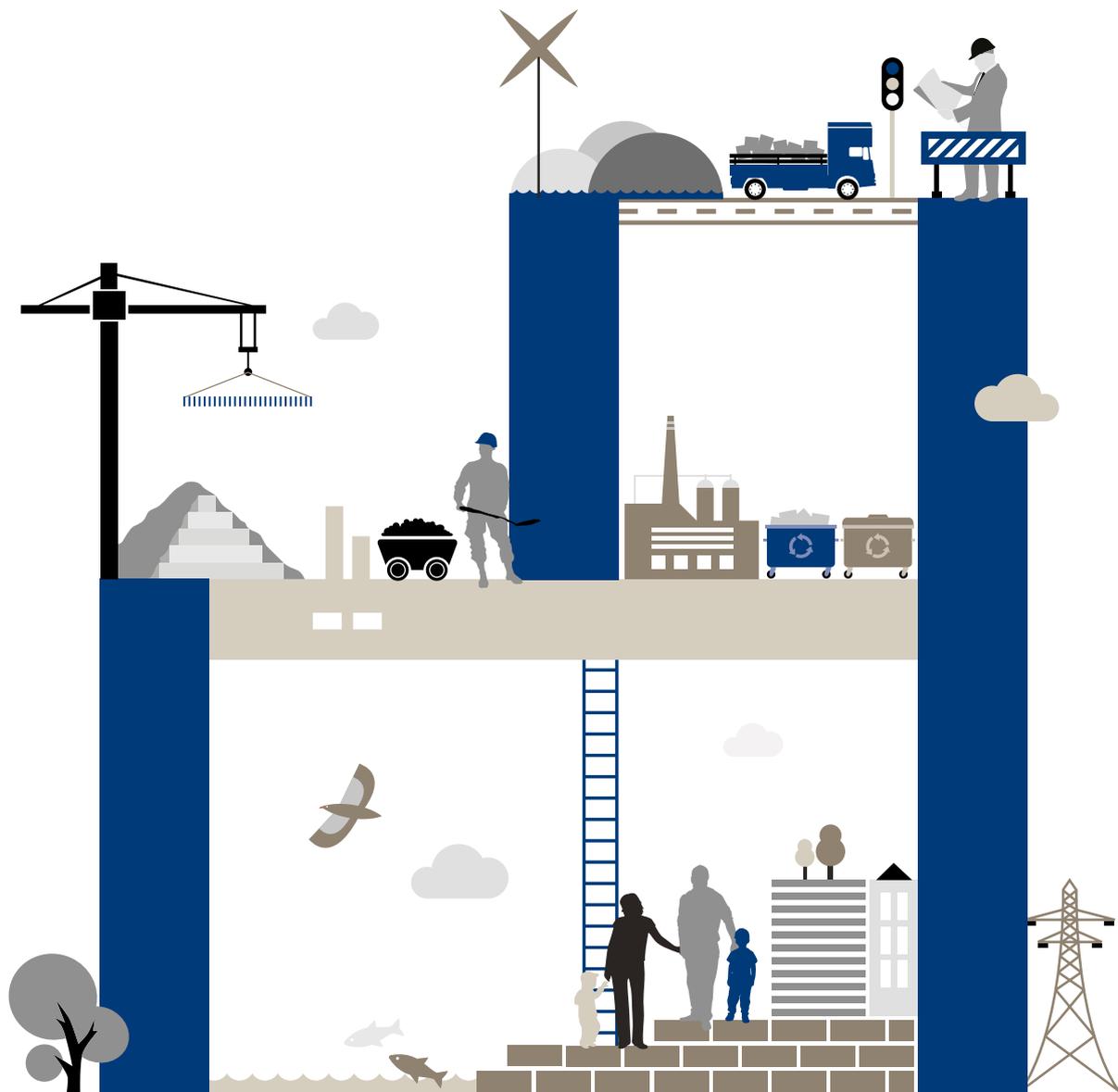


# Integrated Profit and Loss Statement 2014

Measuring our triple bottom line



# Measuring our triple bottom line

People, planet, profit

“As part of the Holcim Sustainable Development Ambition 2030, Integrated Profit and Loss (IPL) statements were calculated for three Group companies. This helped in identifying where the most potential exists not just to reduce impacts, but to add value across the triple bottom line. We have now prepared the first IPL calculation for the Holcim Group as a whole. This provides a broad picture of where the Group needs to act to create even more value for all stakeholders. ”

Bernard Fontana

CEO



Thomas Aebischer

CFO



“This IPL statement gives us an indication of the scale of our extended impacts and provides a compass pointing us in the direction of increasing sustainable value creation for shareholders, society and the environment. I believe that it is a good addition to the rest of our public reporting and will become more and more useful over the years when we can show a trend. ”



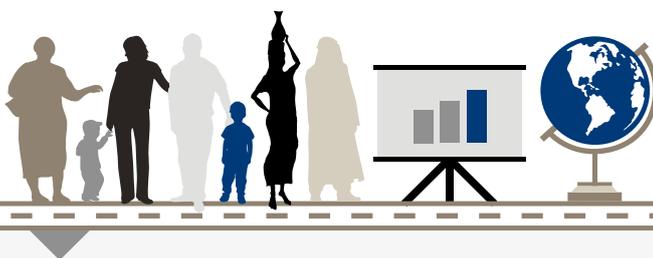
# Introduction

To achieve our long-term sustainability ambitions, we must establish where we need to focus our efforts so that we can maximize our financial, socio-economic and environmental value creation. With this aim, we have endeavored to measure the impact of our operations across the triple bottom line: people, planet and profit. The result, the first Holcim IPL statement, is shown in the following pages.

