS constitutes a global challenge that cannot be put off. The central region of Mozambique, where this meeting was held, has a high incidence of HIV-positive persons and absenteeism due to natural diseases. Hence, various activities were implemented in order to promote the health of employees, with an emphasis on the prevention of HIV/AIDS, malaria and diarrheal diseases, as had been carried out the previous year at the Matola plant, located near the capital, Maputo.

Part of the meeting's schedule on the 10<sup>th</sup> included, at the end of the shift of the manufacturing facility, a play "O Kota", acted out by a theatre group invited to perform. The play was about 45 minutes long and it was seen by about 35 employees and also the managers attending the regional OH&S meeting. The play sought to convey different messages about HIV/AIDS, drawing attention to common behaviour and situations of everyday Mozambican life, which are often not associated with certain risks.

At the end of the play, the manager of the Dondo plant, accompanied by senior managers of CM, offered 100 large mosquito nets impregnated with a long-lasting insecticide to all the staff of the grinding facility and other persons present. The aim of the initiative is to raise awareness and reduce malaria infection in the region, especially during the wet season.

The following day all those at the meeting participated in an interactive manner, over two hours, in three HIV/AIDS Awareness initiatives.

The first action was a group competition on HIV/AIDS to measure the participants' knowledge on the subject and, at the same time, learn in a relaxed way about the most important issues of this worrying disease in the region.

The second was a team initiative focused on a discussion of the myths and facts in relation to the use of condoms. It was an intensive and swift initiative intended to make the participants reflect on the aspects that were often a barrier to using a condom.

Lastly, images and diagrams were used to discuss how sexual networks arise and develop, risky behaviour, and how the risk of HIV/AIDS infection is perceived in Mozambican society.



## INDIA | Celebration of Safety Week at Sikka

In India, CIMPOR commemorated Safety Week by organizing a cricket tournament between departments and had the certification of its Occupational Health and Safety and Environmental Management Systems renewed. Shree Digvijay (SDCCL), subsidiary of the CIMPOR Group in India, commemorated National Safety Week from 4th to 10th March 2009.

The start of the commemorations was marked by the National Safety Day flag being hoisted by the Chief Executive Officer, Mr. PA Nair, after the delivery of the safety badge to all employees.

In the mornings, talks and drills were organized in the plant facilities emphasizing the various aspects of safety, in particular the importance of full compliance with safety regulations and raising the awareness of all stakeholders regarding the need to provide information on best practices. Everyone was called on to make their contribution towards the "Zero Accidents" target.

On 5th March, Mr. Serra Nazaré, the Group's Regional Coordinator, gave a very motivating speech on the way ahead for SDCCL and emphasized the fact that "Safety" has become a top priority for CIMPOR.

Mr. Serra Nazaré took the opportunity to present the English and Gujarati edition of the "CIMPOR Code of Ethics", which was then distributed to all the company's employees.

## INDIA | Cultural and Leisure Activities with Employees to Celebrate the Start of the Wet Season in Gujarat



In August 2009, the Managers' Club of the Indian subsidiary of the CIMPOR Group Shree Digvijay Cement, in Jamnagar, organized a meeting for employees, spouses and their children, in order to mark the beginning of the wet season. The initiative was attended by about 215 participants, and was held at a site near the plant in Sikka.

The meeting began in the morning and lasted until late afternoon, and included the provision of all meals, as well as ice cream in the afternoon. Everyone, even the smallest children actively participated in various games and activities including traditional dances and dives into the pool. In the end, there was room for distribution of prizes to the winners. This was an initiative that helped to strengthen ties between all participants.



## INDIA | Employee OH&S: Shree Digvijay Cement Company (Sdcc) receives external Award during the “Mines Safety Week”

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SHREE DIGVIJAY CEMENT COMPANY (SDCC) Mines participates every year in the celebration of “Mines Safety Week” and “Mines Environment & Mineral Conservation Week” events that take place in the Saurashtra region, organized to promote safety awareness amongst employees and improve consciousness towards environment.

Thirty different organizations involved in mining activities and belonging to several industries like cement, soda ash and bauxite participate regularly in the above mentioned celebrations. Every year SDCC Mines wins Prizes & Shields in these celebrations and in 2009 this happened again.

## INDIA | OH&S: Celebration of the “Safety Week” at SDCC

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Safety Week was celebrated from 4th to 10th March 2009 and at end of the week a Valedictory function was organized at the Sikka’s plant of SHREE DIGVIJAY CEMENT COMPANY (SDCC). After the safety oath by company’s top management team, the celebration went through with contests for writing safety slogans, for writing safety poems, for drawing safety posters and to play safety games that were organized to convey the right messages and to raise safety awareness in a participative way. The best performers in each competition category were rewarded with a view of motivation.

## INDIA | Apprenticeship Training

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Apprenticeship is a system of training of a skill to a whole new generation of practitioners. Apprentices build their careers from apprenticeships. In India this system is governed through an Act titled “The Apprentices Act 1961”. SHREE DIGVIJAY CEMENT COMPANY (SDCC) engages several apprentice trainees every year in various trades from the local Industrial Training Institutes to provide practical exposure to these trainees and to comply with the statutory requirement.

During the year 2009-10 SHREE DIGVIJAY CEMENT COMPANY (SDCC) engaged 29 apprentice trainees in various trades. The duration of the training is one year except for Chemical Lab Assistant, which is six months. SDCC provides adequate practical exposure through the on-job training and is also paying a monthly stipend to each trainee. Apprentice trainees from SDCC represented, in 2009, the company in local, regional and national level “Skill Test Competitions”.

## **SOUTH AFRICA | Human Resources Professional Development Policy at NPC-CIMPOR and National Skills Development Award 2009 from the Mining Qualifications Authority (MQA)**

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In South Africa, companies are governed amongst others by the “Skills Development Act” which was set to regulate the development of skills in the country; increase the levels of investment in education and training in the labour market and to encourage employers to use the workplace as an active learning environment. The priorities include human resources development aimed at re-dressing imbalances, increasing participation of women in mining and the empowerment of previously disadvantaged communities. To monitor, manage and drive transformation in the relevant sector through the facilitation of skills, Sector Educational Training Authorities (SETAs) were established and companies falling under these sectors, have to report to them annually. NPC-CIMPOR falls under the MQA (Mining Qualifications Authority).

As part of our strategy to ensure the technical skills within the country and within NPC-CIMPOR are improved, the company embarked on a process of employing learners on learnership contracts. The learnerships comprise various engineering trades, namely, Electrical Engineering, Instrumentation, Fitting & Turning, Boiler making, Millwright and Diesel Mechanics.

In October 2009, the NPC group in South Africa received the National Skills Development award from the MQA for best practices in skills development. The company’s learnership strategy was one of the key factors which were attributed to this success.

Twelve learners were recruited from the areas surrounding our operations for the engineering trades, of which 7 were females. The entire complement of these learners, are now qualified artisans and NPC group has employed 8 of these learners permanently. The remaining learners have been awarded 2 year employment contracts. We have presently employed an additional 10 learners who are now in the second phase of the learning process.

Our in service training programme (IST), in 2009, assisted 28 students with on-the-job training. This programme affords students the opportunity to gain practical knowledge as part of them attaining their technical qualification.

