Latest Innovations and Solutions toward Carbon Neutrality and Circular Economy from APAC Saint-Gobain

Ms. Hang Phan
APAC Sustainable Market Development Director
Saint-Gobain Group

2:50 p.m.

Hang Phan
APAC Sustainable Market Development Director

LATEST INNOVATIONS AND SOLUTIONS TOWARD CARBON NEUTRALITY AND CIRCULAR ECONOMY FROM APAC SAINT-GOBAIN

SAINT-GOBAIN

OVERVIEW

1. SAINT-GOBAIN GROUP
2. SAINT- GOBAIN SUSTAINABILITY STRATEGY
3. SOLUTIONS TOWARDS CARBON NEUTRALITY
4. SOLUTIONS TOWARDS CIRCULAR ECONOMY

THE SAINT-GOBAIN GROUP'S MISSION

3 Main Markets:

Mobility

Construction

Industry

9 Major Market Segments:

Single-family home renovation

School or hospital renovation

Multi-family home renovation

Multi-family home new build

Renovation and light construction in Europe

Multi-family home new build

Office new build

Construction in emerging markets

Single-family home new build

Construction in North America

Green mobility

Glass furnaces

Industry decarbonization

SAINT-GOBAIN

APAC REGION'S KEY FIGURES – IN SHORT

More than **10,000** employees

Leading Positions in **many countries:**
Plaster, Plasterboard, Mortar, Glass Wool, Fiberciment, Tile-adhesives

More than
80 manufacturing facilities

SAINT-GOBAIN · vetrotech SAINT-GOBAIN · gyproc SAINT-GOBAIN · weber SAINT-GOBAIN · PAM SAINT-GOBAIN
isover SAINT-GOBAIN · eurocoustic SAINT-GOBAIN · Ecophon SAINT-GOBAIN · CertainTeed SAINT-GOBAIN

Complete solutions portfolio

High-performance solutions for light construction, including an offer for single and multi-family homes

Digitalization of the offer of solutions

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SAINT- GOBAIN SUSTAINABILITY STRATEGY: MAXIMIZE OUR IMPACT & MINIMIZE OUR FOOTPRINT

Build a decarbonated home

Climate change

13 CLIMATE ACTION

Drive circularity into our markets

Circular economy

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Pioneer the highest standards

Health & safety across the value chain

3 GOOD HEALTH AND WELL-BEING

Empower our local ecosystems

Inclusive growth

8 DECENT WORK AND ECONOMIC GROWTH

Foster an open & engaging work environment

Employee engagement & diversity

5 GENDER EQUALITY

10 REDUCED INEQUALITIES

Act without any compromise

Business ethics

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

SAINT- GOBAIN SUSTAINABILITY OBJECTIVES

Minimize our footprint

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

•2030 targets validated by Science-Based Targets:
- 33% reduction in scope 1 and 2 absolute emissions from a 2017 baseline*.

- 16% reduction in scope 3 absolute emissions from a 2017 baseline

SAINT- GOBAIN SUSTAINABILITY STRATEGY: MAXIMIZE OUR IMPACT

Maximize our impact

Up to 70% energy savings with External Thermal Insulation Systems (ETICS)

10% additional insulation with Eclaz® vs standard double glazing

~1,300 Mt avoided emissions for customers[1]
= ~ **40x** the Group carbon footprint *(all 3 scopes)*

