



Factory IMprovement SUPport

# COMPANY PROFILE



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**FIMSUP** stands for “**F**actory **IM**provement **SUP**port”. Like the name, FIMSUP is a representative, **consulting**, project management, and **engineering** firm specializing in factory improvement on cement, power plants, mineral, and agricultural industries.

We are the collection of **experts** in various fields with experience in factory improvement and operation up to 50 years.

## PRODUCT & SERVICES

- Plant Operation Optimization & Improvement
- Kiln Upgrade
- Cooler Upgrade
- Mill Design and Mill upgrade
- Engineering design services
- Complete Cement Plant: EPC & Consulting
- Terminal and Packing Plant
- Complete Dry Mortar Plant & Pendulum Mill “PM” Type
- Innovative projects
  - ✓ Kiln Shell Replacement.
  - ✓ C&M – Container Mobile Packing Plant
- FIMSUP product, Spare Parts, Supply and Logistic

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# OUR VALUE CUSTOMER

## In Southeast Asia Region



Siam City Cement Plc.



Siam Cement Group



PT Indocement Tungal  
Prakarsa Tbk.



PT Holcim  
Indonesia Tbk



Indonesia Cement and  
Concrete Institute



Asia Cement Plc.



Jalaprathan Cement Plc.



PT Semen Bosowa,  
Indonesia



PT Bintang Cement  
Mandiri, Indonesia



TPI Polene Plc.



Thai Pride Cement



CEMEX Ltd.



Conwood Co., Ltd.



Semen Indonesia



PT Semen  
Tonasa, Indonesia



Double A (1991) Plc.



Electricity Generating  
Authority of Thailand



LafargeHolcim



PT. Solusi Bangun  
Indonesia Tbk



Kampot Cement,  
Cambodia



Ferro (Thailand)  
Co., Ltd.



Geocycle



HeidelbergCement



Holcim  
(Vietnam) Ltd.



CAHYA MATA SARAWAK  
CMS, Malaysia



Siam Kraft Industry  
Co., Ltd.



IRPC Plc.



INSEE Vietnam.



VICEM, Vietnam



Mawlamyine  
Co.,Ltd. Myanmar



Siam Park City Co., Ltd.



BANPU Plc.



Phonesack Group,  
Laos



Holcim  
(Philippines), Inc.



United Pulp and  
Paper Co., Inc.  
Philippines



Advance Agro Plc.



Ecosiam Co., Ltd.



LPC, Laos



Holcim (Lanka) Ltd.,  
sri lanka



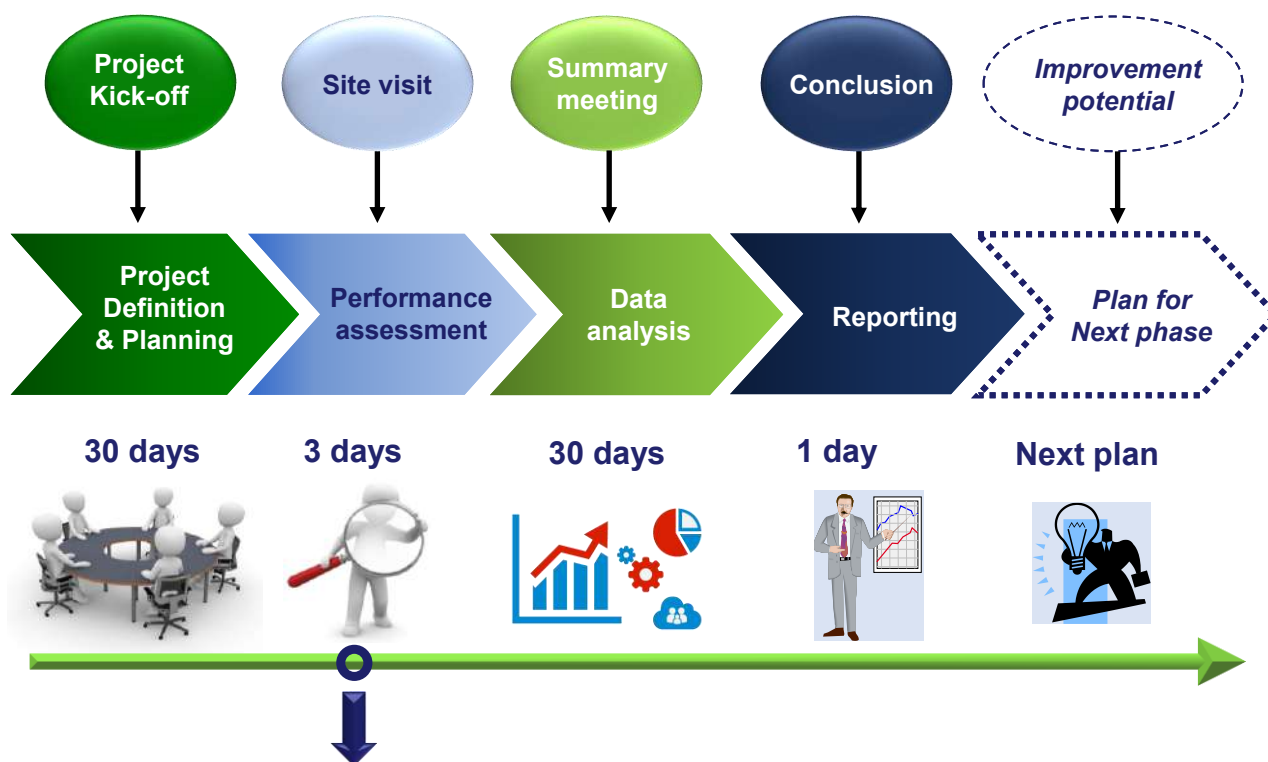
Metso Plc. Australia





## Standard Assessment Approach

- For Operation Improvement



### During 3 days assessment,

FIMSUP and Owner team members conducted:

- ✓ Operation Investigation of every sections.
- ✓ Inside inspection of main equipment.
- ✓ Detail assessment by gas Measurement in Raw Mill, Preheater and Cooler sections.
- ✓ Mutual agreement between plant and FIMSUP team about improvement potential (technical) and measures.