The NPC group has also had a successful ABET (Adult Basic Education and Training) project which has been successfully implemented, in all our areas of operation.

## CHINA | OH&S Policy: Strong Commitment in caring for Employees' Health and Safety

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In 2009, CIMPOR Cement China's (CCC) plant of Zaozhuang gave continuity to CIMPOR's policy of putting people first and consistently caring for employee's health and safety.

Almost two years after the integration of CCC into the Group CIMPOR medical inspection and tests, activity carried out with the support of local CDC, became a established routine for all employees.

Moreover, as part of its OH&S policy, the company provided good-quality protective personal equipment like helmets, uniforms, safety shoes, protective goggles, gloves, ear plugs and anti-dust respirator for the staff, replacing all the existing ones.

All these initiatives, complemented with adequate training on a wide range of safety aspects was seen very positively by all the employees, and represented a step further in raising their enthusiasm, motivation and commitment in pursuing the established OH&S goals.

## MOROCCO | Meeting with contractors organized

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In partnership with APC and FNBTP (National Federation for Construction and Public Works) we organized a seminar on 22<sup>nd</sup> December 2009. The seminar was intended to act as a platform for communication and exchange among contractors, under the theme of safety and the efforts undertaken by cement companies to develop the issue.

During the event we presented the tool "MISS: Safety Information and Awareness Module", which we are currently developing as part of the APC's Safety mission with the FARAL office. The aim of this tool is to train contractors in the area of safety.

## TURKEY | Safety Poster Campaign: “Safety Poster of the Month”

When the 2008 safety activities were reviewed, it was found necessary to increase the contribution of all the employees in order to put this very important topic high in the agenda of people, employees and contractors, at Cimpor Yibitaş Sivas cement plant. For this purpose a safety poster campaign was initiated. Within the general framework of this campaign, letters to families were sent for their involvement, employees were informed during meetings for that purpose and notices were posted on safety boards.

Campaign is being held monthly. The posters elaborated by the employees were evaluated by the plant’s Safety Committee and the “Safety Poster of the Month” is selected. The criteria for selection are originality, awareness contribution, information contained and reflected.

Selected posters are posted on safety boards. Via this campaign risk perception has evolved significantly in the plant. The risk notices informed by employees almost doubled, from 194 in 2008 to 355 in 2009.

## PORTUGAL | 2<sup>nd</sup> Annual Meeting of OH&S Coordinators of the CIMPOR Group



The CIMPOR Group’s 2<sup>nd</sup> Occupational Health and Safety (OHS) Coordinators Meeting took place during the week from 16<sup>th</sup> to 20<sup>th</sup> March. It was attended by 13 OHS Coordinators, representing 9 of the 13 countries where the Group is established, namely Portugal, Spain, Brazil, Cape Verde, Morocco, Tunisia, Turkey, South Africa and Mozambique.

At the opening session, the Chairman of the Executive Committee of the CIMPOR Group highlighted the mission of the OHS Coordinators (Country and/or Activity) as a factor of the highest importance for the chain of command (Leadership) to support and develop initiatives in order to improve safety conditions at every level, reduce the accident rate and place the safety record of the CIMPOR Group over the medium term among the best in the world, especially in the ranking of cement producers, relying on the collaboration of the OHS Coordinators to achieve that goal. The work at the meeting was intensive and varied:

- Each OHS Coordinator presented the most relevant aspects regarding OHS indicators, OHS action plans/initiatives implemented, good practices and other matters they considered important, such as events and other activities involving workers.

## 05 Business Cases

- Seminars on occupational health with guest speakers and the presentation of a project concerning the involvement of management and leadership by example, which was very successful in relation to the change of attitude among employees and the adoption of safer behaviour.
- The creation of working groups to prepare new standardized procedures and the discussion of the regulations for a "Good Practices" competition to be implemented over the next few years.
- Visits to Operating Units of the Group where it was possible to see and discuss several of the improvements implemented, which are considered, in various cases, to be "Good Practices".

This exchange of experiences was resoundly considered to be useful, and a high degree of satisfaction was conveyed at this opportunity to discuss and exchange ideas on various aspects of OH&S.

### BRAZIL | Human Resource Development Projects at CIMPOR Brasil



In an effort to develop staff skills, CIMPOR Brasil undertook two major projects during 2009.

The MANAGEMENT DEVELOPMENT PROGRAMME (PDG) was developed in three modules, divided into three classes and was addressed at the front-line managers of the Brazil Business Area. The programme consisted of a set of activities directed in particular at the development of management and leadership skills, preparing managers for the challenges of business and the supply of instruments and tools to support management. The programme was divided into three main modules: i) PDG I (Training), "The Human Side of High Performance", held in June/August 2009; ii) PDG II (Training): "Managing Projects", held in July/September 2009 and iii) PDG III (Workshop): "Leadership and Change/Making It Happen", held in November 2009.

The major results of this programme include the providing of self-awareness, team management and project management tools, which also allowed the strengthening of the role of managers in managing change and the realignment of activities according to the Company's Mission, Vision and Values.

## 05 Business Cases

The KNOWLEDGE MANAGEMENT PROGRAMME has the primary function of transforming the knowledge of the area of some employees in training material for CIMPOR. 95 employees were identified who know at least one of the technical themes to be developed, which will serve as potential content providers in various areas of activity. The goals of the project are, among others, to develop and implement technical operational training courses, facilitating the standardization and continuous update of the technical content, achieving a reduction of costs associated with technical operational training by identifying the best cost, quality and time limit relationships.



## ENVIRONMENT

### BRAZIL | Rehabilitation of Mata Ciliar



Mata Ciliar is the name given to the vegetation that grows on riverbanks, igarapés (a Tupi Indian word for narrow riverbanks), lakes, springs and reservoirs. It owes its name to the fact that these vegetal coverings are as important for protecting water sources as eyelashes are for protecting our eyes.

The mata ciliar vegetal systems are essential for environmental equilibrium, and their preservation is essential for the protection of water, one of the main natural resources we have. The mata ciliar has various functions in an ecosystem: it controls erosion on riverbanks and prevents siltation; it minimises the effects of floods and maintains the quantity and quality of the water including filtering the waste of chemical products (pesticides and fertilisers), and helps to protect the fauna. These characteristics show the importance of preserving this type of vegetation and explain part of the severe impact of intense unplanned urban development.

**Cajati, in the heart of the Atlantic Forest:** Located in São Paulo state, about 220 kilometres from the capital, Cajati municipality includes the Vale do Ribeira region, among others. The main river that feeds the municipality is the Jacupiranguinha, which is part of the hydrographical basin of the Ribeira do Iguape River.

The whole region is located in one of the principal remaining parts of the Atlantic Forest, recognized as one of the most threatened areas on the planet. Various studies show that the Atlantic Forest is one of the planet's major biodiversity sites.

**Rehabilitation of the Mata Ciliar at Cajati:** One of CIMPOR Brasil's operational units is located in the municipality of Cajati. When it acquired the area, which contains a large part of the Jacupiranguinha river's hydrographical micro-basin, the company noted the level of degradation of the soil and vegetation caused by the irregular banana plantations and unplanned use of its resources.