95% heat loss reduction with technical insulation

x3 Road life using *GlasGrid* reinforcement

1. Solutions produced & sold in 1 year, with impact over entire product lifespan; independently verified

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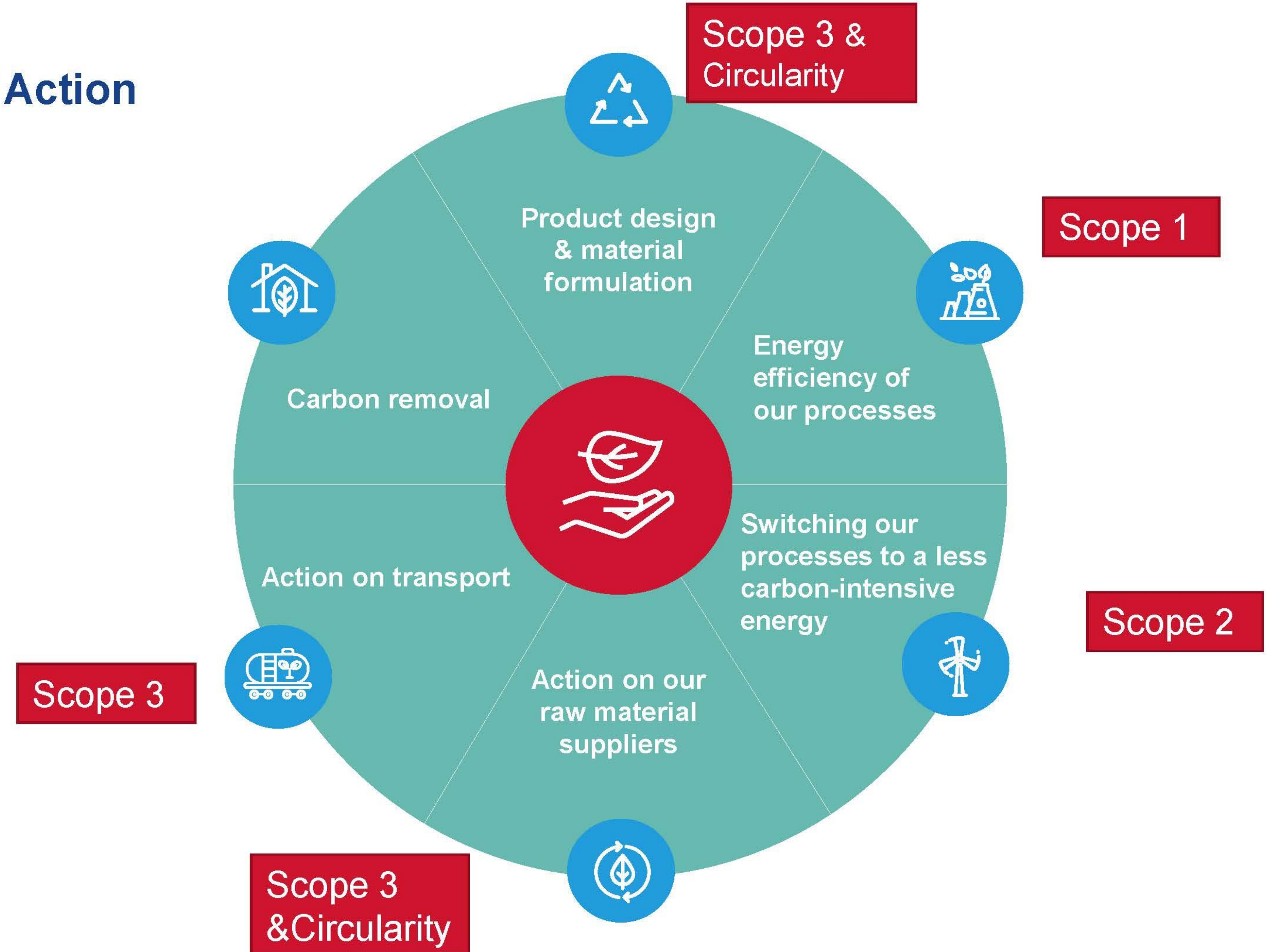
CARBON NEUTRALITY AT THE CORE OF THE GROUP'S STRATEGY

6 Pillars of Action



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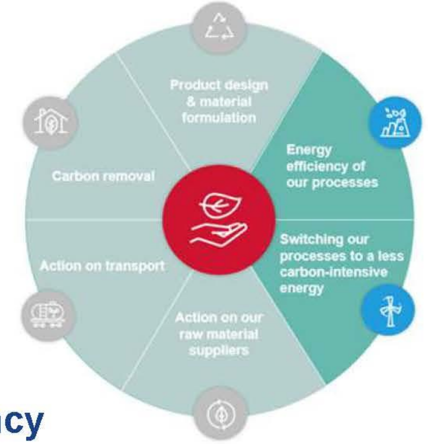
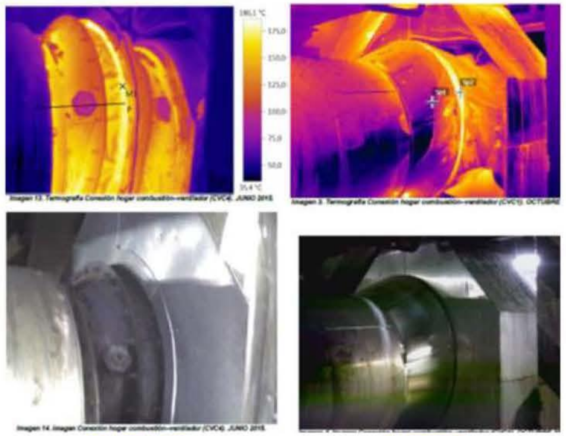
EXAMPLES OF SOME OF OUR MOST IMPACTFUL PROJECTS APAC REGION- SCOPE 1+2