# Plant Operation Optimization & Improvement

## Standard Assessment Approach

- For Operation Improvement

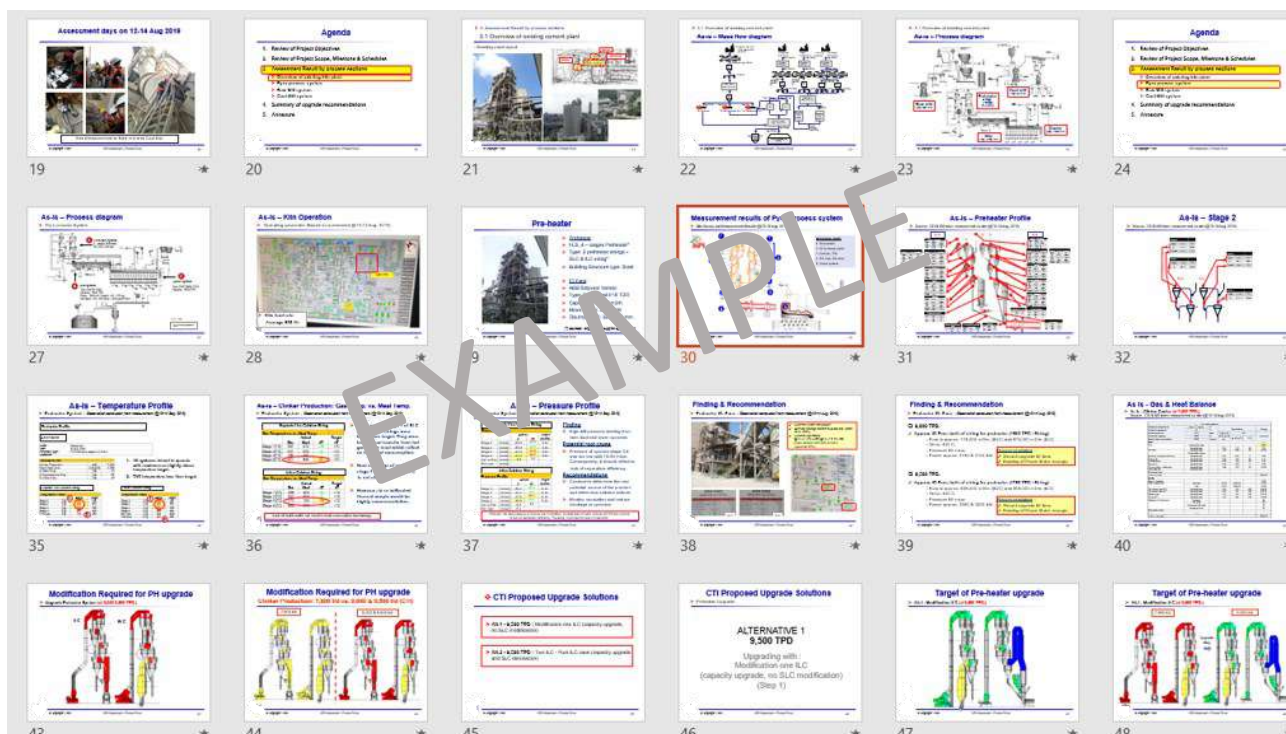
### Kick-off meeting



### Site Survey & Site Measurement



### Reporting





## Example of Assessment Result

- Operational Recommendation from inside inspection

### Inside Mill



All roller segments are in good condition, no damaged but they have high worn at dam ring side



Rotor blades and guide vane are in good condition (no damaged, no worn out)



Checked dam ring height



Worn hole of reject cone + too narrow

- To do:** Install additional cone, which extend all the way to the grinding table + design to accelerating velocity inside mill to avoid pre-separation of particle inside mill body

Checked nozzle ring







## Example of Assessment Result

- Find Process Bottlenecks (in current operating condition)

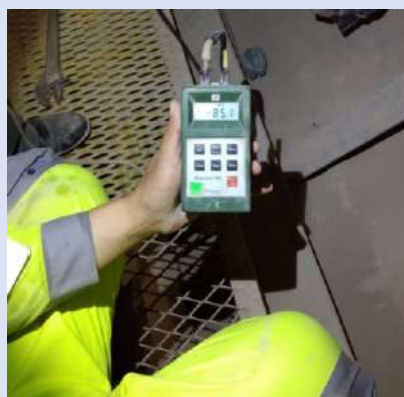
**Example** of Narogong plant (NR2) – plant upgrade 7,800 tpd. to 9,500 tpd.

- ✓ Measurement at PH, Cooler, RM, Coal mill and other location.

Preheater and Cooler

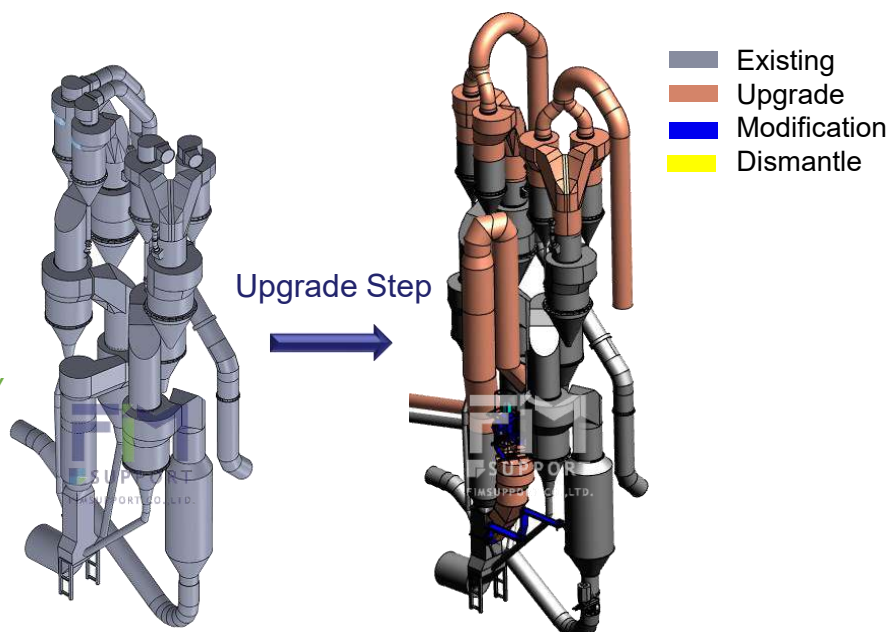


Raw mill and Coal mill



- Preheater Upgrade**

- ✓ Increase capacity
- ✓ Increase TSR of AF
- ✓ To Improve combustion, retention time
- ✓ Reduce pressure drop
- ✓ Increase efficiency of cyclone
- ✓ Reduced thermal energy consumption.