The statement is a tool to allow us to understand – and share with stakeholders – the extent of our impacts on society and the environment, and to track progress against the Holcim Sustainable Development Ambition 2030.

We believe that the tool will enhance our decision-making processes and sustain value creation in the long term, by raising awareness of the risks and opportunities posed by externalities (through quantification and monetization). The process will allow us to bring the three dimensions of people, planet and profit into our investment decision-making and to compare options under different scenarios.

By using this tool, we seek to build an objective and transparent base, for better strategy setting and better decision making. The statement and methodology, developed in conjunction with KPMG\*, depends on a set of assumptions. The main assumptions used in calculating the statement are shown in the assumptions section on page 9. We are aware that these assumptions can, and indeed should, be challenged. By publishing this statement, we seek to contribute to the debate and the discussion on developing robust methodologies for companies and sectors to measure and report on the financial value, positive and negative, of externalities.<sup>1</sup>



We need to focus our efforts so that we can enhance the value we add to people, profit and the planet.

<sup>1</sup> An externality can be defined as an economic, social or environmental benefit that a company creates for society for which it is not directly or fully rewarded in the price of its goods and services or an economic, social or environmental cost that a company inflicts on society for which it does not directly pay a price.

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# Glossary

This glossary contains a definition of the terms used in the IPL. It should be used in conjunction with the assumptions section of the report and the annex, where the calculations and prices used in the statement are detailed.

**Air emissions** – emissions to air other than CO<sub>2</sub> – for example, NO<sub>x</sub>, SO<sub>2</sub> and dust emissions.

**Biodiversity** – the variety of plant and animal life in a particular habitat. In the IPL we consider both negative impacts (hectares of land disturbed) and positive impacts (hectares of land rehabilitated).

**CO<sub>2</sub> downstream** – CO<sub>2</sub> emissions reduced as a result of the use of our products and services down the value chain. We are still developing the methodology to measure this and will report in future IPLs.

**CO<sub>2</sub> upstream and own operations** – Scope one and two CO<sub>2</sub> emissions resulting from the manufacturing of our products, including those occurring from purchased goods and services – ie: electricity purchases and logistics.

**Environmental incidents** – events leading to significant environmental damage such as oil or pollutant spills. There were no such incidents reported by Holcim Group companies in 2014.

**Externality** – an externality can be defined as an economic, social or environmental benefit that a company creates for society for which it is not directly or fully rewarded in the price of its goods and services or an economic, social or environmental cost that a company inflicts on society for which it does not directly pay a price.

**Inclusive business** – inclusive business initiatives are initiatives that keep their “for profit” nature, while contributing to addressing social problems by including customers at the base of the pyramid.

**Industrial accidents** – fatalities or injuries sustained by employees, contractors or third parties occurring as a result of Holcim activities.

**Retained value** – the sum of capital retained in a business. We have calculated this as EBITDA minus taxes, interest paid and dividends. Further details, including references to the relevant sections in the Holcim Annual Report and Accounts 2014, can be found in the assumptions section.

**Secondary resources** – alternative fuels and raw materials used. This includes:

- Alternative fuels to replace traditional fossil fuels in the manufacturing process – for example waste derived fuels.
- Alternative materials used in the composition of our products – for example mineral components such as blast furnace slag or bottom fly ash to replace clinker in cement, or alternative aggregates such as washed copper slag in concrete.

**Stakeholder value** – the quantified benefit to society at large from the provision of salaries, the payment of direct and indirect taxes, interest paid to creditors and dividends to shareholders.

**Strategic social investment** – these are investments that sustainably improve people’s quality of life, by enabling the implementation of activities in the areas of education, community development and infrastructure, contributing to capacity building and empowerment of stakeholders.

**Skills out** – an estimate of the wider social benefits of training and development - the social benefits derived from the skills of our former employees.

**Waste** – the waste generated as a result of our business activities that is either landfilled or incinerated. See the assumptions section for further details. Waste that is co-processed in our kilns as an alternative fuel is included under “secondary resources.”

## Why an IPL?

The IPL was developed in the context of the Holcim Sustainable Development Ambition 2030. The Ambition, published in June 2014, is aligned with our vision “to provide foundations for society’s future.” The overarching aim of the Ambition is to significantly increase interest in, and the uptake of, our innovative range of sustainability enhanced solutions. The Ambition states: “By 2030, we aspire to generate one-third of our revenue from our portfolio of Sustainability Enhanced Solutions.”

**Solutions**  
2030

**Sustainability Enhanced Solutions**  
Grow our portfolio of sustainability solutions to 1/3 of revenues by 2030

<p><b>Climate</b> Acting to cap the carbon footprint across the lifecycle</p> <ul style="list-style-type: none"> <li>Achieve no net increase in absolute carbon emissions vs 2013 across the lifecycle</li> </ul>	<p><b>Resources</b> Minimize the use of primary resources; show a positive impact on water and a positive change for biodiversity</p> <ul style="list-style-type: none"> <li>Valorize 1 Bio tonne of waste and other secondary materials</li> <li>Water index in water scarce areas &gt; 0 in 2030</li> <li>Biodiversity condition index 2030 &gt; 2020</li> </ul>	<p><b>Communities</b> Invest strategically and develop “Inclusive business models” to create positive social impact and business returns</p> <ul style="list-style-type: none"> <li>Improve the quality of life – in particular with regard to livelihoods and shelter – of 100 million people at the base of the pyramid</li> </ul>
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**Holcim Sustainable Development Ambition 2030**

Strength. Performance. Passion.

