



Strength. Performance. Passion.

# Company Climate Action

PT Holcim Indonesia Tbk

Climate Initiative at Holcim Indonesia



# LH Group Sustainable Development Strategy



We will generate 1/3 of our turnover from solutions with enhanced sustainability performance

	Climate	Circular Economy	Water & Nature	People & Communities
<b>In house</b>	We will reduce net specific CO <sub>2</sub> emissions by 40% per tonne of cement (vs. 1990)	We will use 80 million tonnes of waste-derived resources per year	We will reduce specific freshwater withdrawal in cement operations by 30% We will implement The WASH Pledge on all sites	We want zero fatalities We will reduce LTI FR < 0.20 We will reduce TIFR by 50% We will reduce our disease rate < 0.1 We will have 30% minimum gender diversity at all management levels
<b>Beyond our fence</b>	We will help our customers avoid 10 million tonnes of CO <sub>2</sub> being released from buildings each year through our innovative solutions	We will provide end-of-life solutions for our products and will supply 4 times more recycled aggregates from CDW/RAP	We will make a positive impact on water in water-scarce areas We will show a positive change for biodiversity	We will develop initiatives to benefit 75 million people We will engage in collective action to combat bribery & corruption in high risk countries
<b>Innovative solutions</b>	Low-carbon cement & concrete Insulating concrete Thermal-mass solutions	Recycled aggregates Urban mining solutions Waste management services	Rainwater harvesting Pervious concrete Stormwater protection Vertical green solutions	Affordable housing materials and solutions Affordable sanitation solutions

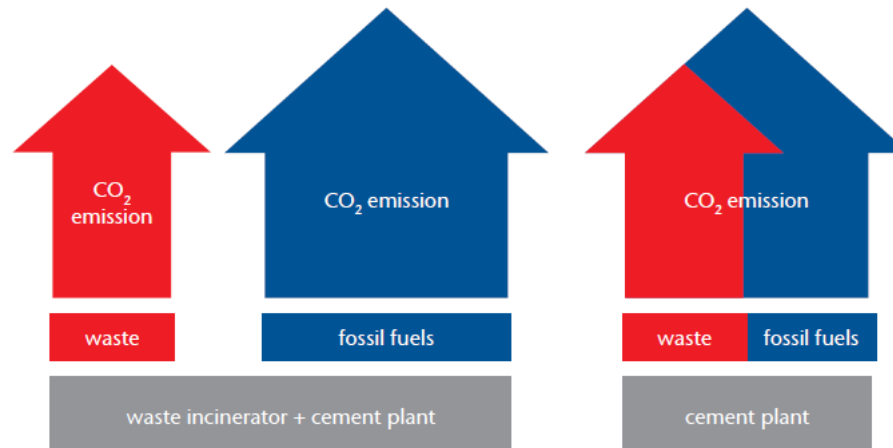
Note: all targets are for 2030. Baseline year is 2015 unless stated otherwise.

CDW: Construction & Demolition Waste, RAP: Reclaimed Asphalt Pavement, WASH Pledge: Water, Sanitation and Hygiene Implementation at the Workplace, LTI FR: Lost Time Injury Frequency Rate, TIFR: Total Injury Frequency Rate

# Carbon Emission Reduction at Cement Industry

- a. **Alternative fuels** – use of less carbon-intensive fossil fuels and more alternative (fossil) fuels and biomass fuels in the cement production process. Alternative fuels include wastes that may otherwise be burnt in incinerators, landfilled or improperly destroyed

Figure 4: Indirect saving of CO<sub>2</sub> emissions by the use of waste as alternative fuel in a cement plant



The following sections describe the framework of the definition of the absolute gross and net CO<sub>2</sub> emission values.