SCOPE 1+2: Energy Efficiency of our Processes (audits, WCM optimisations…)

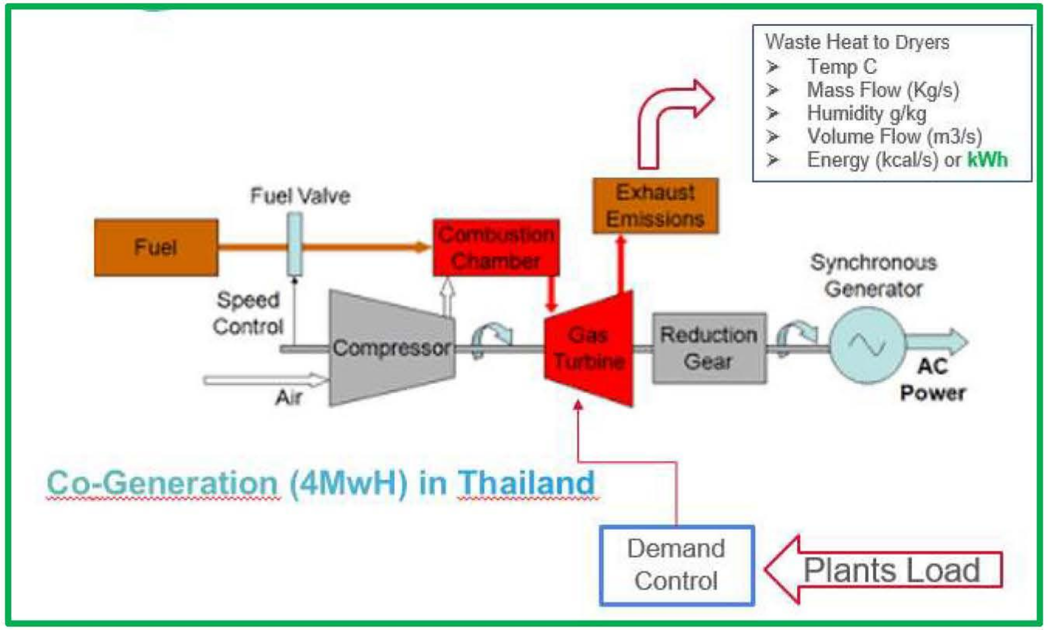
Reduction of heat loss at the furnace level by better insulation following an audit

The heat losses are located in the brightest areas



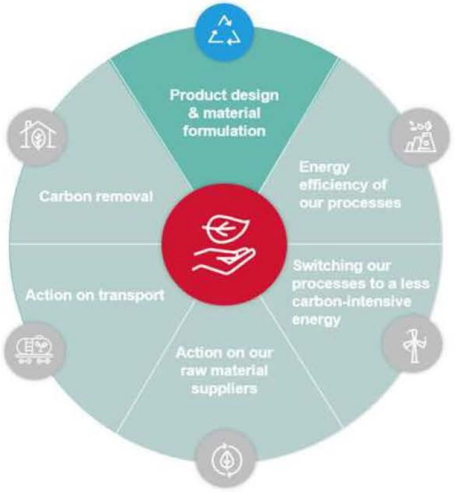
BEFORE AFTER

Waste Heat recovery to improve Energy Efficiency



This made drying process more energy efficient-reduction in **energy consumption by 32- 35%**

TO REDUCED EMBODIED EMISSIONS IN RAW MATERIAL - SCOPE 3



SCOPE 3 : Reduce embodied carbon emission thru' Product design & Material formulation

➔ Maximize the usage of industrial wastes (DSG, fly ashes, bio-sourced ashes, iron & steel slag, de-construction wastes…) and of recycled materials