Ever since, CIMPOR has been endeavouring to reverse the situation, seeking to restore to Nature its original characteristics.

In recent years, initiatives have picked up pace and a broad project has been implemented to rehabilitate the Jacupiranguinha river's Mata Ciliar.

The first phase of the project was to map out the area and, in recognition of its biodiversity, carry out surveys of the local flora and fauna.

The next phase involved replanting and rehabilitating the clay exploitation areas and the mata ciliar in an area of the Jacupiranguinha river and Córrego Mariano stream, which cross 8.15 hectares of the company's land. On the conclusion of this phase, a group of specially selected workers would, on a daily basis engage in: clearing the land, eradicating invasive plants, planting, watering, replanting, ant control and so forth.

In the main stage of the project, about 8,600 trees of more than 20 species native to the Atlantic Forest were planted.

Many of them are now over three metres high and have started to flower.

Now that the initial rehabilitation has been completed, it is only necessary to plant new trees to enrich the ecosystem, and the area can be said to be balanced – mammals and various bird species have even returned to their habitat.

**Awareness for conservation:** To boost the positive effects of the rehabilitation, the Amiguinhos do Ambiente (Little Friends of the Environment) project has been launched, which organizes visits by groups of students.

The students follow the "educational trail", learning about the trees and their different stages of growth, as well as the benefits of the rehabilitation of the mata ciliar. Afterwards the students are invited to take part in planting native seedlings

#### ATLANTIC FOREST DATA

Seven among Brazil's nine largest hydrographical basins, fed by the São Francisco, Paraíba do Sul, Doce, Tietê, Ribeira do Iguape and Paraná rivers, are located in the Atlantic Forest.

Though reduced and very fragmented, the Atlantic Forest still has over 20 thousand plant species, eight thousand of which are endemic – i.e. they do not exist anywhere else on the planet. It is considered to be the world's richest forest in terms of tree diversity.

There are estimated to be 1.6 million animal species, including insects. In the case of mammals, for example, 261 species are catalogued, 73 of which are endemic. There are 620 bird species (181 endemic) and 280 amphibian species (253 endemic), as well as 200 reptile species (60 endemic).

Despite the rich biodiversity, the importance of the Atlantic Forest for climatic and environmental equilibrium goes much further than this. Originally, this ecosystem extended along the Brazilian coastline from one end to the other and covered an area of approximately 1.3 million square kilometres. Currently, the Atlantic Forest has been reduced to approximately 8% of its original area. Even so, about 120 million people live in the Atlantic Forest area, meaning that the quality of life of approximately 70% of the Brazilian population depends on the preservation of the remaining parts which still have springs to regulate the flow of the water sources supplying the inland towns and communities, which helps to regulate the climate, temperature, humidity and rains, ensuring the fertility of the soil and protecting the hill slopes. All these factors add to the importance of the work to preserve the region's Nature.

### NURSERY TO RESTORE NATIVE VEGETATION

After the sites to be restored had been identified, the most suitable species were chosen for each situation on the basis of their characteristics, speed of growth and ecological role. Particular attention is paid to the choice of the seeds collected in the areas already rehabilitated by CIMPOR, which must be of good genetic and physiological quality. The nursery has beds for seedlings as well as a field nursery, since some species require direct light in order to germinate while others cannot do without a variation in temperature. For the pioneer species the seedling must be grown in full sunlight because they are already adapted to open environments.

The nursery was constructed close to the reforestation and forest enrichment sites so as to reduce transport costs and facilitate the growth of the plants, due to the presence of climate conditions similar to those of the areas to be reforested and enriched with these seedlings of plants native to the Atlantic Forest.



### SPAIN | CIMPOR organizes information event relative to the recovery of waste at the Toral de Los Vados plant



The CEMA Foundation (Fundación Laboral del Cemento y el Medio Ambiente) organized an event to provide information on the energy recovery from waste in the cement industry and to explain the process and strict environmental controls to which the production units are subject. The meeting was an opportunity to present the waste recovery project that will come into effect this year at the CEMENTOS COSMOS Toral de los Vados plant.

Hence, on 4<sup>th</sup> February about two hundred people met in a local hotel to find out more about the recovery process, presented by experts from CEMA and Ofi cemen (the Spanish Cement Association). Representatives of the UGT and CCOO trade unions and of the Autonomous Government of Castile and León also attended the meeting.

The Industrial Manager of CEMENTOS COSMOS, Mr. Jesús Martínez, guaranteed that “the waste recovery procedure that will begin operating at the Toral de los Vados plant will be subject to strict environmental controls and will improve emission levels, thus making it more efficient and environmentally sustainable”. He stressed that the best available techniques are being used and that “the waste is not dangerous and will be used in accordance with the AAI (integrated environmental authorization) protocol approved by the Junta (regional executive) of Castile and León in 2008.

A large part of the meeting was taken up with questions from the audience, duly answered by the CEMA and Ofi cemen technical experts, who clarified certain technical issues and explained that the implementation of waste recovery in Europe was an absolutely standardized option in all its aspects.

The Mayor of Toral de los Vados, Mr. Pedro Fernández, closing the meeting, expressed his conviction that energy recovery in the cement sector will have a positive influence on sustainable development of the area.

Besides the large attendance, the success of the event was also confirmed by the coverage in the local and regional media.

## SOUTH AFRICA | Bhobhoyi Emerging Farmers Project

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The project has gotten off on a good start with most members of the Cooperative showing enthusiasm and commitment to work. The project has managed to identify and supply markets in the Ugu District, the Spar supermarkets as well as Ugu Fresh produce market. The biggest challenge so far has been the weather, with lots of rain falling in the month of December and destroying most of the crops that were on the ground at the time. However, the support of Organic Farms Group and the Hibiscus Coast Municipality has ensured that the members were able to at least get some money out at the end of the year. Although the number of members has gone down from 46 to 25, this is considered an acceptable progression in a project of this nature. The remaining members seem to be coping well and show increasing commitment.

In 2010, focus will be on consolidating the project’s market position and keeping up with the market demands. The interest shown by the markets for the products of the project indicates that consistency in supply is the major challenge that the project may face.

## SOUTH AFRICA | The Value of our Simuma Nature Reserve



Aware of the importance of biodiversity, NPC has accorded Nature Reserve status to a 230-hectare area within its property. This initiative has been widely praised.

NPC CIMPOR's Simuma plant in South Africa is located in an area of great biodiversity value – the Oribi Gorge Nature Reserve, in southern KwaZulu-Natal province. As the owner of this land, NPC is fully aware of its responsibility and has therefore done its utmost to preserve its integrity and explore the numerous alternative options for optimizing its assets for the benefit of tourism and environmental education at the local level.

This awareness is particularly evident in the company's decision to grant Nature Reserve status to a 230-hectare area within its 1,700-hectare property. NPC's action led Ezemvelo KZN Wildlife, a local nature conservation agency, to declare that the company's efforts represent "one of the most progressive and encouraging environmental measures undertaken in a nature reserve by a company in KwaZulu-Natal".

The agency went on to describe these efforts as "a lesson in the sustained allocation of investment that will not only improve and perfect the natural environment but also demonstrate the benefits of this type of programme to as wide an audience as possible".