Holcim

With the IPL we are able to quantify the proven benefits of these solutions. When compared to other products, they offer superior environmental and social performance in the manufacturing, use and disposal phases of buildings and other infrastructure. In particular, these solutions will help us to take advantage of the growing number of opportunities arising in the sustainable and resilient construction segment.

The Sustainable Development Ambition 2030 contains aspirations and intermediate targets in three main areas – Climate, Resources and Communities – as detailed by the diagram left.

The IPL tracks how the initiatives, products and solutions we have developed to grow our Sustainability Enhanced Solutions portfolio add value across the triple bottom line.

With the increasing focus on “integrated reporting,” the IPL provides a basis for a discourse on how all a company’s resources and activities are impacting value. It will help businesses to think holistically about their strategy and plans, make informed decisions and manage key risks to build investor and stakeholder confidence and improve future performance.

## Piloting for success

The IPL was initially piloted in 2013 by Ambuja Cements (ACL), our Group company in India, in conjunction with KPMG. Its “True Value” project estimated the positive and negative impacts of specific areas, such as water use and rainwater harvesting, carbon and other emissions, the use of alternative fuels and raw materials, and the estimated economic value added to society.

The study showed that, overall, ACL has a positive net financial impact on environmental and social externalities, but highlighted where the company needs to invest in reducing negative values – especially in the environmental domain.

The tool was used to identify where 1 US dollar invested would bring the highest societal return. The study specifically demonstrated that ACL could profitably maximize its “true value” by focusing its resources on reducing carbon emissions, water and further expanding its social engagements. Further details of the ACL project can be found in its 2013 sustainability report, available online ([www.ambujacement.com](http://www.ambujacement.com)).

Implementing the Sustainable Development Ambition 2030, including an IPL statement, was piloted in 2014 by three Holcim Group companies: Holcim Costa Rica, Holcim Indonesia and Aggregate Industries (UK). The aim of the pilots was to establish how we can translate our Ambition into actions, how much this will cost and what the Ambition will bring to the Group.

Ajay Kapur  
CEO Ambuja  
Cements Ltd, India



“ We have to combine the financial and quantified externality data that can help us measure the value a company creates holistically. We also need data about the value we create, as the future belongs to those industries that can anticipate resource depletion and take corrective action. The business community must assess how much value it creates, as a measurement-led approach to sustainability will be the cornerstone of all businesses in the future. ”

## An emerging discipline

The quantification of social and environmental impacts in financial terms is an emerging discipline. We will continue working with other interested parties to further develop robust and credible methodologies and use the tool to drive the implementation of the Holcim Sustainable Development Ambition 2030. The Group will now use the IPL as a discussion point and engagement tool with interested stakeholders, including investment analysts, to further improve our methodologies and test our assumptions.

### A brief history of triple-bottom-line accounting

The concept of triple-bottom-line (or people, planet, profit) accounting is not a new one: it's been around for at least 30 years.

The idea was first proposed in academic papers in the 1980s; the Dutch IT firm BSO/Origin issued what are widely believed to be the first environmental accounts in 1990. Since then, several companies, academics, business organizations and others have developed the approach. Notable milestones include the 2006 publication of Michael Porter's Creating Shared Value paper in the Harvard Business Review and the launch of a full Environmental Profit & Loss account by sportswear brand PUMA in 2010.

Today, many of the biggest names in the business world are actively working toward the quantification of non-financial (social and environmental) value

in financial terms. Many are doing so by supporting initiatives led by organizations such as the World Business Council for Sustainable Development (WBCSD), the Natural Capital Coalition and the Social Return on Investment (SROI) Network.

We believe that the IPL will be a valuable addition to our public reporting and will become more and more useful over the years when we can show a trend.

We also believe that monetization provides us with the best available means to identify and compare the material elements of our non-financial value creation, and to build that understanding into our decision making.

We are fully committed to collaborating with other companies and organizations to share knowledge, develop and enhance approaches, and work toward a standardized, common methodology in the future.

