LAFARGEHOLCIM INTEGRATED PROFIT AND LOSS STATEMENT 2015

ASSUMPTIONS USED IN THE IP&L CALCULATION

LafargeHolcim

ASSUMPTIONS USED IN THE IPL CALCULATION

Taking into account the merger of Lafarge and Holcim as of July 2015, the IPL has been developed for the company in scope as per IFRS consolidation view. Therefore, the environmental and social indicators have been adjusted to reflect the scope of LafargeHolcim Ltd over the period 2015. We believe this scope is the most appropriate to assess the triple bottom line performance of LafargeHolcim throughout the year of the merger.

1 FINANCIAL DIMENSION

1.1 Retained value (Mio CHF)

The sum of capital retained in the business calculated by taking EBITDA and subtracting taxes, interest and dividends. The relevant references in the LafargeHolcim Annual Report 2015 are:

- EBITDA: CHF 4,761 –Key figures LafargeHolcim Group, page 168.
- Taxes: CHF 781 – Consolidated Statement of Income, page 169.
- Interest: CHF 934 – Financial expenses (CHF 1060 – note 12, page 214) minus interest earned on cash and marketable securities (CHF 126 – note 11, page 214).
- Dividends: CHF 720 – dividends paid on ordinary shares (CHF 424) plus dividends paid to minority shares (CHF 296) – both from consolidated statement of cash flows, page 174.

2 SOCIO–ECONOMIC DIMENSION

2.1 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), finance cost (interests) and shareholders (dividends) has been reflected at a ratio of 1:1 on 2015 expenditure. This number has been corrected for economic inefficiencies, based on the countries in which LafargeHolcim operates based on the Corruption Perceptions Index.

The figure included for indirect taxes is the same figure as reported in the legacy Holcim IPL for 2014. This was based on data collected from the seven countries that represented 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.

2.2 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 2015 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[1]).

  We derived a formula connecting ROI for education with national incomes (GDP). The multiplier for education ROI used in the tool (118%) is based on the average GDP of the countries in which LafargeHolcim operates based on the income in that country.

1 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

- **Infrastructure:** Calculated by multiplying the actual amount spent in 2015 on infrastructure projects by a factor of 250%. This figure was derived from a report by BCG[2]). The average of factors in this report was taken: 250%, and used as a multiplier.
- **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[3]. The study evaluates the social purpose benefit flow over five years. 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 2015 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%)[4]. A weighted average was calculated assuming that education and infrastructure projects account for 30% of community development project. Further we assumed that sanitation and low income housing account for 20%. 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 we believe this approach best reflects the social returns.

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 LafargeHolcim 2030 Plan (aiming to improve 75 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
- LafargeHolcim Foundation for Sustainable Construction, providing seed funding and prize money to cutting-edge projects of innovative architects.

2.3 Inclusive business

Calculated by multiplying the actual amount spent in 2015 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 and 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.

2 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
3 A. Salman & J. Aslam (2009). Property rights: ensuring well-being through low-income housing. Available at: http://static.wamda.com/web/uploads/resources/Property_rights_for_low-income_housing_7yhjY3fi.pdf
4 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

2.4 Occupational injuries

Calculated by multiplying the number of fatalities by CHF 769,042 and lost time injuries by CHF 33,307. 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 person affected 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)[5]. The data was adjusted for GDP, based on the countries LafargeHolcim operates in.

2.5 Occupational health

This element was not quantified in 2015.

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).

2.6 Human rights

Not quantified in 2015.

The objective of this category is to account for any potential adverse human rights impacts. 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.

2.7 Skills out

Calculated by multiplying the total training spend in 2015 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 LafargeHolcim will be visible internally through efficiency gains and increased revenues.

3 ENVIRONMENTAL DIMENSION

3.1 CO_2 upstream and own operations

Calculated by multiplying the tonnes of absolute gross CO_2 emissions by USD 29 (CHF 28). This figure was derived using the assumptions below.

The amount of CO_2 considered corresponds to our absolute gross emissions (Scope 1, 2 and 3) over a full calendar year. The total tonnes (t) of CO_2 are multiplied by its societal value, which we assumed to be 29 USD/tonne in 2015.

We acknowledge that there are a large range of estimates of the CO_2 societal value. We based our figure on a combination of reports, including the Stern report (assuming 25 USD/t in 2007), analysis made by the Environmental Protection Agency (29 USD/t with a discount rate of 3% and inflation), combined with prevalent assumptions used by governments that internalize the cost of CO_2.

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_2 of 30 €/t in 2020.

5 Safe Work Australia, The Cost of work-related injury and illness for Australian employers, workers and the community: 2008-2009, 2012, http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/660/Cost%20of%20Work-related and disease.pdf

3.2 CO_2 downstream

Not quantified in 2015.

We aim to develop a methodology to account for CO_2 savings along the value chain related to the use of our product compared to mainstream solutions.

3.3 Air

The damage costs of air pollutants were retrieved from studies that 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:

- **Air emissions (non-metal):** Calculated by multiplying the emissions in 2015 by a monetary figure derived using the assumptions below. The respective values used can be found in the annex. The damage costs of non-metal air emissions (e.g. PM, SO_X, NO_X, VOC, Dioxins and furans) were based on two studies[6,7].

  The TruCost study (for PM, SO_X, NO_X and VOC) considers five impacts: negative health effects; reduced crop yields; material corrosion; effects on timber; and acidification of waterways. The numbers are 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 damage costs of 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. The assumptions on this study are found in the heavy metal emissions section.

- **Heavy metal emissions:** Calculated by multiplying the emissions in 2015 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) 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)[8].

  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.