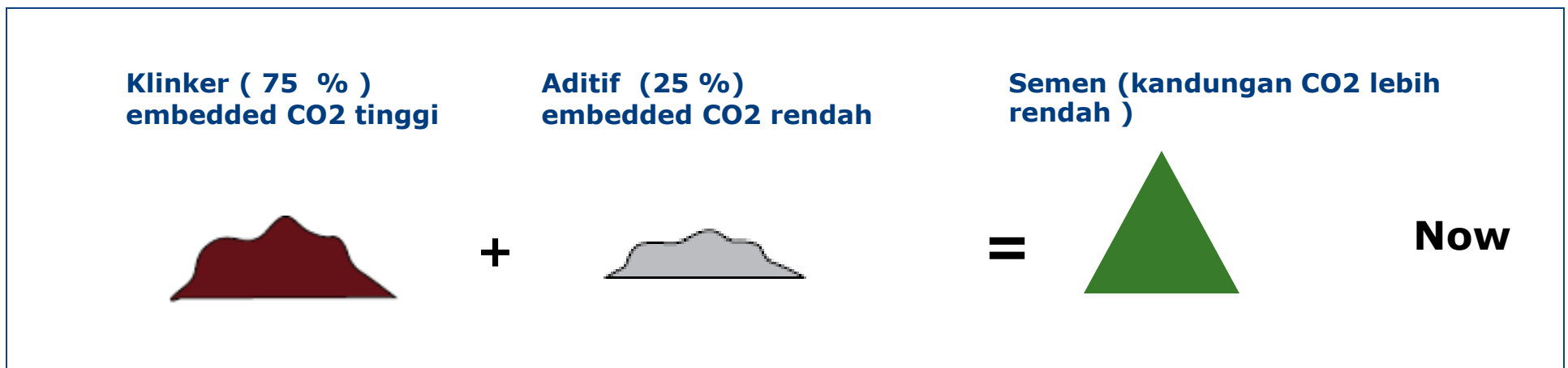
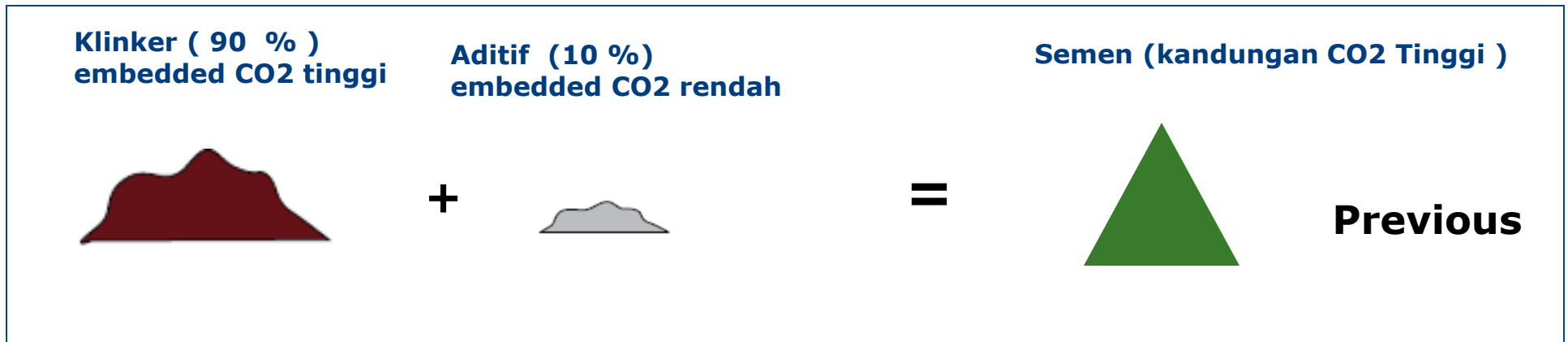
Table 3: Emission sources to be reported within "gross emissions including CO<sub>2</sub> from on-site power generation"

- b. **Thermal and electric efficiency** – deployment of existing state of the art technologies in new cement plants, and retrofit of energy efficiency equipment where economically viable.