NEW FORMULATIONS

Industrial waste to substitute Sand and Cement

weber SAINT-GOBAIN

Wasterials

RECYCLED CONTENT

By introducing 1 ton of cullet we can save:
Reduce the CO_2 emissions by **300kg** as energy needed reduced by **30%** for cullet melting

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SCOPE 3 EXAMPLE OF INDUSTRY WIDE COLLABORATION IN CHINA:

SCOPE 3 Collaboration
Saint-gobain JOINS FORCES with Shandong Yongfeng Steel

永锋集团
YONGFENG GROUP

- ➔ Yongfeng is willing to participate to the decarbonation of the building industry through the valorization of its waste production
- ➔ Saint–Gobain is willing to use its Innovation resources to find the best way to use Yongfeng wasterials for designing low carbon building materials

WASTERIALS

NOW

Binder

OPC 80%

Was terials

+ 5 YEARS

OPC < 30%

Wasteri als

Green Binder

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TO VERIFY & DECLARE OUR FOOTPRINT – LCA & EPD

LCA : The only commonly acknowledged method to compare
the environmental performance of products, systems and buildings!

August 2022, at Saint-Gobain

EPD VERIFIED

ABOUT

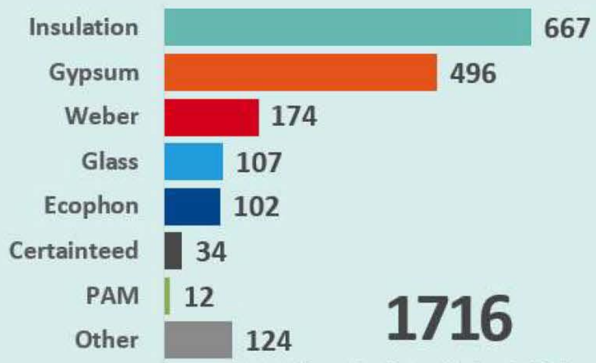
1800

VERIFIED EPDs

Incl. sector and trade associations' EPDs

BASED ON INTERNATIONAL STANDARDS:
ISO 14025,
ISO 21930/EN 15804

Number of EPDs per activity



1716
Specifc Saint-Gobain EPDs

Some of our brands which have EPDs

SAINT-GOBAIN, vetrotech, Gyproc, ISOVER, CertainTeed, weber, Ecophon, eurocoustic, PAM

Countries where products are covered with EPDs

Europe
Austria
Belgium / NL
Czech Republic
Denmark
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Lithuania
Norway
Poland
Portugal
Romania
Russia
Spain
Sweden
Switzerland
Turkey
UK

Americas
North America
Colombia
Brazil
Argentina
Mexico

Asia
India
Japan
Thailand
Vietnam

Africa and Middle East
Egypt
Saudi Arabia
South Africa
United Arab Emirates

35
COUNTRIES

Program operators where our EPDs are published:

Institut Bauen und Umwelt e.V., UL, inies, epd-norge.no The Norwegian EPD Foundation, EPD The International EPD System, bre, epd, cenia

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REPORTS CONTINUE TO SOUND THE ALARM