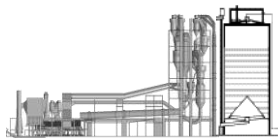




## Plant Upgrade: Kiln Upgrade

### ❖ Upgrade compare with build new line

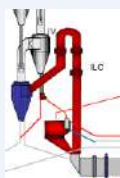
- Build New 2,000 TPD production line



**COST**  
**> 100 mil USD**

**TIME**  
**2-3 years**

- This upgrade from 5,000 toward 7,000 TPD



**COST**  
**≈ 8-15 mil USD**

**TIME**  
**< 1 year**

✓ Fast Return of Investment

✓ Faster Execution

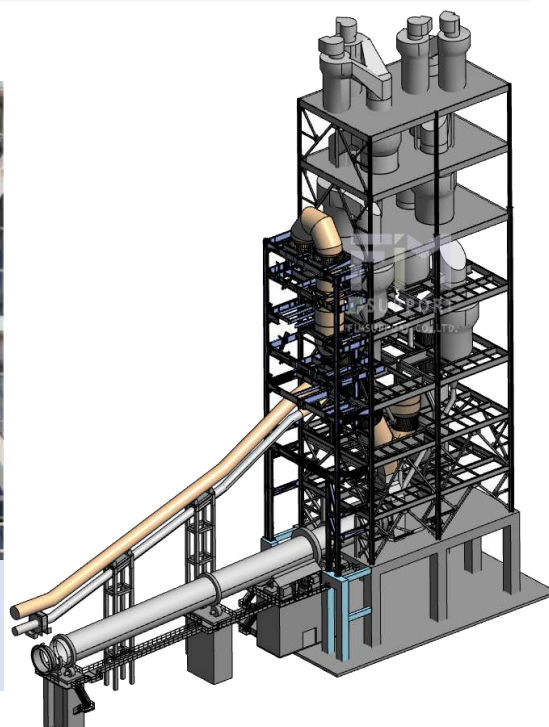
### “FIMSUP” Precalciner



**Capacity increase up to 40%**  
For example: Upgrade capacity from 5,000 to 7,000 TPD.



**Mixing Chamber**  
allow good mix between Fuel and raw meal



### Suitable for heavy AFR usage



**5,000 TPD**



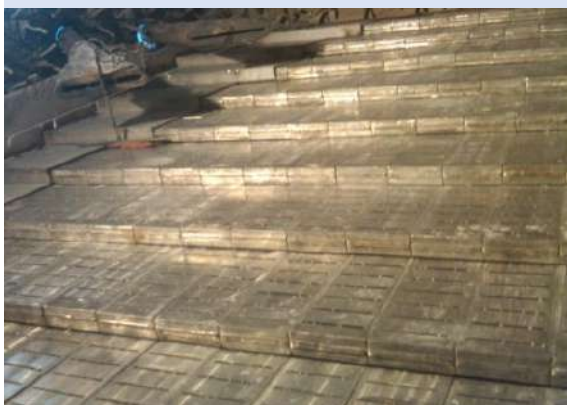
**7,365 TPD**



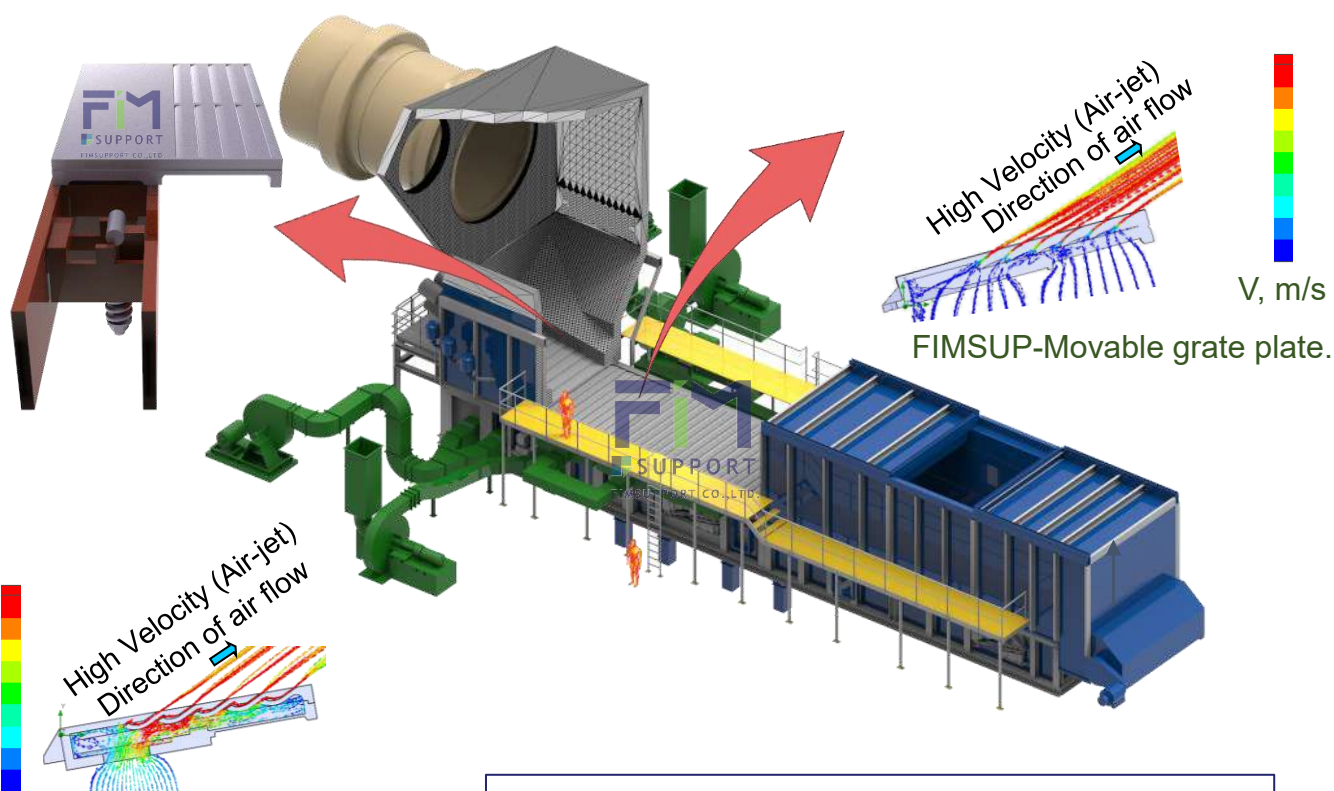
## Plant Upgrade: Cooler Upgrade

- ❖ Upgrade by change to “FIMSUP” fixed inlet grate, “FIMSUP” Movable grate and rearrange cooler fan system.

“FIMSUP” Fixed inlet grate



“FIMSUP” Movable grate Plate



V, m/s

FIMSUP-Fixed inlet grate.

Enhance heat flow

→ increase secondary air temp. and tertiary air temp.