**What has already been done:** various measures were implemented that gave rise to the praise received, such as the removal of invasive plants in an area of about 140 hectares – or around half the area of the Reserve. Invasive plants not only represent one of the greatest and most persistent threats to all South Africa's classified nature areas, but they are also extremely difficult to control and eradicate, requiring constant attention and the investment of considerable sums of money.

However, it is the way in which the company has exploited the Reserve for environmental education and the development of tourism that has attracted the most attention. Of particular note in this regard is the sponsorship of monthly visits by underprivileged children from local schools, as well as the organization of the largest art competition in South Africa's primary schools, on the theme of birds, which involved over 140 schools.

The encouragement given to the South Coast Ornithological Association to use the Reserve over the last seven years yielded great results when the association succeeded in including the area in a wider bird-watching circuit, making it possible to attract a large number of local and international ornithologists.

NPC CIMPOR's most important initiative, in cooperation with another neighbouring company, Idwala Carbonates, has been the construction of the Eziqoleni Tourism Office, a major centre that acts as a base for tourists and a point of convergence for local art.

The South Coast Tourism Office, which is the regional tourism agency, stated that this centre has the best infrastructure of its kind in the whole of South Africa.

Its manager, Paul Jefferys, makes this clear: "There is no doubt that NPC CIMPOR has demonstrated a passion and an extraordinary commitment to tourism.

Without this company, there wouldn't be such a well-structured tourism organization in Eziqoleni. I would go even further and say that there is no other centre like this in the whole of South Africa".

## SOUTH AFRICA | Rehabilitation of Virgo Dolerite Quarry



The Virgo Quarry is situated on the crest of a steeply sloping hill above the Umzimkulu river at the NPC-CIMPOR Simuma factory. Dolerite has been mined from this area for a number of years, to supply a secondary material supply for the manufacture of clinker.

Mining activity was concluded in December 2008, with the exhaustion of recoverable material. A major objective for rehabilitation plan was developed to ensure complete restoration of the mining site, to emulate visual and ecological conditions prevalent in the area. Other objectives include safety and water management.

The rehabilitation plan involved flattening steep slopes and high benches by wrecking the benches and by backfilling waste and overburden from the Simuma quarry.

Safety was an important concern, as a result of the long steep slopes down the river and the presence of a nearby community with a large numbers of children. Creating flatter slopes and with correct profiling, the intention is to retain water in the area to minimize water runoff down the steep slopes and maximize percolation into the soil. Top soil was retained and stockpiled during the development of the quarry, this soil is being replaced to facilitate re-vegetation.

Backfilling of the mined areas commenced in 2009 and to date some 100,000 tonnes of back fill has been placed. It is estimated that a further 50,000 tonnes will be required, this is expected to be completed during 2010. Once back filling has been completed, the various benches will be profiled to control water run-off and indigenous grass seed will be planted.

Finally a maintenance programme for water run-off and weed control will also be implemented to reduce invasive weed propagation.

### PORTUGAL | Ecofuel Project: An Alternative Fuel generating Environmental Gains by using Renewable Resources



The ECOFUEL project, co-financed by the Portuguese National Strategic Reference Framework (QREN) under the Research and Technological Development Incentives System (R&TD IS) began in February 2009 as a result of the efforts by various bodies with overlapping competencies or interests to produce a RDF – “Refuse Derived Fuel”, from municipal solid waste (MSW) treatment units.

This secondary fuel uses the energy potential in every rejected part of waste, generating environmental gains through the use of renewable resources and reducing greenhouse gas emissions, leading to significant decreases in overall carbon dioxide emissions.

Since much of the know-how is dispersed and in need of scientific validation, this project contributes to the technological and scientific consolidation of RDF use and production processes, in that it: enhances competitiveness, a crucial factor for the sustainable development of the most energy-intensive industrial sectors; improves biological stability evaluation methodology, for controlling the production and storage of RDF; establishes parameters for evaluating the biogenic carbon present in the RDF through decay of the carbon isotope ( $^{14}\text{C}$ ), currently the object of international research, and also representing the value of national R&TD; develops integrated analysis of the main constraints associated with the use of this type of fuel, through the result of the RDF energy recovery efficiency tests, thus creating a tool for decision support in the RDF production process.

CIMPOR’s partners in this project are TRATOLIXO, SAPEC Química, Instituto Superior Técnico and INETI.

## PORTUGAL | Alternative Fuels: Facility for Alternative Fuels recovery at Loulé



A facility was licensed and constructed in 2009 at the Loulé plant, intended for the recovery of alternative fuels in the precalciner of the clinker kiln, namely biomass and refuse-derived fuel (RDF) such as used tyres.

The facility comprises two storage bays equipped to receive plant biomass and RDF and a crane with a claw completely automated to transfer the waste from the bays to the hopper that feeds the batching belt. This variable speed belt batches the material depending on the fuel requirements of the precalciner, with a batching range of 0.5 to 5 t/h.

The precalciner is fed by a sloping and fully covered belt conveyor with a final metal belt that feeds the precalciner through a triple flap gate to prevent the entry of false air into the precalciner.

This facility only became operational at the end of the year, since the operating permit for the use of RDF was only issued on 27 November 2009. Only about 1,200 tonnes of waste has so far been recovered. Even so, the recovery of waste caused a reduction of CO<sub>2</sub> emissions in the region of 1,700 t.



## MOZAMBIQUE | Environmental Management Plan of the Matola Plant: New fabric Filter for the kiln



In 2006, Cimentos de Moçambique (CM) carried out an environmental impact study at the Matola plant, which formed the basis for the granting of the environmental licence on 6 April 2007. This licence was granted because of the commitment made at the time by CM to implement measures in the short-term to mitigate the effects of non-conformities with the plant's environmental performance requirements.

Accordingly, the company submitted to the Mozambique government a plan that included, among other actions, the renovation of the existing dust removal equipment, the replacement of the fuel (coal) used in burning by another more environmentally-friendly fuel (natural gas) and the installation of new equipment to replace other equipment that no longer complies with the legislation in force.

Part of the Matola plant's environmental management plan included a new fabric filter to remove dust from gas emissions from the existing clinker production line. This new filter came into operation in 2009.

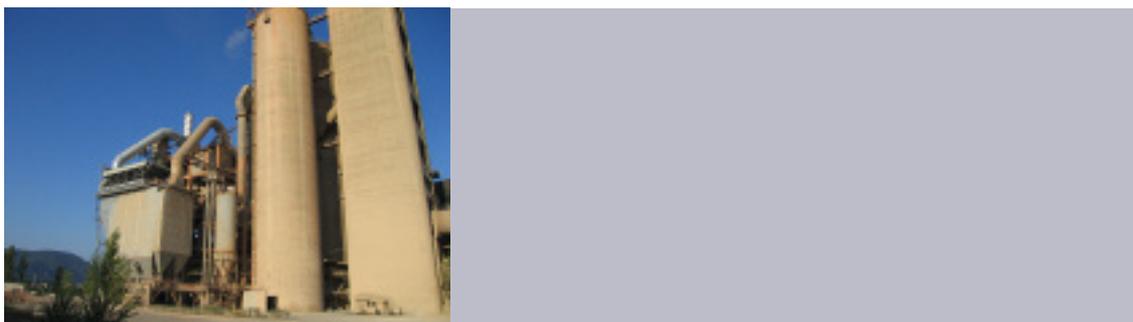
## TURKEY | Reduction of Particle Emissions at Yozgat by means of a Fabric Filter

In May 2007 particle emissions at the Yozgat plant were reduced by the replacement of the old electrostatic dust filter of the kiln with a modern fabric filter. This change generated a significant reduction in particle emissions (around 98%). The chart below shows that emissions fell from 1,180 mg/Nm<sup>3</sup> to around 20 mg/Nm<sup>3</sup>, and they have remained at this level to today.