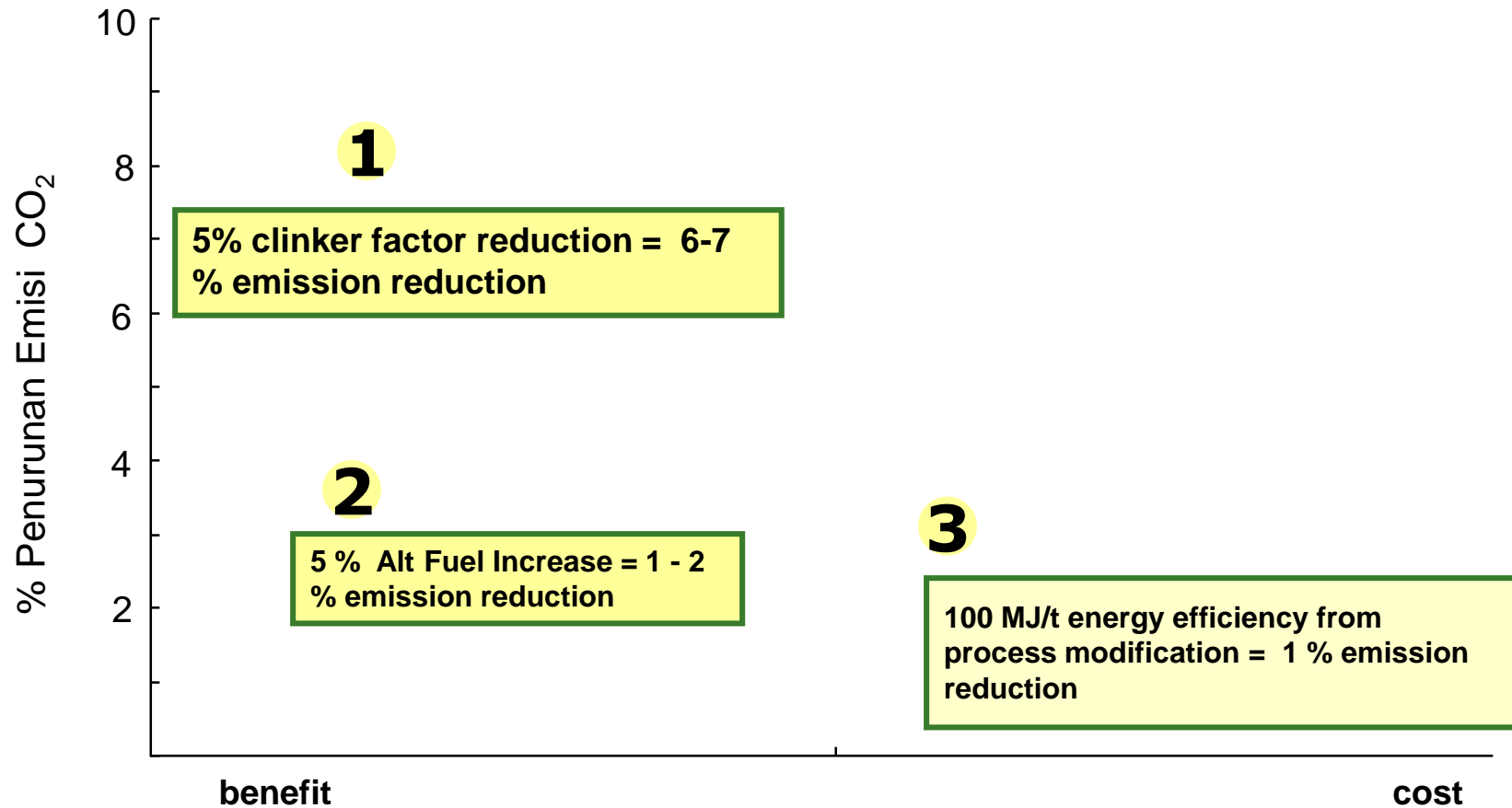


# Carbon Emission Reduction at Cement Industry

- c. **Clinker substitution** – substituting carbon intensive clinker, an intermediate in cement manufacture, with other, lower carbon, materials with cementitious properties e.g : Fly Ash, Pozzolan, Granulated Slag



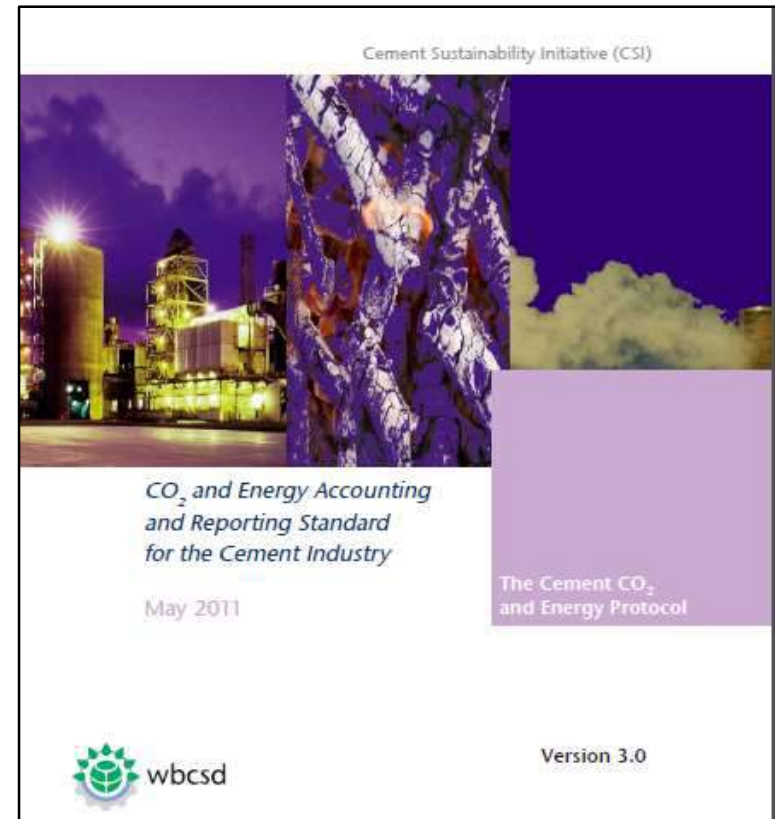
# CO2 Emission Reduction (Direct emission) Cement Industry