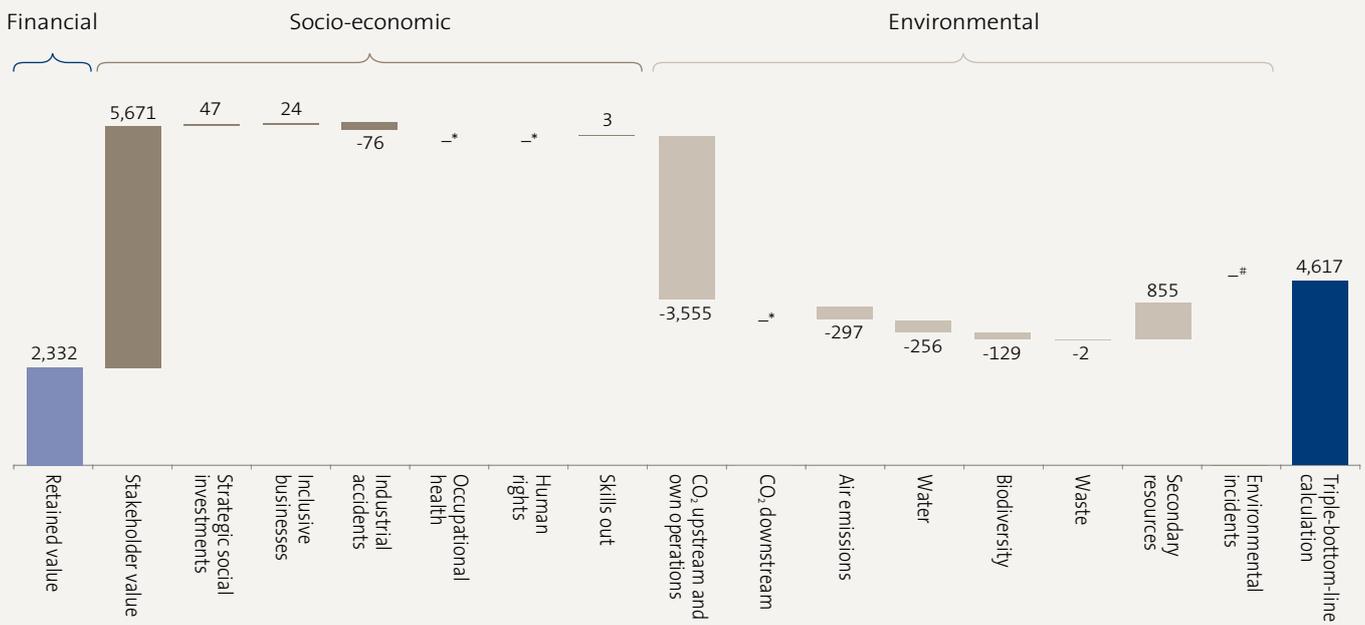


We are fully committed to collaborating with other companies and organizations to share knowledge, develop and enhance approaches, and work toward a standardized, common methodology in the future.

# The IPL

## The Integrated Profit and Loss statement

**Year:** 2014  
**Scope:** Holcim Global  
**Results in:** mio CHF



Triple bottom line can be used to assess opportunities beyond compliance

Compliance with governance, social and environmental requirements and standards

\* Not measured for 2014, but reflected, as we intend to measure in future IPLs.

# No significant incidents in 2014.

The presentation of the IPL above a “compliance bar” shows that the methodology can be used to account for impacts resulting from legally compliant operations that operate in line with international standards. It is not a replacement for social and environmental risk management to ensure respect for those standards.

**Bernard Mathieu**  
Head of Sustainable Development,  
Holcim



“The IPL statement is a key milestone in measuring our sustainability aspirations, as set out in the Holcim Sustainable Development Ambition 2030. The IPL provides a consistent way to measure our progress over time. As we refine the tool, it will allow us to better analyze how externalities have an impact on the bottom line.”

## What the IPL tells us

The development and completion of the first IPL of Holcim is in itself an important achievement, as it created the opportunity to engage on sustainability topics at all levels of the organization, facilitating informed discussions among financial, environmental and social experts.

The IPL confirms that Holcim's overall value to society, taking into account the monetized impacts in the socio-economic and environmental domains, is significantly higher than the financial retained earnings of the company. In particular, the "stakeholder value" calculation shows that our contribution to local economies through the multiplier effect of salaries, and direct and indirect taxes is significant. By being present, we considerably raise living standards and job opportunities in the communities where we operate.

Safety remains one of our greatest challenges, and it should remain our number one priority. The human cost of an accident cannot be monetized, but even if only considering the foregone capacity of a person to generate income, the cost is considerable. We will continue to strive to achieve our Safety Vision of "Zero Harm to People."

CO<sub>2</sub> emissions have proven to have a large negative impact. Holcim has invested and keeps investing to reduce carbon emissions in manufacturing its products. The challenge of carbon is, however, so large that it requires us to look beyond own operations and explore solutions to reduce carbon emissions along the whole value chain of construction. In other words, Holcim needs to develop and provide new products and services which help the end users to reduce emissions. This realization pushed Holcim to set new targets and aspirations as part of the Holcim Sustainable Development Ambition 2030, which include not only carbon efficiency from operations but also emissions avoided by customers through the use of our innovative products. This requires close cooperation with other

players in the value chain (suppliers, customers, designers, developers and regulators) to innovate products and services offered. It also requires different metrics, to be able to measure and track avoided emissions. We are currently working on methodologies to measure CO<sub>2</sub> savings downstream and we are confident that in future years we will be able to demonstrate the positive contribution from innovative products, services and applications.

It is difficult to reflect the positive benefits that concrete offers, such as durability and resilience to climate change. However, our IPL has shown us that the entire product lifecycle needs to be considered, and we will continue working to reflect this more accurately in the future. Conversely, the IPL shows the positive contribution from our use of secondary materials. We anticipate that this contribution will increase as we intensify the use of these materials.

Air emissions and water are two areas of continuous improvement: we have seen from projects in India that we can make a positive contribution in terms of water. The IPL will allow us to track our contributions in these areas.

While the IPL clearly indicates some significant challenges for us, it also points the way to exciting opportunities. We see important opportunities to add significant value through inclusive business projects, such as the Sanitation for Life (S4L) project and Green Building Centres in India. We will continue to work on innovative products and solutions to reduce CO<sub>2</sub> downstream and source secondary resources to replace virgin raw materials.

# Assumptions used in the IPL calculation

## Financial dimension

### Retained value

The sum of capital retained in the business calculated by taking EBITDA and subtracting taxes, interest and dividends. The relevant references in the Holcim Annual Report 2014 are:

- **EBITDA:** CHF 4,156 – page 10 – Key figures Holcim Group.
- **Taxes:** CHF 588 – Consolidated Statement of Income page 151 and page 183 note 14.
- **Interest:** CHF 515 – Financial expenses (CHF 611 – note 13 page 183) minus interest earned on cash and marketable securities (CHF 96 – note 12 page 182).
- **Dividends:** CHF 721 – dividends paid on ordinary shares (CHF 424) plus dividends paid to minority shares (CHF 297) – both from cashflow statement page 156.