## SPAIN | Reduction of Particle Emissions at Toral de Los Vados by means of a "Hybrid" Filter

At the Toral de los Vados plant, the electrostatic dust removal filter for the gas outflows of the kiln was replaced by a "hybrid" filter, using the casing of the existing electrostatic filter because it was found to be a feasible solution in technical and cost-savings terms. The resulting filter is a "hybrid" of the electrostatic and fabric filters, and its installation generated a decline in dust emission of around 85%. This "hybrid" filter was installed in March 2009, and emissions decreased as a result from 16 mg/Nm<sup>3</sup> to very low values, in the region of 2 mg/Nm<sup>3</sup>. Although the average dust emissions with the electrostatic filter were well below the legal limits, power cuts occurred quite frequently which led to emissions shooting up. These power cuts were caused by the activation of a safety protection on the electrostatic filter when peaks of CO due to the process occurred,

the kiln started up or stopped or, often, due to micro-cuts in power of the responsibility of the power supplier. In such circumstances particle emissions suddenly and substantially increased, causing a significant visual impact that gave rise to complaints from the local population and local authorities. In order to create a climate of strong confidence in the operation of the facility among the population and local authorities, particularly since the start-up of the co-processing of alternative fuels is planned for the near future, it was decided to accelerate investment in this “hybrid” filter, and excellent results have been obtained.



### **BRAZIL** | Conclusion of the Process of Integrated Certification of the Quality, Environmental and Occupational Health and Safety Management Systems of CIMPOR Brasil

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CIMPOR Brasil concluded in 2009, in accordance with the established timetable, the process of certification according to the NBR ISO 9001:2008, NBR ISO 14001:2004 and OHSAS 18001:2007 standards in all the OU's of the Cement Activity (6 manufacturing plants, 2 grinding plants and 1 sales office) and the Mortar Activity (2 plants), as well as at the corporate level (headquarters).

This work began in 2005 when the Integrated Quality, Environmental and Occupational Health & Safety Management System was implemented. The decision to opt for the integrated process was taken with the aim of aligning all operations with a single organizational culture, since CIMPOR Brasil was formed through the successive takeover of existing companies. Some of the OU/companies were certified and others not, the certification bodies were different and, also, the culture and quality management systems were quite different.

Thus, the establishment of the Integrated Management System defined a single certifying company and a timeline aimed to align internal action to achieve the objective.

## INDIA | Renewal of the Environmental and Safety Certification at Shree Digvijay

Shree Digvijay was awarded by Det Norske Veritas, following its audit during January, the renewal of the certification of its Environmental and Occupational Health and Safety Management Systems, in accordance with the ISO 14001 and OHSAS 18000 standards.

## PORTUGAL | Open Days/European Minerals Day



From the end of April to the last working day of May, in different periods, CIMPOR Indústria opened the doors of its plants in Portugal to anyone wishing to visit them.

It sent invitations to its stakeholders to visit and also placed advertisements in the regional press. The company received a response that clearly demonstrates the interest that its activities evoke – the total number of visitors surpassed 1,800; over 650 were students from universities, technical and vocational institutes and secondary schools.

The Loulé plant was the first to open its doors, from 20<sup>th</sup> to 24<sup>th</sup> April, and was visited by 380 people.

Next was the Alhandra plant, which opened over a longer period of time (4<sup>th</sup> to 19<sup>th</sup> May), welcoming 822 visitors and promoting the development of an initiative that involved many of the main cement plants in Europe – European Minerals Day.

This event was held on 15<sup>th</sup> May at the Bom Jesus quarry, the source of limestone, the main raw material used by the plant. The guests – representatives of the local authorities, associations and entities with which the manufacturing unit constantly cooperates – were first welcomed at the quarry's reception area and then given the opportunity to visit its most significant areas, ranging from the extraction area to those which have gradually, in various phases, been restored.

The Environmental Rehabilitation Plan for the Bom Jesus quarry provides for its restoration in ten phases.

## 05 Business Cases

The main guests included children and teachers from local schools, who enjoyed various outdoor activities, some involving the Alhandra fire brigade who focused on the prevention of forest fires. The Souselas plant opened its doors from 22<sup>nd</sup> to 29<sup>th</sup> May, bringing this open doors process to a close after receiving a total of 607 visitors – mostly students (412), as has usually been the case.



### SPAIN | Cementos Cosmos and Toral Municipal Council establish Environmental Project Grant



Cementos Cosmos and Toral de los Vados Municipal Council awarded the first the first sustainable development grant, worth EUR 1,500 on 5<sup>th</sup> May last. The winning project, which investigated the environmental impact of a gravel production facility on the Sil River was submitted by Maria Jesús Mangas Castro, from Toral de los Vados, who holds a degree in Biology and works as a senior officer in Risk Prevention in the Workplace.

This initiative is integrated into the sustainable development programme that the CIMPOR Group implements in the geographical areas where it operates. The principal reception room of Toral City Hall was the location chosen for the prize giving ceremony, and it was attended by the mayor of the city and the senior managers of CEMENTOS COSMOS.

The grant is an annual award and is aimed at academic and R&D projects on the theme of sustainable development in that area, and only those who reside in the municipality may enter the competition. In this first edition, three projects were submitted to competition.

## PORTUGAL | Climate Change: Development of a New Type of Cement in the Azores with lower carbon content

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The Azores archipelago is not only known worldwide for the volcanoes present on its nine islands but also as a major international shrine of vegetable and animal biodiversity.

The development of the different islands and improving the living conditions of the people of the Azores has been a priority for all policy makers and the results of this policy are evident, and particularly valuable. This development has been achieved through the joint development of an economic, social and nature conservation while simultaneously promoting local activities.

CIMENTAÇOR, which is one of the main companies of the Azores, combines those principles within the CIMPOR Group's policy of mitigating climate change, and it decided to produce at the Murtas grinding plant, from early 2009, CEM II/A - (P) 42.5 A cement using the natural pozzolanas of the island of São Miguel added to the clinker produced in Mainland Portugal. It is thus not only able to produce a cement with high chemical resistance and suitable for the manufacture of concrete and mortars for use in aggressive environments and works with specific durability requirements, such as those of the coastal marine environment of the archipelago, but it also enhances a natural resource of the islands. This use also substantially decreases CO<sub>2</sub> emissions by decreasing the amount of clinker used. Furthermore, it is a type of cement that is suitable for use in large volume concrete structures (e.g. dams, bridge abutments, etc.). It is particularly recommended for use in direct and indirect foundations, tunnels, tanks and other structural elements exposed to aggressive environments (e.g. waters rich in salts) in concrete for road and industrial floors and surfaces subject to chemical attack (e.g. oils, acidic waters).