**Option 1 and 2 is the most significant option to reduce CO2 emission. However, company also**

# Calculation of CO2 Reduction Using WBCSD Standard

- In cement Industry worldwide, CO2 monitoring and accounting protocol use WBCSD Standard which also refer to IPCC
- Since 2010 to 2017 Holcim Indonesia has **reduced 8.8 %** its specific Net CO2 per ton cementitious product **(from 715 to 652 kg CO2 / ton Cementitious product)**
- In general using 1 ton of Alternative Fuel will reduce 0.9 – 1 ton of CO2



# Basic CO<sub>2</sub> Calculation Protocol at WBCSD Standard

Table 4: Emission sources to be reported within “gross emissions”

Emissions
CO <sub>2</sub> from raw materials
+ CO <sub>2</sub> from conventional fossil kiln fuels
+ CO <sub>2</sub> from alternative fossil kiln fuels (fossil wastes)
+ CO <sub>2</sub> from fossil carbon of mixed (alternative) kiln fuels and non-kiln fuels (excluding on-site power generation)
+ CO <sub>2</sub> from non-kiln fuels excluding CO <sub>2</sub> from on-site power generation
<b>= Gross CO<sub>2</sub> Emissions</b>
<b>= Direct emissions (excluding CO<sub>2</sub> from on-site power generation)</b>

## Memo Items

CO <sub>2</sub> from biomass fuels
CO <sub>2</sub> from biogenic carbon of mixed (alternative) fuels
Indirect CO <sub>2</sub> (bought electricity & clinker)

**Net emissions** are the gross emissions minus the CO<sub>2</sub> emissions from alternative fossil fuels.

$$\text{Net CO}_2 \text{ Emissions} = \text{Gross CO}_2 \text{ Emissions} - \text{fossil CO}_2 \text{ emissions from AF}$$

Net emissions as defined here are an indicator for a company’s net carbon footprint. They reflect a company’s direct emissions as well as emission reductions achieved indirectly by preventing the need for incineration or land filling of waste materials. As mentioned in Section 5.1 in this method the discount for CO<sub>2</sub> from fossil alternative fuels is a proxy because real (but unknown) overall balance can result in a higher or lower reduction. See Section 9.2 for the reporting requirements with respect to net emissions.

# Built Waste Co-Processing Facility to Convert Industrial Waste to Alternative Fuel



In 2017 company has used 770,000 ton of Alternative Fuel and Alternative Raw Material. Total 8.3 % of Fossil fuel was replaced with Alternative Fuel

Company has reduced 21.5 % net specific CO2 emission per ton product (2017) compare to 1990





# Support Government Policy : Set up Ozone Depleting Substances Destruction Facility in Collaboration with MOE Indonesia and MOE Japan



Winning with an Ozone Award

A large-scale investment in the first phase of a new plant in 2007 was a timely response to the findings of this study and the need to provide an effective and sustainable solution to the problem of ozone-depleting substances. In addition, it is helping to meet the general goal of the country to build a safe and healthy environment. The plant is expected to be completed in 2012 and will be able to destroy 20,173 kg of ozone-depleting substances each year, making Indonesia the first country in the world to do so.