Depletion of resources

28th July 2022
Earth Overshoot Day

1.7 Earths
"consumed" in 2022

Increasing waste outflow

>70% of global waste is landfilled

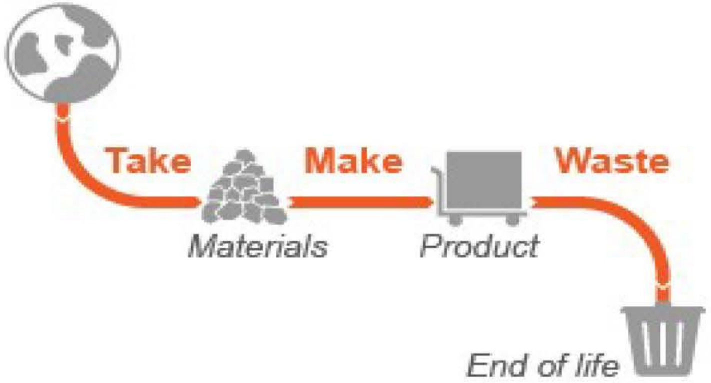
Construction industry major impact

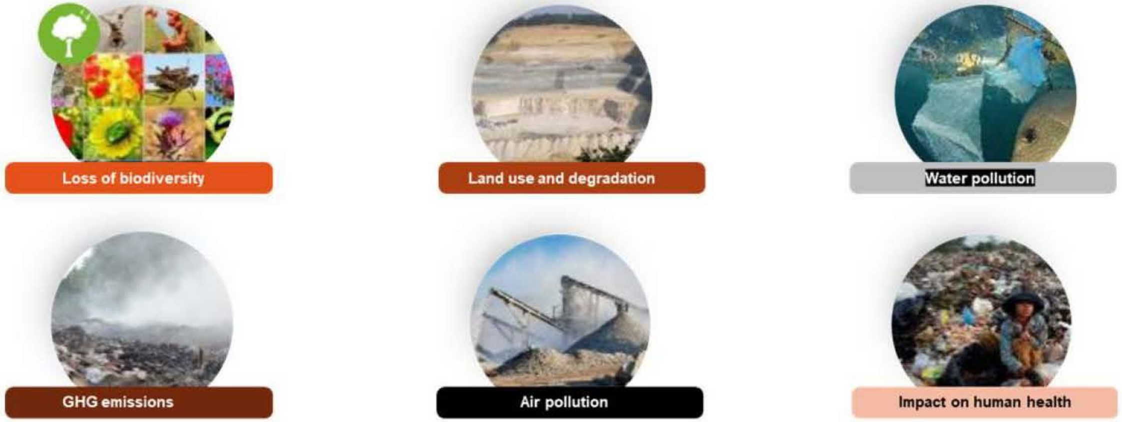
40%
of raw stones, gravel and sand usage[1]

25%
of virgin wood usage[1]

Construction and demolition waste

2.2bn t
annual construction waste by 2025[2]





"Embracing circularity is not an option but an urgent imperative", UNEP

1. World Watch Institute
2. Transparency Market Research

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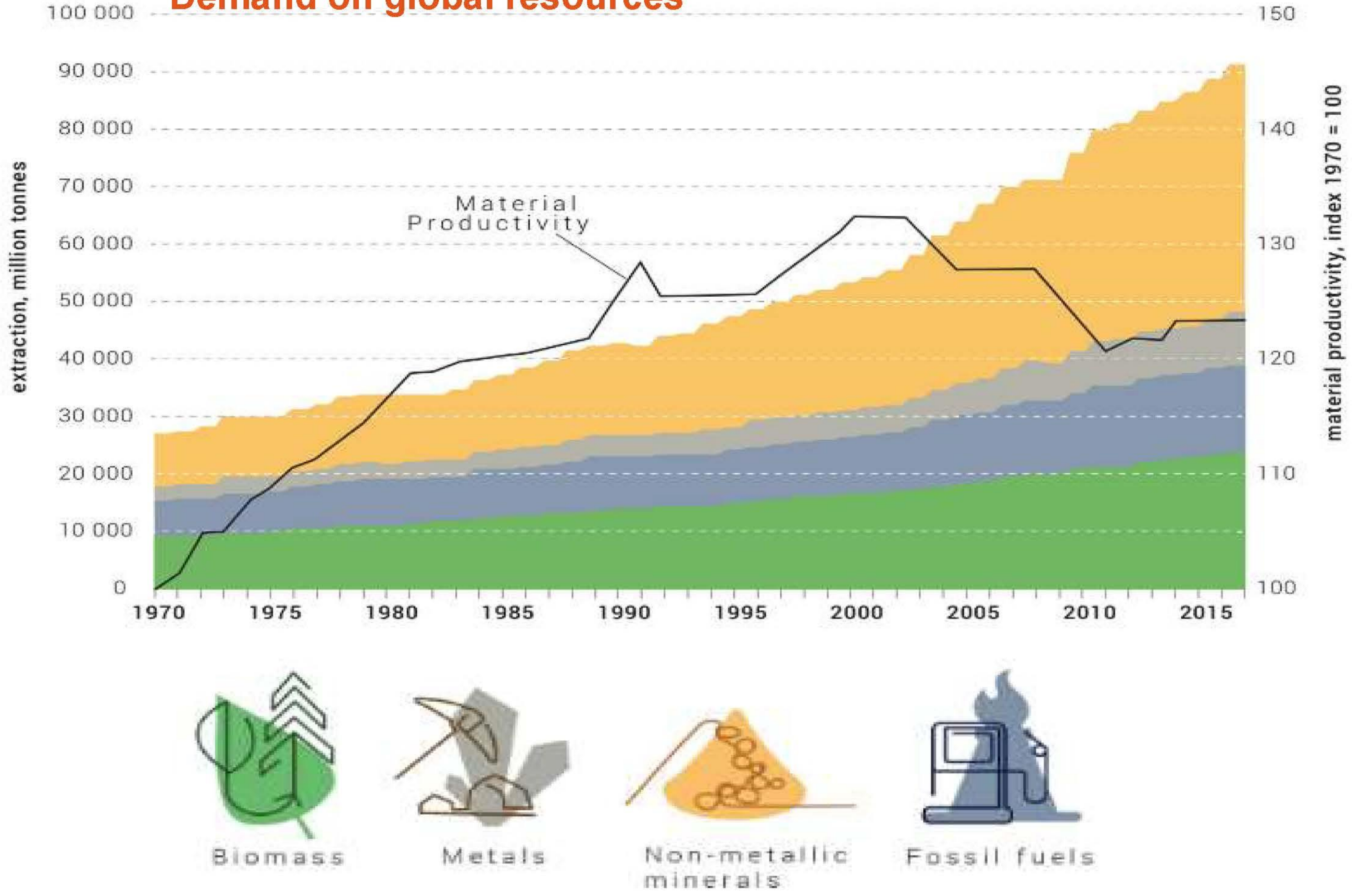
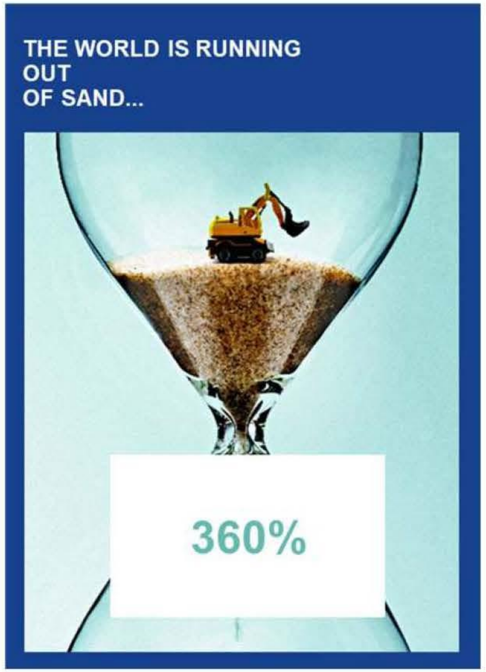
THE NATURAL RESOURCES CHALLENGE