## SPAIN | "CEMA" workshop in Toral: CEMA in Toral de los Vados to publicise use of alternative fuels

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A workshop on the use of alternative fuels was held in Toral de los Vados, in collaboration with CEMA (Fundación Laboral del Cemento y Medio Ambiente). Experts from the foundation, representatives of Oficemen, trade union members and the CIMPOR Group provided exhaustive information on all aspects of the use of this type of fuel.

**WATCHDOG COMMITTEE AT TORAL DE LOS VADOS TOWN COUNCIL** - The purpose of this committee is to keep an open line with the local corporation in Toral de los Vados. The committee meets once a quarter and provides an appropriate forum for working in symmetry. The town council exhaustively monitors the environmental situation and the management team is aware of the institution's needs. All this has helped to strengthen institutional relations.

**DISTRIBUTION OF A LEAFLET ON ALTERNATIVE FUELS IN TORAL** - The project to use alternative fuels at our plants has generated a need to provide explanations. It is necessary to provide the surrounding population with active information and also counter propaganda distributed by ecologist groups. Due to the start of the alternative fuel process in Toral, more than 5,000 leaflets with information on the subject were distributed to the population.

**CREATION OF A SPECIAL EMAIL ADDRESS TO ANSWER QUESTIONS ON ALTERNATIVE FUELS** – In this same line of work and to complement action taken in Toral, an email address was set up for the public to submit questions about alternative fuels. The initiative had two purposes: to inform the population in the strict sense and to convey a sense of transparency. There is nothing to hide.

**AWARD OF GRANT FOR ENVIRONMENTAL STUDIES** – Every year, in collaboration with the local institution, a grant will be awarded for works on the environment for all students registered in Toral de los Vados.

### **SPAIN | Replacement of natural gypsum by thermal gypsum from the desulphurisation of gases from thermoelectric power stations as a setting regulator at the Oural and Toral de Los Vados plants**

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In 2008, the Cementos Cosmos, S.A., Toral de Los Vados and Oural plants received their environmental authorisations (IPPC Law), which include permission to use alternative fuels and raw materials in the manufacture of clinker and cement.

As part of the reduction in the use of natural resources in the manufacture of cement, in 2008 plants started to use thermal gypsum from the desulphurisation of gases from thermoelectric power stations as a setting regulator instead of the natural gypsum normally used.

New batching facilities were built for the use of this material, which is very difficult to handle as a result of its humidity and texture. This means that waste produced in another industrial process is incorporated directly as an additive during milling in the cement manufacturing process.

Until then, plants were receiving and using gypsum with an average purity of 79% from the exploitation of a natural resource as a setting regulator.

The aim of the alterations to the batching facilities that are currently taking place at both plants is to replace at least 50,000 of the approximately 80,000 tonnes of natural gypsum used there every year by gypsum from the desulphurisation of combustion gases at a thermoelectric power station located nearby (with an average purity of 95%). This will not only reduce consumption of a natural resource but also lower consumption of energy and fossil fuels by considerably shortening the transport distance (by truck over distances that will be reduced by about 300 km).

## INDIA | Impacts on Land and Communities: Mining with a Surface Miner



To exploit limestone in more scientific and environment friendly manner, blast free mining method by deployment of Surface Miner (Model Wirtgen SM 2200) is introduced at one of the quarry of SDCCL. With this, nuisance associated with blasting like flying fragments, noise, vibration and noxious gases are totally eliminated and it has become possible to exploit limestone reserves blocked in vicinity of private agricultural fields, hutments and private stone quarries.

## INDIA | Quarry Rehabilitation: Plantation in Mined out Areas in Sikka

Mining Department has also taken up many activities to protect environment. Plantation in mined out pit & along lease boundary, converting mined-out pit into water reservoir, erection of earthen check dam etc are major activities. At Chorbedi limestone quarries, a mined out pit has been converted into a water reservoir from where large number of villagers are getting benefited.

## INDIA | Energy Efficiency Initiatives: Equipment Retrofitting and Product Portfolio Change at Shree Digvijay Cement Company (SDCC)

The Portland Pozzolana Cement (PPC) is a high performance blended cement, with very low drying shrinkage and very low heat of hydration which minimizes cracks in concrete, making it indicated for producing less porous, impermeable and durable concrete structures resistant to weather, corrosion and to sulphate attack. It is obtained by either inter-grinding a pozzolanic material with clinker and gypsum, or by blending ground pozzolana with Portland cement. Nowadays good quality fly ash is available from thermal power plants' ESPs to be processed and used in manufacturing of PPC with an identical role. Highly reactive fly ash helps in improving the density of concrete matrix thus increasing the durability factor when compared to Ordinary Portland Cement (OPC).

In 2008, SHREE DIGVIJAY CEMENT COMPANY (SDCC) produced 120,000 tons of PPC cement incorporating 20,350 tons of fly ash as a cement extender replacing clinker and increasing the percentage of blended cements in their product portfolio. In 2009, these figures evolved to over 312,000 tons of produced PPC cement incorporating circa 55,000 tons of fly ash. There was an increase in PPC overall production, being the incorporation of clinker in total produced cement of 89%. In 2010, the quantity of fly ash available may further increase to 500,000 to 600,000 tons and therefore a new improvement in the clinker-to-cement ratio (82%) is expected.

A power consumption decrease of 2.5 to 3.5 kWh/t of cement will be also achieved by means of using these fly ashes and proceeding to several equipments refurbishing (e.g., preheating tower ID fan, raw mill ID fan and installation of variable speed motors in clinker cooler ID fans) which will have a very positive impact in indirect CO<sub>2</sub> emissions.

SDCC has signed-off, in 2009, an agreement with nearby's power plant aiming at using its fly ash which is generated at a rate of approximately 600 tons per day. The fly ash transportation system, from the power plant to the cement works, is almost finished and will enter into operation during the first quarter of 2010 rendering much easier the handling of the fly ashes.

### CHINA | Emission Reduction: Fugitive Dust Mastering at Suzhou Grinding Plant's Wharf

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The grinding plant of Suzhou is equipped, since the second half of 2009, with an industrial vacuum cleaner on the wharf. This completely solved the fugitive dust problems occurring during fly ash handling and earned a very positive reception from the government and the villagers in the perimeter zone. This reduces dramatically the pollution due to fugitive dust improving the environment, the working conditions and the neighbouring residents' well-being.

### TURKEY | Quarry Rehabilitation in Sivas

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Forestation at Cimpor Yibitaş' Sivas cement plant quarries started in 2004 with the contribution of the local Environmental Agency. The purpose of this forestation project is to rehabilitate the quarry, restoring the land which was already exploited for raw materials mining purposes. Within this framework, the abandoned quarry benches have been modeled and planted with local tree species.

The local Environmental Agency experts were consulted for the rehabilitation plan's approval and plantation activity, and all over the last 5 years, circa 12,000 acacia trees were planted.

The planting activities go in an accelerated way; hence, only in 2009, 5,000 acacia trees were planted in the limestone and clay quarries of this cement plant.