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UN | Español | Français

United Nations Environment Programme  
ENVIRONMENT FOR DEVELOPMENT

Climate Change | Disasters & Conflicts | Ecosystem Management | Environmental Governance | Harmful Substances | Resource Efficiency

OzoneAction » News » Features » 2013 » Asia-Pacific countries visit Holcim Indonesia

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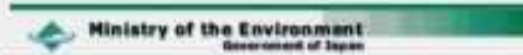
## RECENT OZONEACTION PUBLICATIONS

Against all O.D.S. - Asia-Pacific countries visit Holcim Indonesia for Destruction of Ozone-Depleting Substances (ODS)



Jakarta/Bangkok, 20 February 2013 – To tackle the growing accumulated banks of the ozone-depleting substances (ODS) in the installed and existing ODS-based equipment and products that are slowly leaking into the atmosphere and contributing to ozone depletion and climate change, developing countries are seriously exploring ways on how to dispose these gases. As part of these efforts in the Asia Pacific region, sixteen participants representing industry and governments from Bangladesh, Malaysia, Pakistan, Philippines, Sri Lanka, and Timor-Leste undertook a three-day study tour of the Holcim ODS Destruction Facility in Jakarta, Indonesia from 18 to 20 February 2013.

**The Only One Ozone Depleting Substances Destruction Facility in South East Asia  
Already Destroy 20,173 kg ODS. (Global Warming Potential of ODS around 7000 x CO2)**



MOE » News Headline » Search Result » Establishment of a Fluorocarbons Destruction Facility in Indonesia

News Headline

## Establishment of a Fluorocarbons Destruction Facility in Indonesia

November 19, 2007

The phase-out of the production and consumption of chlorofluorocarbons (CFCs) has been successfully implemented globally in accordance with the Montreal Protocol on Substances that Deplete the Ozone Layer. Nevertheless, challenges still remain, including the disposal of unwanted CFCs and other types of ozone depleting substances (ODSs) in developing countries.

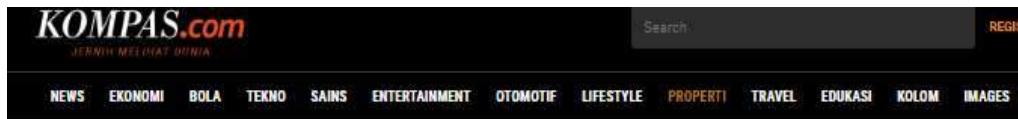
The Japanese Ministry of the Environment (MOE) has been working to promote the control of emissions of fluorocarbons (CFCs, HCFCs, and HFCs) at the international level and, as part of international cooperation, has also provided technical assistance and consultations to the Asian region, resulting in the establishment of a fluorocarbons destruction facility in Indonesia.

Following the completion of the fluorocarbons destruction facility in Indonesia, an officer of the MOE made a site visit in November 2007, acknowledging that the facility is capable of accepting fluorocarbons for destruction.

The MOE intends to continue its efforts to make the proper destruction of fluorocarbons more widely available to other developing countries based upon the experience gained from this project, and thereby contribute to ozone layer protection and climate change prevention at a global level.

>> For Japanese

# Promoting Sustainable Construction Through LafargeHolcim Award Competition & “Greening Asia” Book Launching



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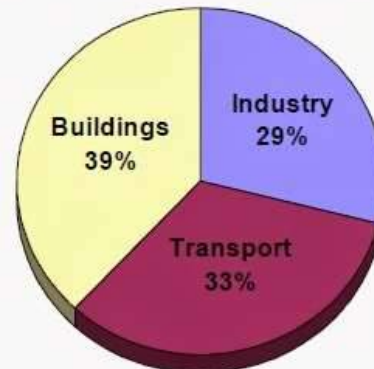
## Tiga Perwakilan Indonesia Sabet Penghargaan LafargeHolcim Asia Pasifik

RIDWAN AJI PITOKO  
Kompas.com - 08/12/2017, 22:48 WIB



Ridwan Aji Pitoko/KOMPAS.com Perwakilan Indonesia yang meraih penghargaan LafargeHolcim Asia Pasifik saat berfoto di Jakarta Design Center (JDC), Jumat (8/12/2017).