### FIMSUP GRATE PLATE

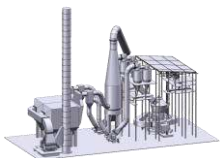
- ✓ High recuperation.
- ✓ Low clinker outlet temperature.
- ✓ Lower heat consumption/kg. clinker.
- ✓ Reduces shutdown time and maintenance cost.
- Air flow direction same way of clinker flow:
  - ✓ Helpful for movement of clinker



# Plant Upgrade: Mill Upgrade

## ❖ Upgrade compare with build new line

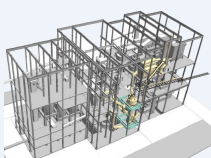
### ▪ Build New mill 130 tph



**COST**  
**15 – 20 mil USD**

**TIME**  
**12-18 months**

### ▪ This Upgrade from 100 tph toward 130 tph



**COST**  
**1.8 – 2 mil USD**

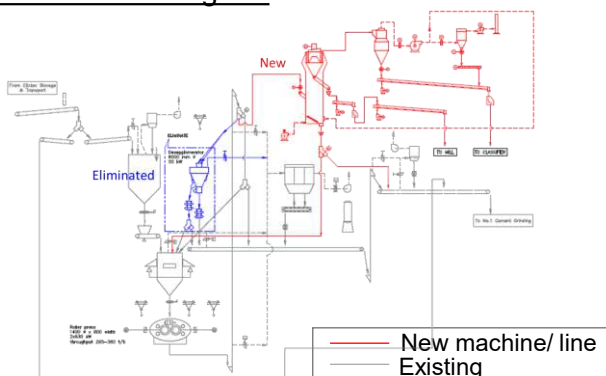
**TIME**  
**3-5 months**  
(Tie-in during normal plant shutdown)

✓ Fast Return of Investment

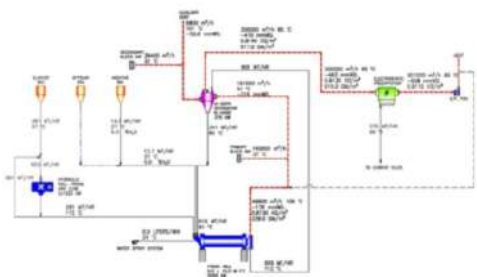
✓ Faster Execution

## Cement mill upgrade

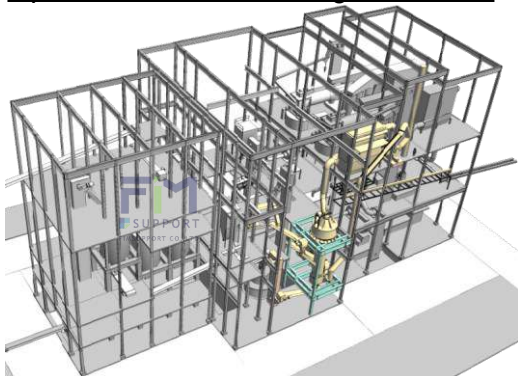
Increase Capacity from 100 tph toward 130 tph  
Process flow diagram



### Process gas flow diagram



### Optimization for civil design structure

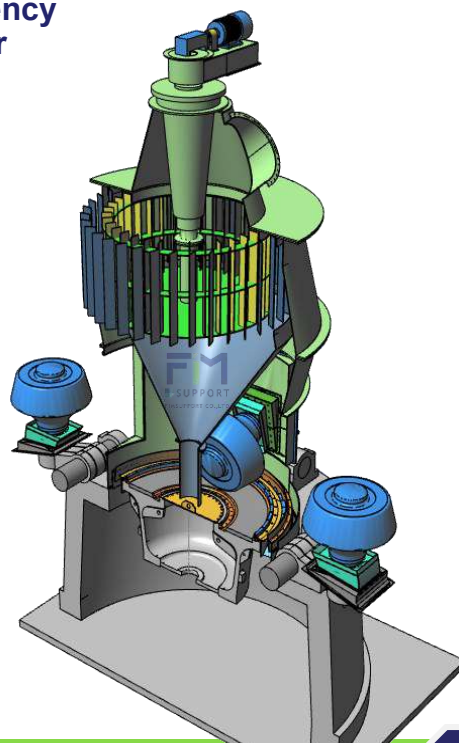


## Coal mill upgrade



The project upgrade mill of BSW the factory of Indonesia, 35 tph → 50 tph.

### “FIMSUP” High efficiency Dynamic Separator



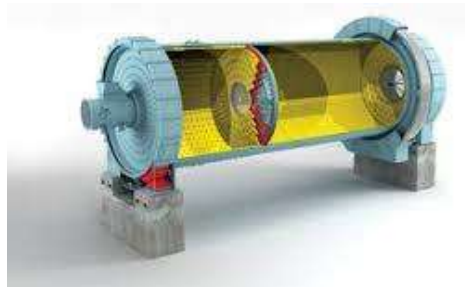
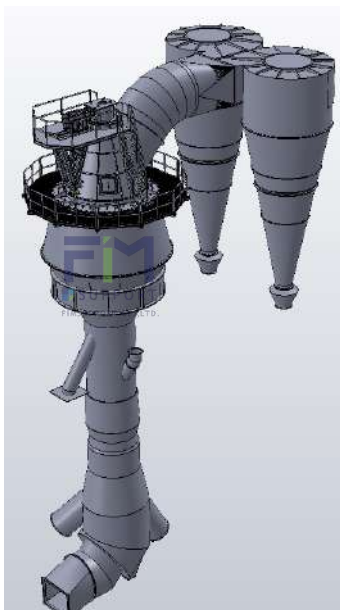




## Plant Upgrade: Mill Upgrade

### Mill Design

- **Example:** KCC Cement mill in Cambodia



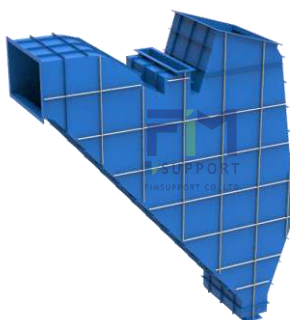
**Tube Mill**



**Roller Press**

**“FIMSUP” High efficiency  
Dynamic Separator**

**During Installation.**



**V-Separator**

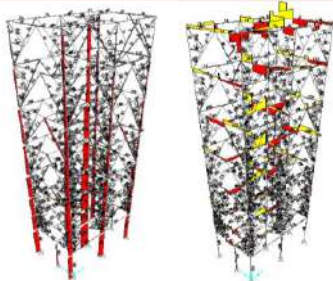




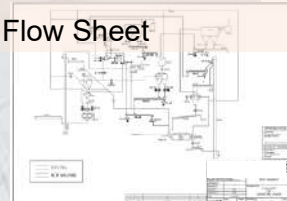
# Engineering design and services

## ENGINEERING DESIGN

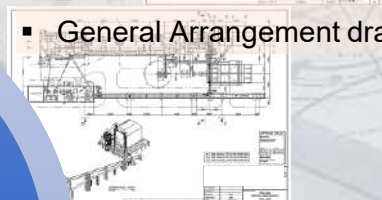
### Example: Civil Design building



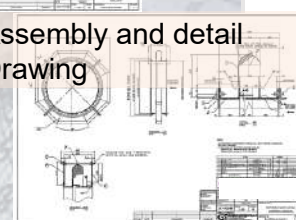
#### Process Flow Sheet



#### General Arrangement drawing



#### Assembly and detail Drawing



#### Equipment Specification

Equipment	Quantity	Unit	Material	Remarks
1. Ball Mill	1	Set	Steel	For grinding of clinker
2. Cement Mill	1	Set	Steel	For grinding of cement
3. Silo	1	Set	Steel	For storage of cement
4. Conveyor	1	Set	Steel	For transport of material
5. Elevator	1	Set	Steel	For vertical transport of material
6. Storage Tank	1	Set	Steel	For storage of liquid material
7. Pump	1	Set	Steel	For pumping of liquid material
8. Motor	1	Set	Steel	For driving of equipment
9. Control Panel	1	Set	Steel	For controlling the plant
10. Instrumentation	1	Set	Steel	For monitoring the plant