Overburden separated during quarry activities is used in this planting activity as the fertile material.

In the coming years, forestation activities will continue in line with mining plan and rehabilitation plan of the quarries. An annual budget was established and approved for this very purpose.

## TUNISIA | Construction of a Natural Earth Barrier to protect the Petcoke Storage Depot at Jbel Oust from prevailing winds



The Ciments de Jbel Oust plant, a subsidiary of the CIMPOR Group in Tunisia, is equipped with an open-air petroleum coke storage depot, with a maximum capacity of around 45,000 t. The pile of this fuel is frequently more than 15 metres tall. The depot is bordered to the west by the limestone storage warehouse and to the north by the natural topography of the land and the electricity supply building. It is totally unprotected to the south and east from the prevailing winds, which are frequent and very strong throughout most of the year.

As a result, the dispersal of petroleum coke dust has become a constant problem, which not only causes significant loss of fuel but is also a permanent source of dirt at the plant

Various studies were undertaken to solve the problem and a natural earth barrier with a height of 13 metres was built, for the protection of the stock of petroleum coke against the prevailing winds from the south and southwest. This barrier has almost totally eliminated the dust emissions from the petroleum coke stored at this plant.

## TUNISIA | Construction of a Waste Storage Depot



The Ciments de Jbel Oust plant, a subsidiary of the CIMPOR Group in Tunisia, built a new waste sorting and storage depot in 2009, which is known internally as the "EcoDepot".

The certification of the Environmental Management System in 2008 according to the ISO 14001 standard required that a system of waste management on the company premises be created, and in particular at the plant. The existing depot for the storage and sorting of waste was in very bad condition and therefore had to be demolished in order to construct a new depot more suited to that purpose, which was called the "EcoDepot". A small "EcoTeam" was also set up within the industrial structure for compacting and collecting burst paper bags, to ensure the energy recovery of some wastes, and to manage the "EcoDepot".

### PORTUGAL | Rainwater sedimentation pond at Bom Jesus Quarry in Alhandra



A pond was constructed at the southwest face of the quarry, into which all the watercourses of that zone drain, in order to ensure and enhance the good sedimentation of rainwater at Bom Jesus Quarry of the Alhambra plant. This pond, which was completed in 2009, has an approximate area of 5,000 m<sup>2</sup> and the rainwater from an area of about 117 ha drains into it.

This project, besides increase the quality of discharged water in terms of the "suspended solids" parameter, also absorbs the effect of excessive flows in conditions of abnormal rainfall, ensuring the stabilization of discharge flows as well as the quality of the water discharged. The water stored in the pond can, if required, be used in irrigation operations for the rehabilitation of Bom Jesus Quarry and for spraying on access roads to the quarry in order to control dust emission.

## BRAZIL | Rehabilitation of Green Areas at several Brazilian Plants



Three environmental projects of CIMPOR Brasil in 2009 in the field of the “Rehabilitation of Green Areas” are of note in Brazil:

- i) **Brazilian Wood Park** at Campo Formoso, created within the unit, such as that existing at Joao Pessoa. Throughout the year over 400 native trees were planted;
- ii) **Rehabilitation of the Mata Ciliar** at São Miguel dos Campos, where 4,000 seedlings of native vegetation were planted in the mata ciliar of the São Miguel River, which runs through the industrial facility; and
- iii) **Reforestation** at Cezarina, where the Cezarina OU consolidated its project for the reforestation of quarries. 1,379 mudas seedlings were planted, bringing the accrued total since 2008 to 3,652. The principal species planted were purple, yellow, red and white Ipê, Paineira, Gabiroba, Jotobá, Jacarandá, Cagaita, Cajá, Balsamo, Mutamba, Jenipapo, Baru, Pequi, Aroeira, Angico and Flamboyant.

## PANEL OF GRI INDICATORS (\*)

(\*) – Version of new G3 Global Reporting Initiative guidelines.

### 1. ECONOMIC PERFORMANCE

<b>EC1</b>	p. 18
Direct economic value generated and distributed	
<b>EC2</b>	n.p.
Financial implications and other risks and opportunities for the organisation's activities due to climate change	
<b>EC3</b>	n.p.
Coverage of the organisation's defined benefit plan obligations.	
<b>EC4</b>	n.p.
Significant financial assistance received from government	
<b>EC5</b>	n.p.
Range of ratios of standard entry level wage compared to local minimum wage	
<b>EC6</b>	n.p.
Policy, practices, and proportion of spending on locally-based suppliers	
<b>EC7</b>	n.p.
Procedures for local hiring and proportion of senior management hired from the local community	
<b>EC8</b>	23,25
Development and impact of investments provided primarily for public benefit through commercial, in kind, or pro bono engagement.	
<b>EC9</b>	26,27
Understanding and describing significant indirect economic impacts, including the extent of impacts	

### 2. ENVIRONMENT / ENVIRONMENTAL PERFORMANCE

<b>EN1</b>	p. 95
Materials used by weight or volume	
<b>EN2</b>	78,80
Percentage of materials used that are recycled input materials	
<b>EN3</b>	83
Direct energy consumption by primary source	
<b>EN4</b>	83
Indirect energy consumption by primary source	
<b>EN5</b>	83
Energy saved due to conservation and efficiency improvements.	
<b>EN6</b>	83
Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements.	
<b>EN7</b>	83
Initiatives to reduce indirect energy consumption and reductions achieved	
<b>EN8</b>	97
Total water withdrawal by source	
<b>EN9</b>	n.a.
Water sources significantly affected by withdrawal of water	

## 06 GRI Indicators

<b>EN10</b>	100	<b>EN19</b>	n.p.
Percentage and total volume of water recycled and reused		Emissions of ozone-depleting substances by weight	
<b>EN11</b>	n.p.	<b>EN20</b>	73
Location and size of land in protected areas and areas of high biodiversity value outside protected areas		NOx, SOx and other significant air emissions by type and weight	
<b>EN12</b>	92	<b>EN21</b>	n.a.
Description of significant impacts on biodiversity in protected areas and areas of high biodiversity value outside protected areas		Total water discharge by quality and destination	
<b>EN13</b>	90	<b>EN22</b>	n.p.
Habitats protected or restored		Total weight of waste by type and disposal method	
<b>EN14</b>	92	<b>EN23</b>	n.p.
Strategies, current actions, and future plans for managing impacts on biodiversity		Total number and volume of significant spills	
<b>EN15</b>	n.a.	<b>EN24</b>	n.a.
Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations		Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention	
<b>EN16</b>	67	<b>EN25</b>	n.a.
Total direct and indirect greenhouse gas emissions by weight		Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by discharges of water and runoff	
<b>EN17</b>	69,75	<b>EN26</b>	n.p.
Other relevant indirect greenhouse gas emissions by weight		Initiatives to mitigate environmental impacts of products, and extent of impact mitigation	
<b>EN18</b>	67	<b>EN27</b>	n.p.
Initiatives to reduce greenhouse gas emissions and reductions achieved		Percentage of products sold and their packaging materials that are reclaimed by category	