CO<sub>2</sub> Emissions from Fossil Fuels



## Kompetisi konstruksi berkelanjutan berhadiah \$2 juta kembali dibuka

By Redaksi - November 23, 2016



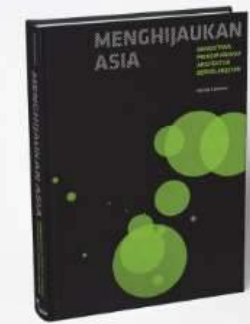
petisi ke  
penghargaan  
lanjutan



### Kontribusi Para Arsitek untuk Asia yang Lebih Hijau

Segera daftarkan dirimu dan dapatkan buku *Menghijaukan Asia* karya Dr Nirmal Kishnani\*

\*Pendidik di National University of Singapore & Juri LafargeHolcim Award Asia Pacific 2017.



Stok Terbatas!





# Since 2008 participate in CDM Project and already obtain CER (Certified Emission Reduction) from UNFCCC

CDM: SGS-UKL1252481892.88

Page 1 of 1

Project: 1598 Emission reductions through partial substitution of fossil fuel with alternative fuels in the 2 cement plants of PT Holcim Indonesia Tbk - Issuance Request



**Project** 1598: Emission reductions through partial substitution of fossil fuel with alternative fuels in the 2 cement plants of PT Holcim Indonesia Tbk

**ISSUANCE STATUS** Issued (on 03 Feb 11)

**Monitoring period** 02 Sep 08 - 31 Dec 08

**Monitoring report** [Monitoring report](#) (195 KB)

**Request for issuance** [Signed form](#) (308 KB)

**Amount of CERs** 12,335  
Serial Range: Block start: ID-5-1209152-1-1-0-1598 Block end: ID-5-1221486-1-1-0-1598

**Verification and certification reports** [Certification report](#) (365 KB)  
[Verification report](#) (365 KB)

**Additional documents** [HIL\\_PDD\\_calculation\\_Vo5\\_monitoring period 2008\\_24062010](#) (422 KB)  
[calibration frequency from 2011](#) (33 KB)  
[Monitoring report 2008\\_V6\\_CDM HIL 2802010](#) (488 KB)



This activity also involve local community and local transporter in supplying more than 90,000 ton of biomass waste to the plant and already obtain more than 136,283 CER

# Together with Ministry of Industry, Ministry of Environment and Cement Industry Association to set up climate related policy in cement sector

No.155, 2012 KEMENTERIAN PERINDUSTRIAN. Peta  
Panduan. Pengurangan. Emisi CO<sub>2</sub>.

PERATURAN MENTERI PERINDUSTRIAN REPUBLIK INDONESIA  
NOMOR 12/M-IND/PER/1/2012

TENTANG  
PETA PANDUAN (ROAD MAP) PENGURANGAN EMISI CO<sub>2</sub>  
INDUSTRI SEMEN DI INDONESIA

DENGAN RAHMAT TUHAN YANG MAHA ESA  
MENTERI PERINDUSTRIAN REPUBLIK INDONESIA,

## Pasal 4

Penurunan Emisi CO<sub>2</sub> spesifik dari *baseline* 2009, adalah:  
(a) Secara sukarela sebesar 2 % untuk kurun waktu 2011-2015.  
(b) Secara wajib sebesar 3 % untuk kurun waktu 2016-2020.



 Holcim

gtz

Guidelines on co-processing  
Waste Materials in Cement Production  
The GTZ-Holcim Public Private Partnership



## On Going Initiatives : RDF from Municipal Waste Pilot Project Cilacap Collaboration between Holcim, MOE, PUPR, Danish Government, Cilacap & Central Java Gov

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Ground breaking RDF Facility by Vice Governor of Central Java, witnessed by Director General of Control and Pollution of Environment Ministry of Environment and Forestry / KLHK, Directorate of Cipta Karya of the Ministry of PUPR, Cilacap Regent, Danish Government Representative and PT. Holcim Tbk and other invites.

This RDF facility is able to process 120 tons of waste per day and will produce 40 ton alternative fuel. The facility will be in operation in the end of 2018

# Expected Result – Cilacap RDF Project Overview

## Cilacap Situation

- Incoming fresh waste of 120 tons per day in Jeruk Legi Landfill
- CO2 emission from methane gas of waste pile
- Waste Management Solution is limited by Landfill lifetime which requires periodical investment for new Landfills
- Land Scarcity issue with increasing price of land which only possible to have the new landfills far away from the city and will impact on logistics cost
- **Potential of Community rejection at the new landfill**
- **Waste Pickers activity at the landfill**