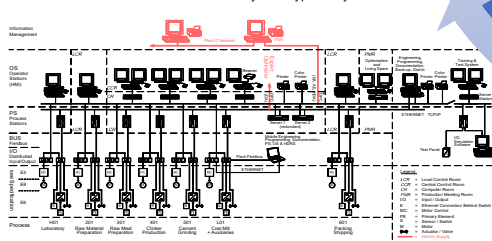
Civil Basic & Detail Engineering Design

Mechanical Basic & Detail Engineering Design

Electrical Basic & Detail Engineering Design

### Electrical & Control System Design

E5: Process Control System Typical Layout



## PROJECT MANAGEMENT

- Project Manager
- Project Coordination
- Site Manager
- Back-office & Administrator



## SUPERVISION SERVICES

- Supervision of Installation on site
- Supervision of Commissioning & On-site Training







# Complete Cement Plant : EPC & Consulting

Plant Upgrade

Engineering design services

Complete Cement Plant: EPC &amp; Consulting

Terminal &amp; Packing plant &amp; Silo

Complete Dry Mortar Plant &amp; Pendulum Mill

Innovative projects

Spare Parts, Supply and Logistic



## PROJECT

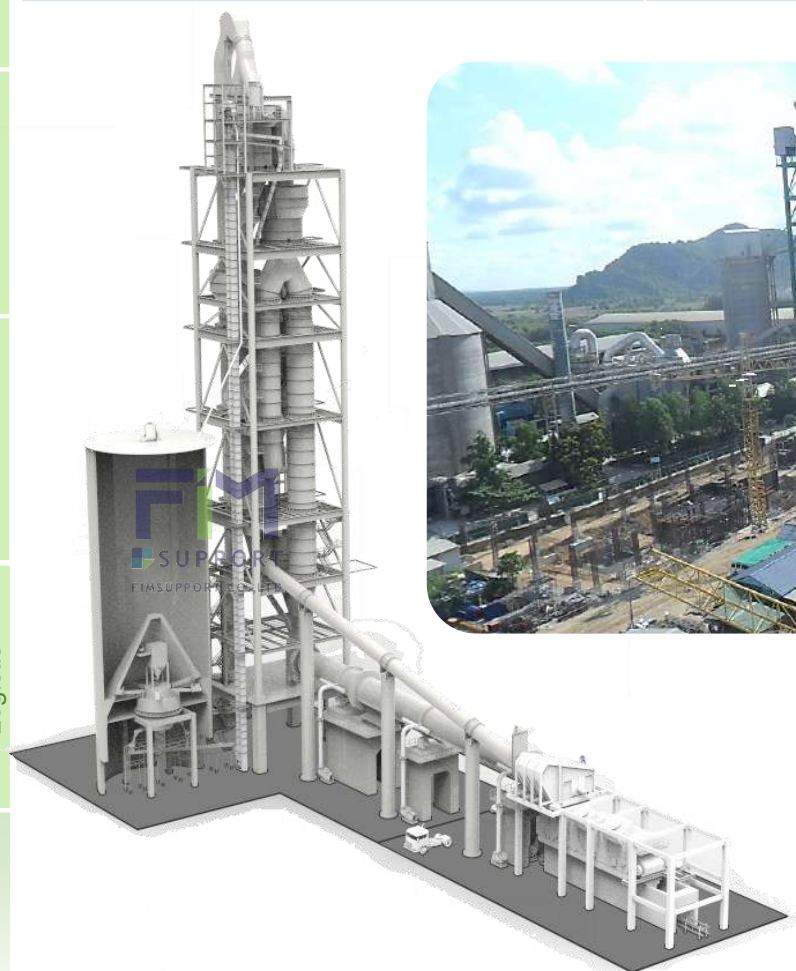
The second line with 2,500 tons clinker production per day project (KCC2)

## CUSTOMER

Kampot cement company limited (KCC)

## LOCATION

Cambodia







# Complete Cement Plant : EPC & Consulting



PROJECT	CUSTOMER	LOCATION
The Myanmar complete 5,000 tons clinker production per day project (MCL1)	Mawlamyine cement company limited (MCL1)	Myanmar

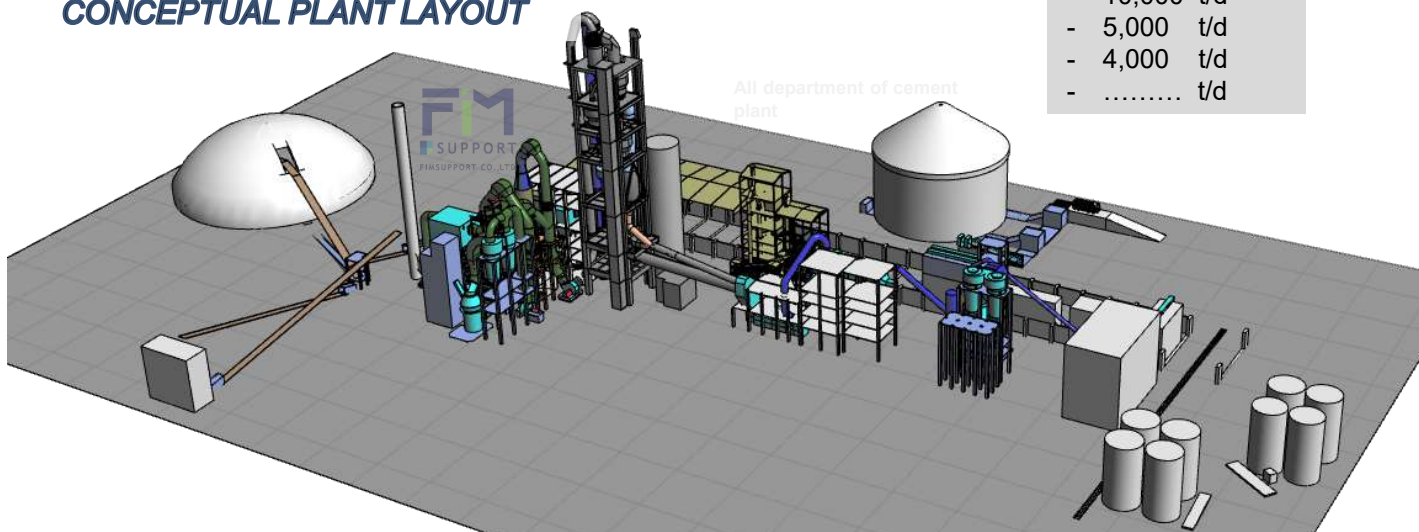






# Complete Cement Plant : Consulting & Feasibility Study

## CONCEPTUAL PLANT LAYOUT



- 10,000 t/d
- 5,000 t/d
- 4,000 t/d
- ..... t/d

## Raw material resources location



### Explanations

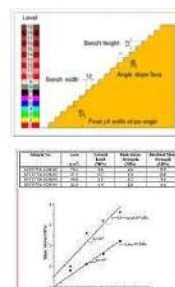
	Limestone location		Clay location
	Silica shale location		Laterite location