Demand on global resources



3x vs 1970
more **extracted materials** in 2017

5x vs 1970
More **non-metallic minerals** (mainly sand, gravel and clay) (44bn tons in 2017)



CIRCULAR ECONOMY: 4 REASONS TO MOVE AHEAD

GROW& IMPACT

SEIZE A BUSINESS OPPORTUNITY

Answer to increasing market demand

Differentiation from competitors

Business opportunity for growth and sustainable leadership

ANSWER TO ENVIRONMENTAL CONSTRAINTS

Reduce carbon footprint and energy consumption

Preservation of natural resources & biodiversity

ANTICIPATING REGULATORY EVOLUTIONS

landfilling costs and constraints

Minimum recycled content

Enlarged Producers Responsibility

SUPPLY

Anticipate resources scarcity

Secure our raw material supply

Access to materials at lower cost

3 raw materials : Gypsum ; Sand ; Iron ore accounted around **70%** of total virgin RM inside SG

APAC CIRCULARITY 2030 MAIN TARGETS & MILESTONES

- **Replacing virgin non-renewable materials** with **alternative raw material**
- Increase the use of **production waste** in our processes (gypsum & glass wool)
- Develop new **CDW (Construction Demolition Waste)** : take back site off-cut, cut to size, reuse, remanufacture, etc
- For WEBER, continue putting effort on **wasteria** to substitute **cement & sand.**

2022

Raise the awareness & build on circularity knowledge: webinars/ trainings/ workshops

2023

Set the KPI targets
Market intelligence
Initiate key projects & act

For Gypsum business	At least 2,5% recycled gypsum from C/DW (Construction D product (% versus NSP)
For cement boards	13,5% secondary raw materials (% versus NSP), in which: 11% recycled content due to cement substitution with waste 2,5% recycled content thanks to sand/filler substitution with
For mortars	18,75% secondary raw materials (% versus NSP), in which • 15% recycled content due to cement substitution with was • 3,75% recycled content thanks to sand/filler substitution w
For glass wool business	Minimum 80% recycled content (% versus NSP)