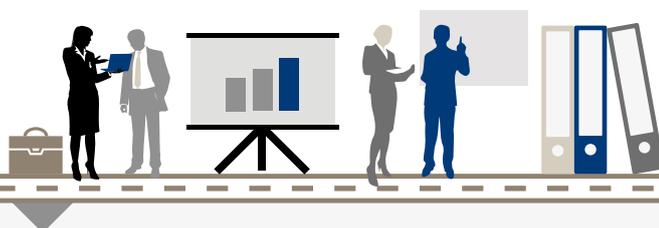
## Socio-economic dimension

### Stakeholder value – multiplied socio-economic impacts

The multiplier effect of cash transfers to employees (salaries), governments (direct and indirect taxes such as property and municipal taxes), creditors (interests) and shareholders (dividends). This has been reflected at a ratio of 1:1 on 2014 expenditure. This number has been corrected for economic inefficiencies, based on the countries in which Holcim operates.

The figure included for indirect taxes is a conservative one, based on data collected from the seven countries that represent around 60% of the total global indirect tax charge.

We assume that every dollar transferred will be spent and therefore contributes to the (local) economy. Even if not all of the money transferred is spent, the assumption of the 1:1 multiplier is justified due to secondary and tertiary socio-economic ripple effects, caused by the cash transfers through enhanced purchasing power.



Retained value reflects the real cost borne by the company.

### Strategic social investment

Here, we consider the strategic social investment in education, community development, infrastructure, low-income housing and other projects. For each dollar invested, an average multiplier effect is added. This multiplier effect is estimated as follows, based on independent sources:

- **Education:** Calculated by multiplying actual amount spent in 2014 on education projects by a factor of 118%. This figure was derived using the assumptions below.

Investments in education generate public returns from higher income levels in the form of income taxes, increased social insurance payments and lower social transfers. We calculated a return on investment (ROI) for education by linking the average private returns of primary, secondary or high education to the average capita income for high, middle and low-income (G. Psacharopoulos and H.A. Patrinos, 2004<sup>2</sup>). We derived a formula ( $y=37,445x^{0.071}$ ) connecting ROI for education with national incomes (GDP). The multiplier for education ROI used in the tool (118%) is based on the world's average GDP.

- **Infrastructure:** Calculated by multiplying the actual amount spent in 2014 on infrastructure projects by a factor of 250%. This figure was derived using the assumptions below.

Several comprehensive economic reports analyze the short- and long-term economic effects of investments, quantifying how the money spent on infrastructure has an impact on various sectors. Recent economic studies suggested that infrastructure has one of the largest multiplier effects on the economy, accounting for the doubling or tripling of the initial investment (US Congressional Budget Office estimate, The College of William & Mary Thomas Jefferson Program in Public Policy report<sup>3</sup>). The average ROI of 250% as a multiplier is based on these estimates.



We consider strategic social investment in education, community development, infrastructure, low-income housing and other projects.

<sup>2</sup> Source: G. Psacharopoulos and H.A. Patrinos (2004). *Returns to Investment in Education: A Further Update*. Available at: [http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1170954447788/3430000-1273248341332/20100426\\_16.pdf](http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1170954447788/3430000-1273248341332/20100426_16.pdf)

<sup>3</sup> BCG. *The cement sector: a strategic contributor to Europe's future*. Available at: [http://www.cembureau.be/sites/default/files/documents/The\\_Cement\\_Sector\\_-\\_A\\_Strategic\\_Contributor\\_to\\_Europe's\\_Future.pdf](http://www.cembureau.be/sites/default/files/documents/The_Cement_Sector_-_A_Strategic_Contributor_to_Europe's_Future.pdf)

- **Low-income housing:** Calculated by multiplying the actual amount spent in 2014 on low-income housing projects by a factor of 231%. This figure was derived using the assumptions below.

For this indicator, we used the Social ROI on low-income housing evaluated by Salman & Aslam (2009) for a case study in Pakistan<sup>4</sup>. The study evaluates the social purpose benefit flow over five years, for a cumulative number of plots sold, from 200 (Year 1) to 2,500 (Year 5), assuming 80% occupation rate. It takes into account the economic benefits of low-income housing (savings per family household, additional income due to access to mortgage finance, value of new employment generated and potential gains from income-generation programs), but also values social benefits (savings on medical bills due to improved water access, waste management) as well as environmental benefits (cost saving by waste water treatment). The net present value (NPV) of social and environmental benefits was compared to that of project costs (operational and capital costs) to derive the benefit cost ratio ROI of 231%.

- **Community development/other projects:** Calculated by multiplying the actual amount spent in 2014 on community development and other projects by a factor of 267%. This figure was derived using the assumptions below.

To measure the ROI for community development projects, we used the ROIs for infrastructure (250%), education (118%), low-income housing (231%) and sanitation (550%)<sup>5</sup> to calculate a weighted average assuming that education projects account for 30% of community development and infrastructure investments and 20% of low income housing and sanitation investments. The resulting multiplier we used for community development ROI is 267%.

For these calculations, we assumed that the benefits of these investments are directly earned in the year of investment. In reality, benefits for society are distributed over several years, but if we assume that these investments occur regularly, then this approach can be used.

For future calculations, we are considering developing a methodology based on the number of direct beneficiaries as an input factor. This would allow for a more accurate reflection of efficiency gains in strategic social investments and be better aligned with the Holcim Sustainable Development Ambition aspiration (aiming to improve 100 million lives by 2030).