## Innovative Solution

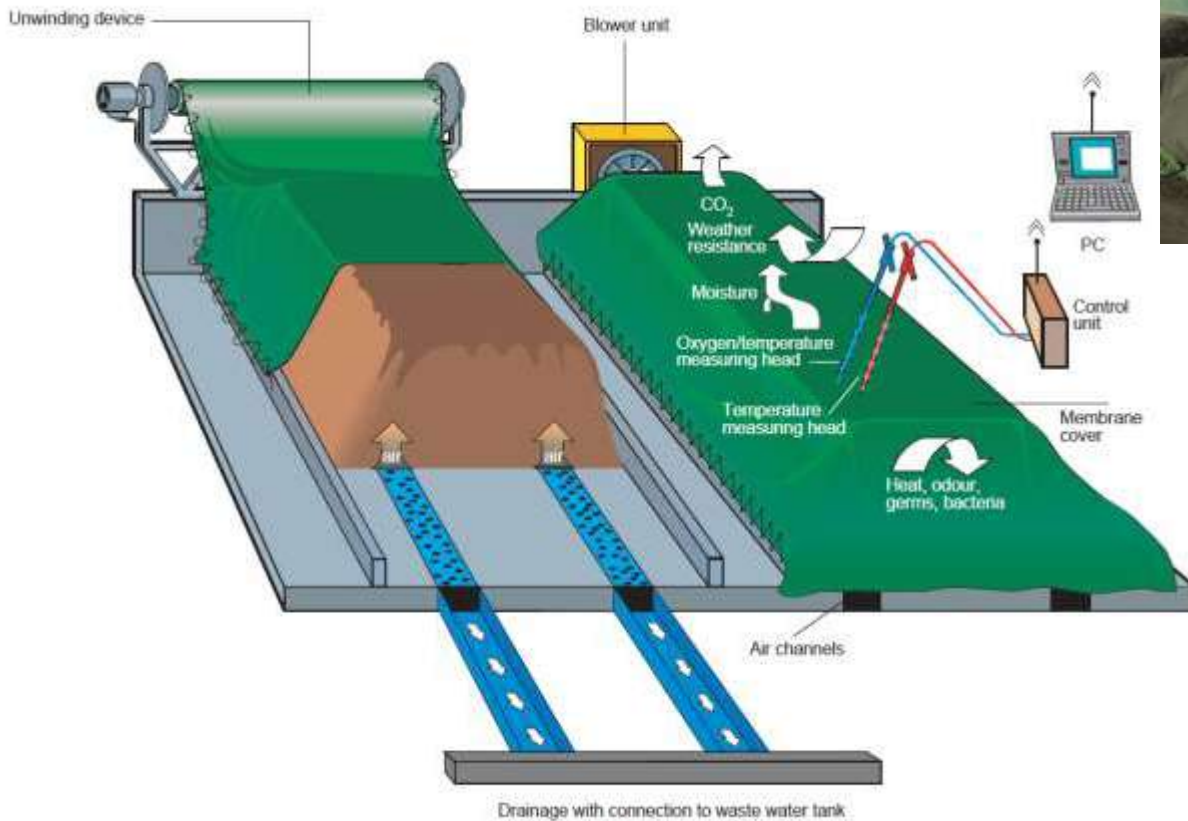
- **Reduce 80% of incoming waste in Jeruk Legi Landfill**
- **Reduce CO2 emission**
- **Current Landfill Lifetime Extension**
- **Provide better Environment for Waste Pickers**
- **Increase the Waste Management Solution Quality in Cilacap**
- **Can be extended for future expansion**