2024

Key projects follow up: internal actions
External alignment actions across value chain (designers, construction, manufacturer and deconstruction stakeholders) for feasible and effective execution (material reuse at end of life/ deconstruction)

2025

2030

ALTERNATIVE OPTIONS FOR SAND

Foundry sand

moulded sand (contains: bentonite, cole powder, used sand-casted sand/dust)

Inert crystallised slag

Quarry dust, mines by-products, stone cutting

Concrete Demolition Waste

Production residues reused, recycled, recovered internally

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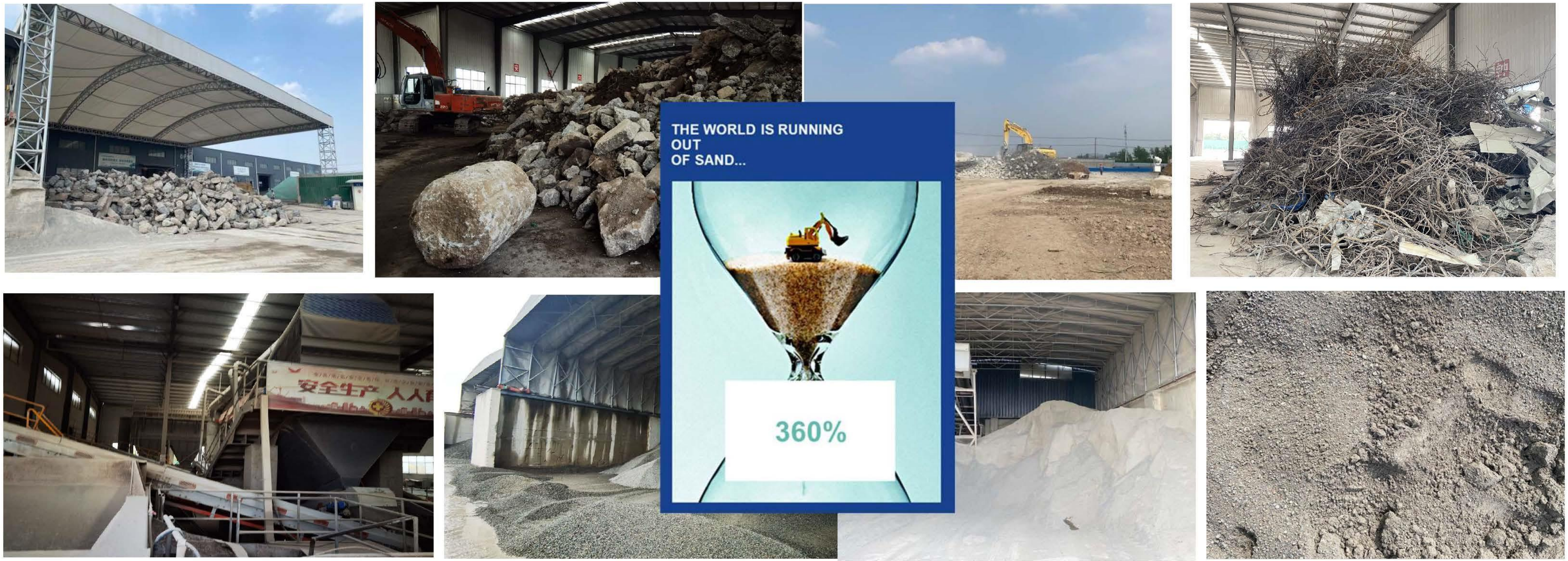
REGENERATE SAND & AGGREGATE FROM CDW - CHINA



Demand from Building material manufacturers -> Opportunity for GBCs to resolve our Resources and Circularity challenge

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CDW GYPSUM RECYCLING – INITIAL STEPS & LEARNING

- **1st step** to start the **Market research** to understand the options available, the consequences in term of cost/ benefits
- **2nd step**: local team **Establishing a sustainable recycling flow & business model**

Leaning point: Successful C&D waste management can only take place if the appropriate policy & framework conditions are in place, as well as circular supply chain readiness : 3rd parties in Waste collection & sorting, Waste processor… Opportunity for local GBCs to build circularity coalition

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THANK YOU

MAKING THE WORLD A BETTER HOME

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