In addition, the following strategic social contributions are accounted for here, using the infrastructure multiplier:

- strategic partnership with the International Committee of the Red Cross (ICRC), supporting water and habitat projects in conflict-affected settings
- Holcim Foundation for Sustainable Construction, providing seed funding and prize money to cutting-edge projects of innovative architects.

#### **Inclusive business**

Calculated by multiplying the actual amount spent in 2014 on shelter projects by 391% and livelihood projects by 184%. These figures were derived using the assumptions below.

Inclusive business reflects business solutions for low-income customers in the areas of shelter (low-income housing, sanitation) and livelihood (employability, supply chain and distribution chain). Currently, the same quantification method as for strategic social investment is used: investment plus multiplier effect to account for environmental and socio-economic benefits spin-off effects. The multiplier for shelter is based on the average between the ROI for low-income housing and sanitation, and the multiplier for livelihood on the average between the ROI for education and infrastructure.

For future calculations, we are considering developing a methodology based on the number of low-income customers or partners as an input factor.

<sup>4</sup> A. Salman & J. Aslam (2009). *Property rights: ensuring well-being through low-income*. Available at: [http://static.wamda.com/web/uploads/resources/Property\\_rights\\_for\\_low-income\\_housing\\_7yhjY3fi.pdf](http://static.wamda.com/web/uploads/resources/Property_rights_for_low-income_housing_7yhjY3fi.pdf)

<sup>5</sup> G. Hutton (2012). *Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage*. Available at: [www.who.int/water\\_sanitation\\_health/publications/2012/globalcosts.pdf](http://www.who.int/water_sanitation_health/publications/2012/globalcosts.pdf)

### Industrial accidents

Calculated by multiplying the number of fatalities by CHF 780 168 and injuries by CHF 33 789. These figures were derived using the assumptions below.

The figure calculated reflects the economic costs due to injury or loss of life. Costs include social cost for the victim such as loss of current and future income, and medical costs. Further, we have included the costs for community, including lost revenue, social welfare payments and rehabilitation costs.

Costs for the employer were not taken into account, since these are already reflected in the financial section of the IPL.

For fatalities and injuries, the data was based on an Australian research group (Safe Work Australia 2012)<sup>6</sup>. The data was adjusted for GDP, based on the countries Holcim operates in.

### Occupational health

This element was not quantified in 2014.

For future calculations, we aim to develop a methodology to account for lost income-generating capacity based on occupational health impacts (e.g. stress-related diseases, ergonomics).

### Human rights

Not quantified in 2014.

The objective of this category is to account for any potential adverse human rights impacts in the reporting year. A methodology needs to be developed, taking into account the results of internal human rights assessments and reports received through processes such as an integrity line. Positive human rights impacts (e.g. human rights education for subcontractors) can also be included here.

### Skills out

Calculated by multiplying the total training spend in 2014 by the annual turnover rate and the social return rate on education.

This approach enables us to estimate the wider social benefits of training (i.e. social benefits felt by our former employees). The benefits of training felt by those people who remain at Holcim will be visible internally through efficiency gains and increased revenues.



<sup>6</sup> [http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/660/Cost of Work-related injury and disease.pdf](http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/660/Cost%20of%20Work-related%20injury%20and%20disease.pdf)

## Environmental dimension

### CO<sub>2</sub> upstream and own operations

Calculated by multiplying the tonnes of absolute gross CO<sub>2</sub> emissions by USD 29 (CHF 27). This figure was derived using the assumptions below.

The amount of CO<sub>2</sub> considered corresponds to our absolute gross emissions (Scope 1, 2 and 3) over a full calendar year. The total tonnes of CO<sub>2</sub> are multiplied by its societal value, which we assumed to be 29 USD/tonne (t) in 2014.

We acknowledge that there are a large range of estimates of the CO<sub>2</sub> societal value. We based our figure on the Stern report (assuming 25 USD/t in 2007, and then inflating it to reflect the seven years that had elapsed), combined with prevalent assumptions used by governments that internalize the cost of CO<sub>2</sub>.

Notably, for the purposes of comparison, we considered that, in its impact assessment of the Emission Trading Directive, the European Commission assumes a price of CO<sub>2</sub> of 30 €/t in 2020. In addition, based on the analysis made by the Environmental Protection Agency, and with an intermediate discount factor of 3%, the corresponding value of CO<sub>2</sub> is 32 USD/t.

### CO<sub>2</sub> downstream

Not quantified in 2014.

We aim to develop a methodology to account for CO<sub>2</sub> savings along the value chain thanks to the use of our product compared to ordinary solutions.

### Air

The damage costs of air pollutants were retrieved from studies using the Impact Pathway Analysis to measure the relationship between the concentration of a pollutant and its impacts on affected receptors (social and environmental) and monetize the damages.

The social and damage costs of emissions were calculated as follows:

- **Particulate matters:** Calculated by multiplying the emissions in 2014 by a monetary figure derived using the assumptions below.

The respective values used can be found in the annex. The damage costs of particulate matters (e.g. SO<sub>x</sub>, NO<sub>x</sub> and VOCs) were based on a study<sup>7</sup> considering five impacts: negative health effects; reduced crop yields; material corrosion; effects on timber; and acidification of waterways.

Health costs were estimated based on the value of a statistical life and accounted for the majority of the total cost of air pollution, mainly resulting from the effects associated with fine particles and ground-level ozone pollution.

This study is based on global assumptions, using global averages for emission factors, without taking into account the varied dispersion of air pollutants, differences in ambient air pollution levels or local specific factors. The study also considers that dose-response functions for health impacts are linear at the population level, while the use of five categories may underestimate the true extent of the damage. However, this approach can be used as a first approximation to value air pollution impacts.