# Bio Drying Membrane at Cilacap Project

## Drying Process Principle

### Example of bio-drying equipment setup



FUEL VALUE  
FRESH  
4 MJ/kg



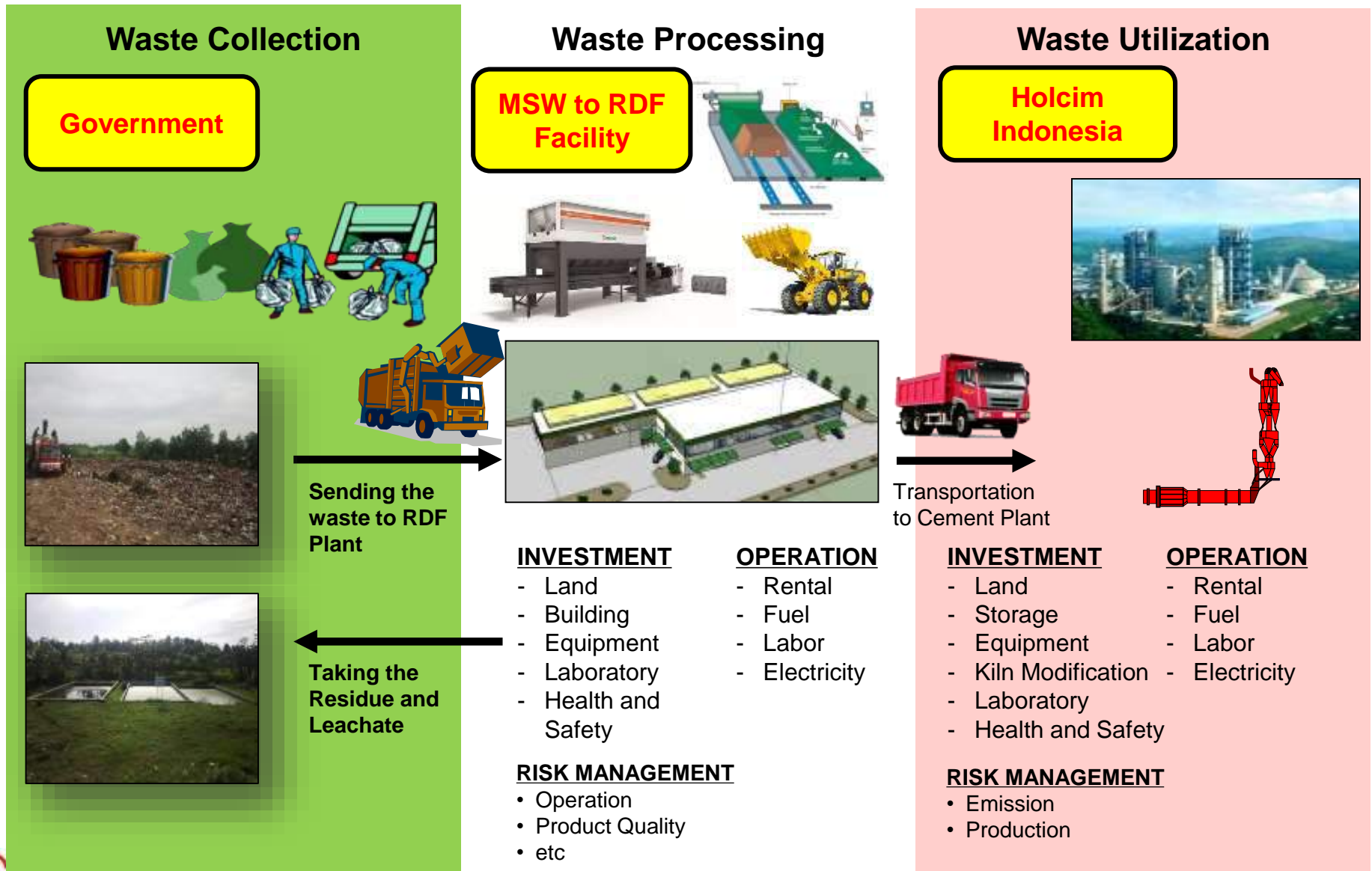
FUEL VALUE  
DRIED  
12 MJ/kg

WASTE TO PRODUCT!



# The Potential Cooperation Model

Clear role and responsibilities for all stakeholders





# Holcim – Membangun Bersama

MEMPERKENALKAN

## Semen Holcim dengan Micro Filler Particle

Yang  
**PASTI**  
Aja!

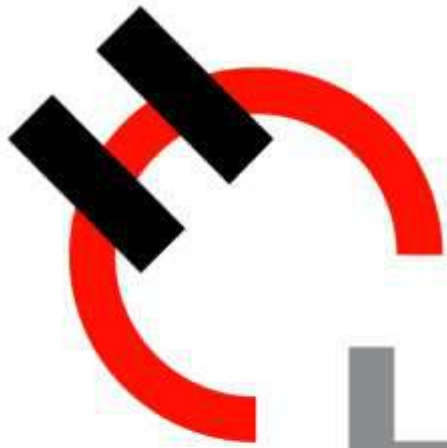
Dengan mineral mikro yang halus, mampu mengisi rongga dengan sempurna dan memberikan kekuatan dari dalam, sehingga hasil bangunan kuat dan permukaan halus.

LEBIH LANJUT



Micro  
Filler  
Particle





Holcim