## Quarry Site Survey



Character of High-grade limestone

## Uniaxial compressive strength of material



Phonesack Cement

## Factors of New Coming Cement Factory & Target Market



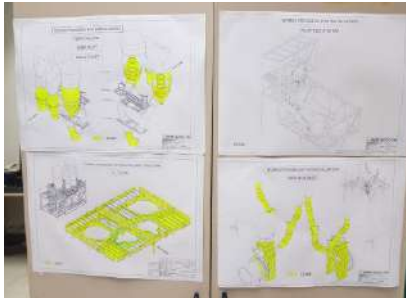




# Complete Cement Plant : EPC & Consulting

## Cement Plant: Consulting

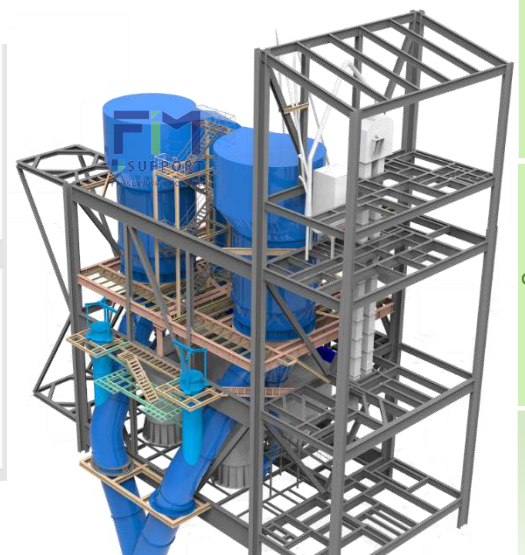
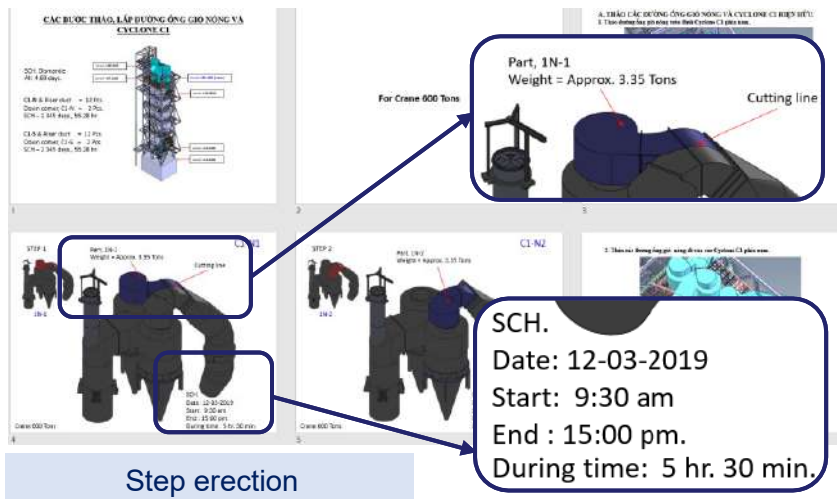
- Erection Consultant for Structure and Equipment.



During shut down for follow the progress of works.



Daily meeting and daily planning for contractor.



Plant Operation  
Optimization &  
Improvement

Plant Upgrade

Engineering  
design services

Complete Cement  
Plant: EPC &  
Consulting

Terminal & Packing  
plant & Silo

Complete Dry  
Mortar Plant &  
Pendulum Mill

Innovative  
projects

Spare Parts,  
Supply and  
Logistic





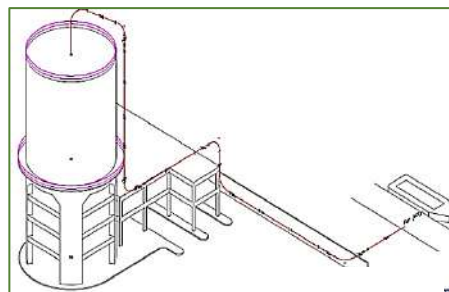
## Terminal & Packing plant & Silo

### ❖ Complete Packing plant and Terminal



#### Cement Packing plant and Terminal

The project of 4 locations (Batam, Balikpapan, Palembang, Mataram) the factory of Indonesia in 2010- 2012, Under our design.



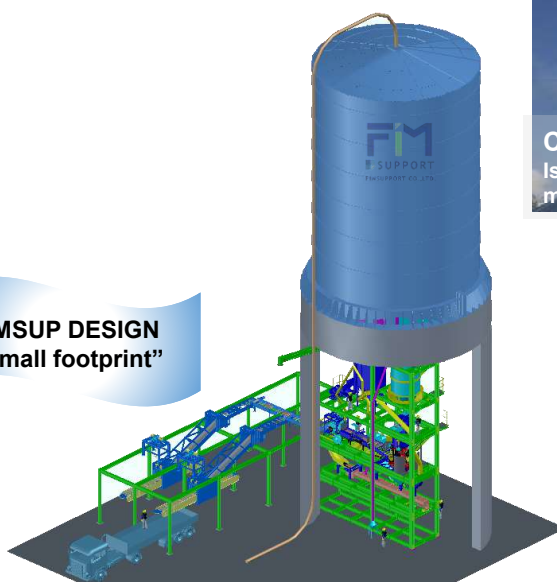
#### Fast unloading Jetty port

Reduce expensive port changer (increase discharge capacity, Save costs for charter vessel and demurrage charge)

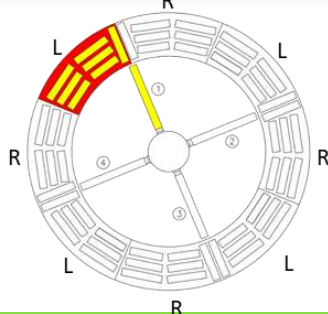
#### Section of Cement silo



#### FIMSUP DESIGN "Small footprint"



No.	Sequence	Time (min)
1	1 1 2 2 3 3 4 4 L R L R L R L R	xx min.



#### Small footprint

less space for expensive area near seaport



#### Cement Silo

Is a structure for storing materials for transport



#### Aeration system

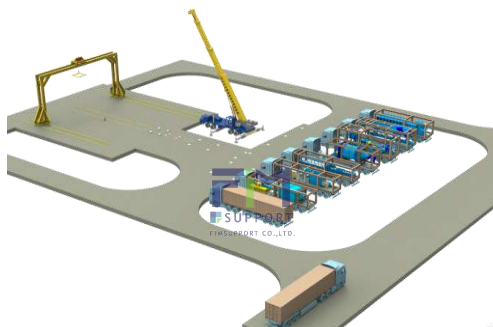
The aeration system is designed using concept of material discharge prevent dead stock inside silo.