6 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 14
7 EEA (2011). *Revealing the cost of air pollution from industrial facilities in Europe*. Available at: www.eea.europa.eu/publications/cost-of-air-pollution
8 EEA (2011). *Revealing the cost of air pollution from industrial facilities in Europe*. Available at: www.eea.europa.eu/publications/cost-of-air-pollution

3.4 Water

An assessment has been done to analyze whether the valuation approach used in previous year's IP&L should be updated. Several studies have been examined including studies from the FAO, Nestlé and Kering[9]. Based on these insights, it was decided to use the same valuation approach as previous year. In the future, new assessments will be done to evaluate whether new valuation factors should be used.

Calculated by multiplying the amount of water consumed in own operations by CHF 10.44/m^3 and the amount of water harvested by CHF 11.04/m^3. 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[10]. Since water is withdrawn and harvested in different locations, the resulting average cost per cubic meter is different.

3.5 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[11], and estimated habitat distribution of impacted land, the weighted average estimated annual restoration benefits are between USD 1,010/ha and USD 73,900/ha.

3.6 Secondary resources and waste

Secondary resources are calculated by multiplying the amount of alternative fuels and raw materials used by CHF 21/t and industrial mineral components (IMC) and alternative aggregates by CHF 20/t. These figures were derived using the assumptions below.

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 (CHF 26/t) and waste landfilled (CHF 20/t) (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)[12].

3.7 Environmental incidents

Not quantified in 2015.

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

9 http://www.kering.com/sites/default/files/document/kering_epl_methodology_and_2013_group_results_0.pdf
http://www.veoliawatertechnologies.com/sites/g/files/dvc471/f/assets/documents/2014/10/32794True-Cost-of-Water-2014-LR_0.pdf
http://www.valuingnature.ch/resources/galeries/20/MeasuringValue_Public_March2015c.pdf
http://www.fao.org/3/a-i3991e.pdf
10 www.naturalcapitalcoalition.org/js/plugins/filemanager/files/TEEB_Final_Report_v5.pdf15
11 www.teebweb.org/wp-content/uploads/Study%20and%20Reports/ Additional%20Reports/TEEB%20climate%20Issues%20update/TEEB%20Climate%20Issues%20Update.pdf
12 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

4 VALUES USED IN THE IP&L

4.1 Socio-economic

Topic	Indicator	Base price/ multiplier	Unit	Base year	Inflation factor*	Price/ multiplier adjusted for inflation	Price/ multiplier used in CHF**
Industrial accidents	Number of fatalities	868,078	AUD/#	2008	1.224	1,062,507	769,042
	Number Lost Time Injuries	37,596	AUD/#	2008	1.224	46,017	33,307
Strategic Social Investments	Education	118%	%	N/A	1	118%	1.18
	Community development and "other" projects	267%	%	N/A	1	267%	2.67
	Low-income housing (SSI)	231%	%	N/A	1	231%	2.31
	Infrastructure	250%	%	N/A	1	250%	2.50
	ICRC	250%	%	N/A	1	250%	2.50
	LafargeHolcim foundation	250%	%	N/A	1	250%	2.50
	Shelter (products and services)	391%	%	N/A	1	391%	3.91
	Livelihood (employability, supply chain, distribution channels)	184%	%	N/A	1	184%	1.84
Stakeholder Value	Salary	100%	%	N/A	1	100%	1
	Finance cost		%	N/A	1	100%	1
	Tax		%	N/A	1	100%	1
	Indirect tax		%	N/A	1	100%	1
	Dividend		%	N/A	1	100%	1

* Costs and benefits were adjusted for inflation

** USD converted at CHF 0.96, Euro converted at CHF 1.07 and AUD at 0.72

4.2 Environmental

Topic	Indicator	Base price/ multiplier	Unit	Base year	Inflation factor*	Price/ multiplier adjusted for inflation	Price/ multiplier used in CHF**
CO_2 upstream & own operations	CO_2 upstream & own operations	25	USD/t	2007	1.179	29	28
Air	PM	8,080	USD/t	2009	1.105	8,929	8,595
	SO_X	1,445	USD/t	2009	1.105	1,597	1,537
	NO_X	1,325	USD/t	2009	1.105	1,464	1,409
	VOC	845	USD/t	2009	1.105	934	899
	Dioxins and furans	27,000	€/g	2009	1.105	29,837	28,721
	Hg	1,885,000	€/t	2009	1.094	2,062,717	2,203,395
	Cd	29,000	€/t	2009	1.094	31,734	33,898
	As	349,000	€/t	2009	1.094	381,904	407,949
	Pb	965,000	€/t	2009	1.094	1,055,980	1,127,998
	Cr	38,000	€/t	2009	1.094	41,583	44,419
	Ni	3,800	€/t	2009	1.094	4,158	4,442
Water	Water Consumed – own operations	9.81	USD/m³	2009	1.105	10.84	10.44
	Water harvested	10.38	USD/m³	2009	1.105	11.47	11.04
Biodiversity	Hectares disturbed	4,211	USD/ha	2007	1.179	4,966	4,780
	Hectares rehabilitated	4,211	USD/ha	2007	1.179	4,966	4,780
Waste	Waste landfilled	16	€/t	2008	1.147	18	20
	Waste incinerated	21	€/t	2008	1.147	24	26
Secondary resources	Alternative Fuels and raw materials	17	€/t	2008	1.147	20	21
	Industrial Mineral Components	16	€/t	2008	1.147	18	20
	Alternative Aggregates	16	€/t	2008	1.147	18	20

* Costs and benefits were adjusted for inflation

** USD converted at CHF 0.96, Euro converted at CHF 1.07 and AUD at 0.72

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