<b>EN28</b>	n.p.	<b>LA7</b>	44
Monetary value of significant fines for non-compliance with environmental laws and regulations.		Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	
<b>EN29</b>	n.p.	<b>LA8</b>	41,46
Significant environmental impacts of transporting products and other goods and materials used		Education, training, counselling, prevention and risk-control programmes in place to assist workforce members, their families, or community members regarding serious diseases	
<b>EN30</b>	50	<b>LA9</b>	n.p.
Total environmental protection expenditures and investments by type		Health and safety topics covered in formal agreements with trade unions	
<b>3. LABOUR PRACTICES AND DECENT WORK</b>			
	p.	<b>LA10</b>	32
<b>LA1</b>	30	Average hours of training per year per employee by employee category	
Total workforce by employment type, employment contract, and region		<b>LA11</b>	31,36
<b>LA2</b>	33	Programmes for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	
Total number and rate of employee turnover by age group, gender, and region		<b>LA12</b>	n.p.
<b>LA3</b>	n.p.	Percentage of employees receiving regular performance and career development reviews	
Benefits provided to full-time employees by major operations		<b>LA13</b>	n.p.
<b>LA4</b>	31	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity	
Percentage of employees covered by collective bargaining agreements.		<b>LA14</b>	n.p.
<b>LA5</b>	n.p.	Ratio of basic salary of men to women by employee category	
Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements			
<b>LA6</b>	n.p.		
Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programmes			

## 4. HUMAN RIGHTS

<b>HR1</b>	p. n.a.	Percentage and total number of significant investment agreements that include human rights clauses
<b>HR2</b>	n.p.	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken
<b>HR3</b>	n.p.	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations
<b>HR4</b>	n.a.	Total number of incidents of discrimination and actions taken
<b>HR5</b>	n.a.	Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk
<b>HR6</b>	n.a.	Operations identified as having significant risk for incidents of child labour
<b>HR7</b>	n.a.	Operations identified as having significant risk of forced labour or slavery
<b>HR8</b>	n.a.	Percentage of security personnel trained in the organisation's policies concerning aspects of human rights
<b>HR9</b>	n.a.	Total number of incidents of violations involving rights of indigenous people and actions taken

## 5. SOCIETY

<b>SO1</b>	p. 22,26	Nature, scope, and effectiveness of any programmes and practices that assess and manage the impacts of operations on communities
<b>SO2</b>	n.p.	Percentage and total number of business units analysed for risks related to corruption
<b>SO3</b>	n.p.	Percentage of employees trained in organisation's anti-corruption policies and procedures
<b>SO4</b>	n.p.	Actions taken in response to incidents of corruption
<b>SO5</b>	n.p.	Public policy positions and participation in public policy development and lobbying
<b>SO6</b>	n.a.	Total value of financial and in-kind contributions to political parties, politicians, and related institutions
<b>SO7</b>	n.p.	Total number of legal actions for anticompetitive behaviour, anti-trust, and monopoly practices
<b>SO8</b>	n.p.	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations

## 6. PRODUCT RESPONSIBILITY

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### PR1

Life cycle stages in which health and safety impacts of products and services are assessed for improvement

p.  
n.p.

### PR2

Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle

n.p.

### PR3

Type of product and service information required by labelling procedures

n.p.

### PR4

Total number of incidents of non-compliance with regulations and voluntary codes concerning product information and labelling

n.p.

### PR5

Practices related to customer satisfaction, including results of surveys.

22

### PR6

Programs for adherence to laws, standards, and voluntary codes related to marketing communications

n.p.

### PR7

Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications

n.p.

### PR8

Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data

n.p.

### PR9

Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services

n.p.

n.a. - not applicable

n.p. - information not provided

## CONTACT DETAILS

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## ASSURANCE STATEMENT

### Independent Limited Assurance Report on the CO<sub>2</sub> emissions and safety Key Performance Indicators reported by CIMPOR for the year 2009

To the Board of Directors of CIMPOR

#### NATURE AND SCOPE THE ASSURANCE/VERIFICATION

At the request of CIMPOR, we have carried out an independent limited review of CO<sub>2</sub> emissions and safety Key Performance Indicators reported by CIMPOR for the cement sector.

CO<sub>2</sub> emissions, as calculated according to the WBCSD-CSI "Cement CO<sub>2</sub> Protocol" (June 2005 version):

- Absolute gross CO<sub>2</sub> emissions
- Absolute net CO<sub>2</sub> emissions
- Specific gross CO<sub>2</sub> emissions
- Specific net CO<sub>2</sub> emissions

Safety indicators, as calculated according to the WBCSD-CSI Guidelines "Safety in the cement industry: Guidelines for measuring and reporting" (updated October 2008 version 3.0):

- Fatality rate for directly employed
- Lost Time Injury Frequency rate (LTI FR) for directly employed
- Lost Time Incident Severity Rate (LTI SR) for directly employed
- Fatalities for indirect employed
- Lost Time Incident (LTI) for indirect employed
- Fatalities for third-party

The KPI's have been prepared by, and are the responsibility of, CIMPOR Management. Our responsibility consists of issuing conclusions about their consistency and reliability based on our review work described in the next paragraph.

The information in the Sustainability Report of CIMPOR and its presentation are the responsibility of the directors or governing body and the management of CIMPOR. SGS ICS has not been involved in the preparation of any of the material included in the Sustainability Report.

Our work was performed based on verification standards established by the International Federation of Accountants, under the International Standard for Assurance Engagement ISAE 3000 pertaining to limited assurance. We planned and performed the procedures set out below to obtain limited assurance as to whether the KPI's are free of material misstatements. A higher level of assurance would have required more extensive procedures.

- We assessed CIMPOR reporting procedures for the KPI's with regard to their consistency with the WBCSD-CSI "Cement CO<sub>2</sub> Protocol" and "Safety in the cement industry: Guidelines for measuring and reporting", respectively;

Signed:

For and on behalf of SGS ICS Portugal, Lda

Certification Manager  
Luis Neves

- At corporate level, we conducted interviews with the individuals responsible for the preparation and application of the reporting procedures as well as for the consolidation of data. At this level, we performed analytical procedures and verified, on a test basis, the calculations and data consolidation;
- At regional coordination level, we conducted interviews with the individuals responsible for the KPI's reporting and performed analytical tests;
- We selected a sample of cement plants for site visits, and for each one of them:
  - we reviewed site organization and procedures, especially those regarding KPI reporting;
  - we assessed the control procedures on key parameters, and
  - on a test basis, we performed reconciliation of reported data with the supporting documentation and verified the arithmetical accuracy of calculations.
- We analyzed the consolidated KPI's reported by CIMPOR in the 2009 Sustainability Report to verify the coherence with the results of our work.

#### STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS ICS affirm our independence from CIMPOR, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment.

#### VERIFICATION/ ASSURANCE OPINION

Based on the results of our review, nothing has come to our attention that causes us to believe that:

- the CO<sub>2</sub> emissions and safety KPI's reported for the cement sector have not, in all material respects, been prepared in accordance with the WBCSD-CSI "Cement CO<sub>2</sub> Protocol" and "Safety in the cement industry: Guidelines for measuring and reporting", respectively;
- the CO<sub>2</sub> emissions and safety KPI's, for the cement sector, contain material misstatements.

Lisbon, April 16th, 2010

Global Technical Reviewer  
Luis Santos



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