## C&M – Container Mobile Packing Plant.

# C&M – Container Mobile Packing Plant.

✓ 9 Containers ➡ Ready to install !!



The trailer truck arrived at plant location and ready to install.



“Mobile Packing Plant”



### Transportation

Transportation from the factory by use jumbo bag.



Mobile Bulk Loading

### ❖ Comparison between conventional method and mobile packing method.

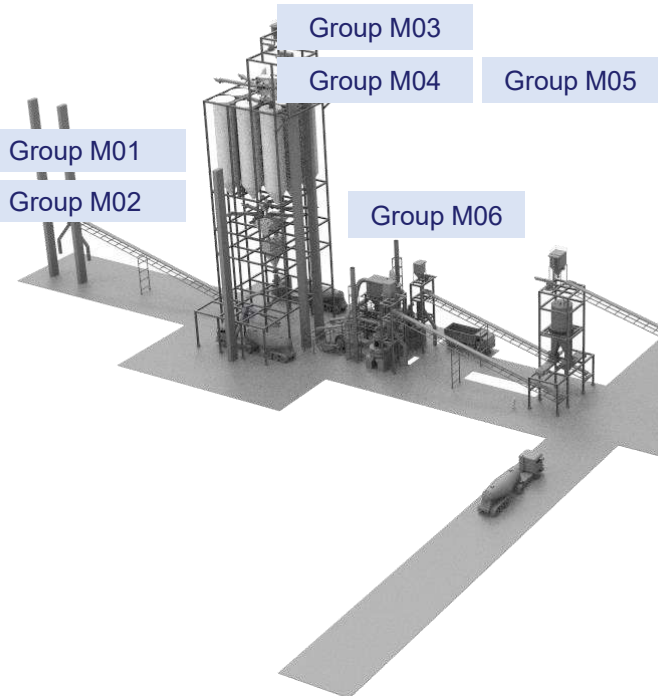
Description	Conventional method	Mobile packing method
Transportation from cement industry	Bulk, by barge	Jumbo bag, 10 t/ bag
Unloading system from barge	Pneumatic transport	Crane and truck
Storage	Silo (concrete / steel)	Storage yard or Warehouse
Dispatch from storage	Aeration system and transport system (air slide)	Unloading system from jumbo bag
Packing plant (50kg./bag)	In building	In container
Truck loading	In building	In container
Construction works	High	Low (90% pre-mounted)
The capex	High	Low
Erection time	Long	Very Short
Mobile plant	cannot be	Can and short time.





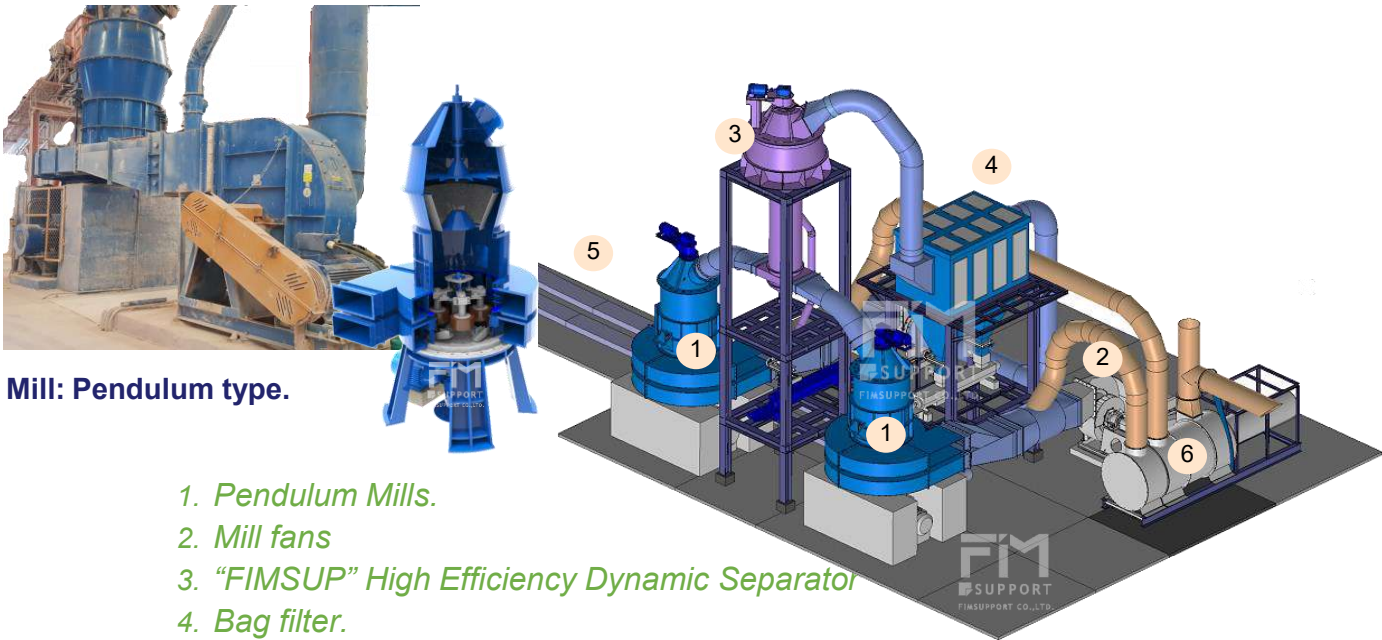
# Complete Dry Mortar Plant & Pendulum Mill

## Dry Mortar Plant



M01	Palletizing system
M02	Packing system, rotor packer.
M03	Mixing plant, dosing and mixer system
M04	Silos raw material, additive bins and accessories
M05	Limestone size separation include bucket elevator and transport system to silos.
M06	Limestone receival and drying plant with surge storage and milling plant.
M07	Compressed air system

### ❖ “FIMSUP” Design: Limestone grinding plant(Sand Plant) with Pendulum mill



Mill: Pendulum type.

1. Pendulum Mills.
2. Mill fans
3. “FIMSUP” High Efficiency Dynamic Separator
4. Bag filter.
5. Transport system.
6. Hot gas generator.

### Performance Advantages of Pendulum Mill Type.

- ✓ Small Occupational Area, Structure and foundation optimization, saving costs for construction work.
- ✓ Lower Energy Consumption, Higher economic profits.
- ✓ High Grinding Efficiency, Excellent precision of final products.
- ✓ Simple Operation, Wide Application Range, The electrical system of Pendulum Mill “PM” type adopts centralized control. the size of finished product can be adjusted particle size range.
- ✓ Easy to Installation Work.
- ✓ Common Spare Part, low maintenance cost.



## Innovative projects: Kiln Shell Replacement.

### ❖ Short down time duration on kiln shell preparation

✓ Reduce time from 60 to 25 days

Normal kiln high: 50 m.