<sup>7</sup> Trucost Plc (2013). *Natural Capital at Risk: The Top 100 externalities of business*. Available at: [www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB\\_Final\\_Report\\_v5.pdf](http://www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB_Final_Report_v5.pdf)

- **Heavy metal emissions:** Calculated by multiplying the emissions in 2014 by a monetary figure derived using the assumptions below. The respective values used can be found in the annex.

The damage costs of heavy metal emissions (Hg, Pb, Cd, As, Cr and Ni) and organic micro-pollutants (dioxins and furans) were determined from a study evaluating damage costs based on national averages for 32 countries, related to health effects from ingestion and inhalation (cancers but also neuro-toxic effects leading to IQ loss, as well as subsequent loss of earnings potential for Pb and Hg)<sup>8</sup>.

The analysis quantified burden, dispersion and exposure (deposition velocities) to assess uptake by plants and animals and the impact on the human body (via consumption of tap water, agricultural crops or animal products).

The damage costs were then calculated by multiplying physical impacts by the appropriate cost:

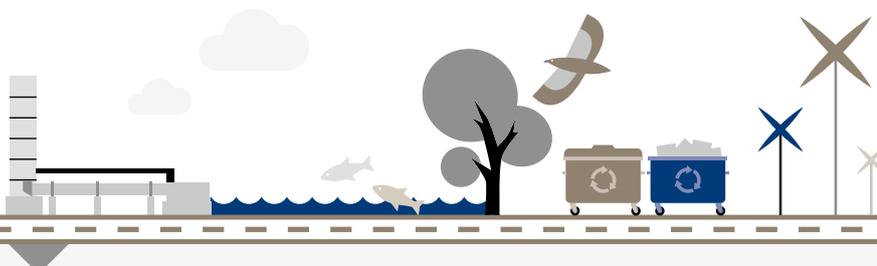
- the unit cost for cancer includes medical expenses, wage and productivity losses, and the willingness to pay to avoid the pain and suffering inflicted by the disease
- the unit cost for IQ includes expenses associated with remedial learning and loss in potential lifetime earnings (costs are discounted at 3% but without consideration given to increases in willingness to pay with economic growth in future years).

The study does not consider the effects of groundwater contamination, adjustment of ingestion dose to account for food preparation and the implementation of remedial strategies (e.g. filtration for tap water) or the potential contribution of heavy metals and organic-micro pollutants to other impacts of fine particulate matter. Therefore, total impact attributed to these pollutants can be underestimated, but data from this study is used as an approximation to value their impacts.

#### **Water**

Calculated by multiplying the amount of water consumed in own operations by CHF 4.32/m<sup>3</sup> and the amount of water harvested by CHF 3.44/m<sup>3</sup>. These costs were derived using the assumptions below.

The societal cost of water is calculated based on scarcity level of the location where water is consumed or harvested. The (site-specific) scarcity price is provided by a 2013 Trucost report and the local scarcity level is determined by the Aquastat tool from the Food and Agriculture Organization<sup>9</sup>. Since water is withdrawn and harvested in different locations, the resulting average cost per cubic meter is different.



We consider the societal value of CO<sub>2</sub>, air pollutants and other emissions, water, biodiversity and waste.

<sup>8</sup> EEA (2011). *Revealing the cost of air pollution from industrial facilities in Europe*. Available at: [www.eea.europa.eu/publications/cost-of-air-pollution](http://www.eea.europa.eu/publications/cost-of-air-pollution)

<sup>9</sup> [www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB\\_Final\\_Report\\_v5.pdf](http://www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB_Final_Report_v5.pdf)

**Biodiversity**

Calculated by multiplying the net amount of hectares impacted (either disturbed or rehabilitated) by CHF 4,546/ha. These figures were derived using the assumptions below.

The net area rehabilitated or disturbed is calculated by subtracting the total hectares of rehabilitated land from the total hectares of disturbed land.

These figures do not apply to the changes observed in the reporting year, but to the total number of hectares under company responsibility. The evaluation is based on an estimated distribution of habitats: in forests; shrublands/woodlands; grasslands; ruderal habitats; bare rocks; wetlands; rivers/streams; lakes/ponds; mangroves; salt marshes; coastal zones; and cultivated land.

Based on a 2009 Economics of Ecosystems and Biodiversity (TEEB) report<sup>10</sup>, and based on the estimated habitat distribution of impacted land, the weighted average estimated annual restoration benefits are between USD 1,010/ha and USD 73,900/ha.

**Waste**

Calculated by multiplying the amount of waste landfilled by CHF 22/t and waste incinerated by CHF 29/t. These figures were derived using the assumptions below.

This element covers production waste (bypass dust, cement kiln dust, sludge and returned concrete), as well as reduced landfill thanks to co-processing of waste in the cement kiln.

The baseline is assumed to be 80% landfill and 20% incineration. The CO<sub>2</sub> saved from the replaced fossil fuel is accounted for under CO<sub>2</sub>. A price of USD 22.36/Mt is assumed for the damage cost per tonne of waste<sup>11</sup>.

**Secondary resources**

Calculated by multiplying the amount of alternative fuels and raw materials used by CHF 23/t and industrial mineral components (IMC) and alternative aggregates by CHF 22/t. These figures were derived using the assumptions to follow.

This category includes alternative fuels and raw materials, mineral components (MIC), and reported alternative and recycled materials from ready-mix concrete (RMX) and aggregates, including asphalt.

To value the environmental impact of these secondary resources, the weighted average of the external cost of waste incinerated and waste landfilled (assuming 80% landfill and 20% incineration) was used for alternative fuels and raw materials, and the external cost of waste landfilled to value industrial MIC and alternative aggregate (Rabl, Spadaro and Zoughaib, 2008)<sup>11</sup>.

**Environmental incidents**

Not quantified in 2014.

The objective of this category is to account for any potential environmental incidents related to our operations (such as spills or fires) in the reporting year. A valuation methodology will be developed.

<sup>10</sup> [www.teebweb.org/wp-content/uploads/Study%20and%20Reports/Additional%20Reports/TEEB%20climate%20Issues%20update/TEEB%20Climate%20Issues%20Update.pdf](http://www.teebweb.org/wp-content/uploads/Study%20and%20Reports/Additional%20Reports/TEEB%20climate%20Issues%20update/TEEB%20Climate%20Issues%20Update.pdf)

<sup>11</sup> A. Rabl, J. V. Spadaro and A. Zoughaib (2008) *Environmental Impacts and Costs of Solid Waste: A Comparison of Landfill and Incineration*. Available at: [www.stefanomontanari.net/sito/images/pdf/spadaro.pdf](http://www.stefanomontanari.net/sito/images/pdf/spadaro.pdf)

# Annex

## Values used in the IPL

DOMAIN	TOPIC	INDICATOR	BASE PRICE/ MULTIPLIER	UNIT	BASE YEAR	INFLATION FACTOR*	PRICE/ MULTIPLIER ADJUSTED FOR INFLATION	PRICE/ MULTIPLIER USED FOR CALCULATION IN CHF**
Socio-economic	Industrial accidents	Number of fatalities			See page 13 for details			
		Number lost time injuries			See page 13 for details			
	Strategic social investments	Education	118%	%	2014	1.000	118%	<b>118%</b>
		Community development and "other" projects	267%	%	2014	1.000	267%	<b>267%</b>
		Low-income housing (SSI)	231%	%	2014	1.000	231%	<b>231%</b>
	Inclusive business	Infrastructure	250%	%	2014	1.000	250%	<b>250%</b>
		Sanitation	550%	%	2014	1.000	550%	<b>550%</b>
		Shelter (products and services)	391%	%	2014	1.000	391%	<b>391%</b>
		Livelihood (employability, supply chain, distribution channels)	184%	%	2014	1.000	184%	<b>184%</b>
	Stakeholder value	Salary		%	2014	1.000	100%	<b>100%</b>
		Finance cost		%	2014	1.000	100%	<b>100%</b>
		Tax	100.00%	%	2014	1.000	100%	<b>100%</b>
		Indirect tax		%	2014	1.000	100%	<b>100%</b>
		Dividend		%	2014	1.000	100%	<b>100%</b>
	Environmental	CO <sub>2</sub> upstream	CO <sub>2</sub> upstream & own operations	25	USD/tonne	2007	1.173	29
PM			8,080	USD/tonne	2009	1.100	8,884	<b>8,174</b>
SOx			1,445	USD/tonne	2009	1.100	1,589	<b>1,462</b>
NOx			1,325	USD/tonne	2009	1.100	1,457	<b>1,340</b>
VOC			845	USD/tonne	2009	1.100	929	<b>855</b>
Dioxins and furans			27,000	EURO/g	2009	1.100	29,668	<b>27,313</b>
Air		Hg	1,885,000	EURO/tonne	2009	1.092	2,058,600	<b>2,490,906</b>
		Cd	29,000	EURO/tonne	2009	1.092	31,671	<b>38,322</b>
		As	349,000	EURO/tonne	2009	1.092	381,141	<b>461,181</b>
		Pb	965,000	EURO/tonne	2009	1.092	1,053,872	<b>1,275,185</b>
		Cr	38,000	EURO/tonne	2009	1.092	41,500	<b>50,215</b>
		Ni	3,800	EURO/tonne	2009	1.092	4,150	<b>5,021</b>
Water		Water consumed – own operations	4.27	USD/m <sup>3</sup>	2009	1.100	4.70	<b>4.32</b>
		Water harvested	3.40	USD/m <sup>3</sup>	2009	1.100	3.73	<b>3.44</b>
Biodiversity		Hectares disturbed	4,211	USD/ha	2007	1.173	4,941	<b>4,546</b>
	Hectares rehabilitated	4,211	USD/ha	2007	1.173	4,941	<b>4,546</b>	
Waste	Waste landfilled	21	USD/tonne	2008	1.141	24	<b>22</b>	
	Waste incinerated	28	USD/tonne	2008	1.141	32	<b>29</b>	
Secondary resources	Alternative fuels and raw materials	22	USD/tonne	2008	1.141	26	<b>23</b>	
	Industrial mineral components	21	USD/tonne	2008	1.141	24	<b>22</b>	
	Alternate aggregates	21	USD/tonne	2008	1.141	24	<b>22</b>	

\* Costs and benefits were adjusted for inflation.

\*\* USD converted at CHF 0.92, Euro converted at CHF 1.21 and AUD at 0.8.

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## Disclaimer

The IPL statement is not part of Holcim's financial reporting or projections. The IPL is intended to raise awareness of externalities that may or may not affect Holcim's business, and to assess their relative importance. It contains preliminary considerations which may be subject to change. Furthermore, the IPL may also change, for example, as valuation techniques and methodologies evolve. It should be considered as indicative and it does neither represent any final factual conclusions nor is it intended to assert any factual admission by any person regarding the impact of Holcim or any of its related parties on environment or society.