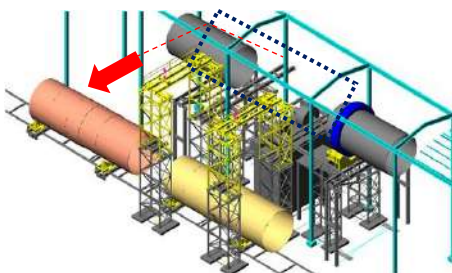
**Convention technic:** Crane 500 ton can lift up kiln shell 62 ton. (at boom 14 m.)

**Our technic:** we concept use the lift jack, so can be up to 600 ton.

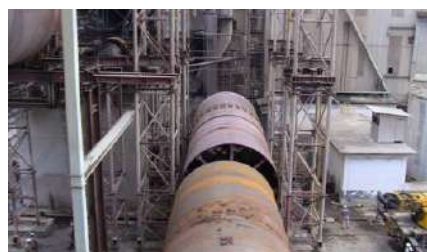
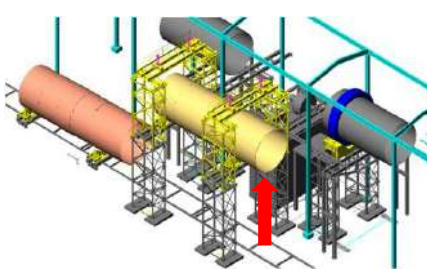


Chart Crane 500 ton

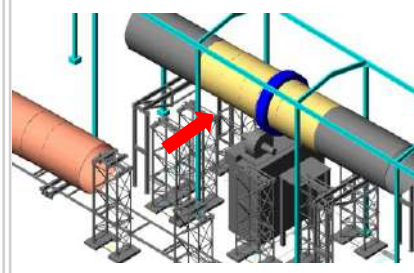
Dimensions (m)	Weight (ton)
18.5 m	500
21.3 m	450
24.0 m	400
26.8 m	350
29.5 m	300
32.3 m	250
35.0 m	200
37.8 m	150
40.5 m	100
43.3 m	50
46.0 m	20
48.8 m	10
51.5 m	5



Move the old kiln shell to the lifting station



Remove old kiln shell from lifting station & replace with new shell and Lift up the new kiln shell



Take out the lifting unit from lifting station and move the new kiln shell to kiln line position



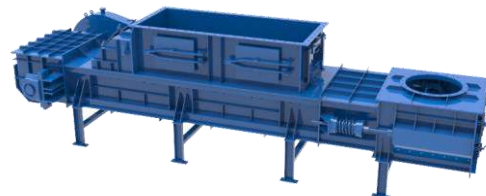


# FIMSUP product, Spare Parts, Supply and Logistic

## ❖ Spare part of Material Handling system

- To transport various goods in a variety of industrial e.g. cement plant, sugar plant, power plant, etc.

Raw coal feeder, self air lock



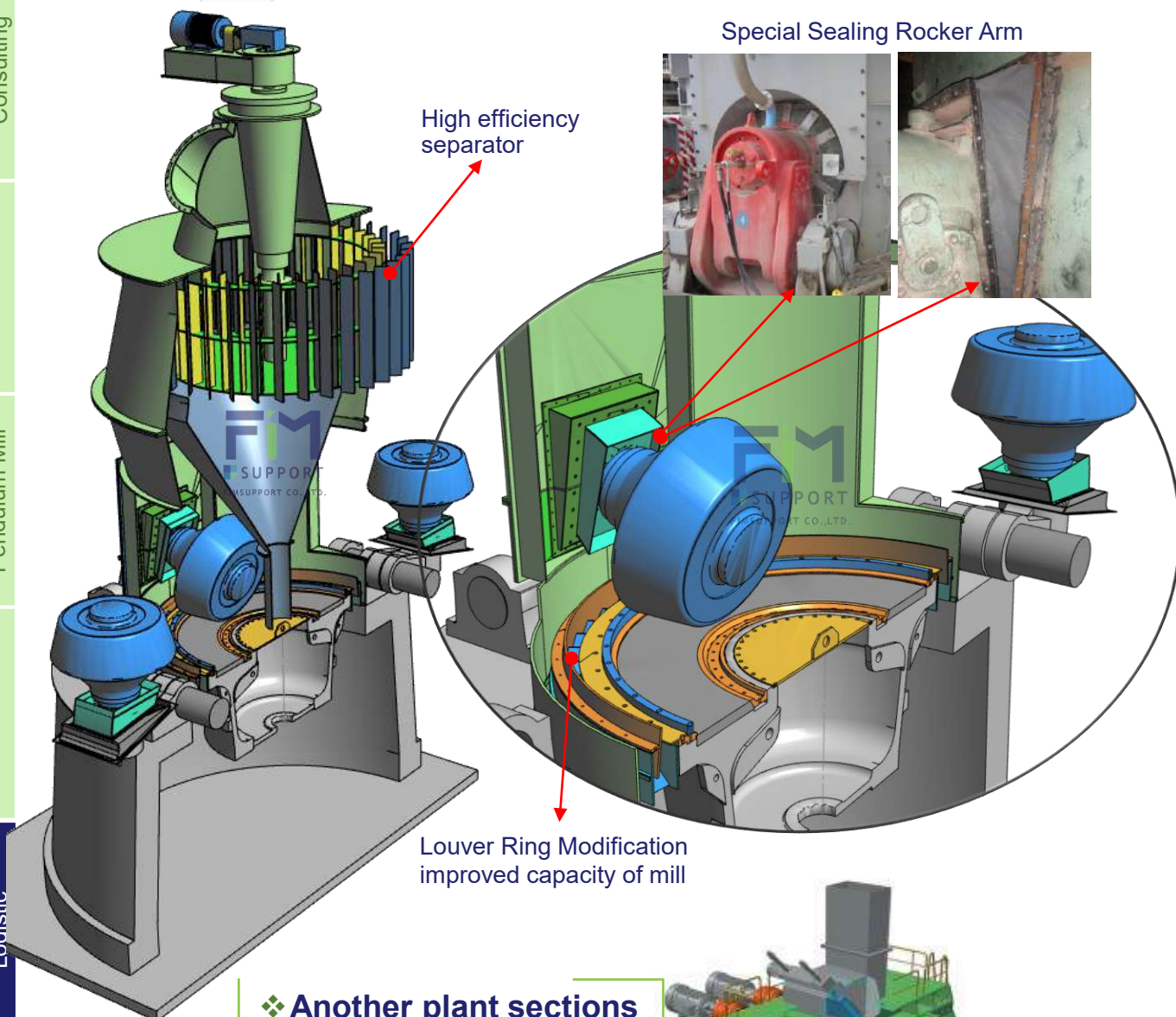
## ❖ Spare part of Vertical Mill

Special Sealing Rocker Arm



High efficiency separator

Louver Ring Modification improved capacity of mill



## ❖ Another plant sections

- Spare part for Roller Press



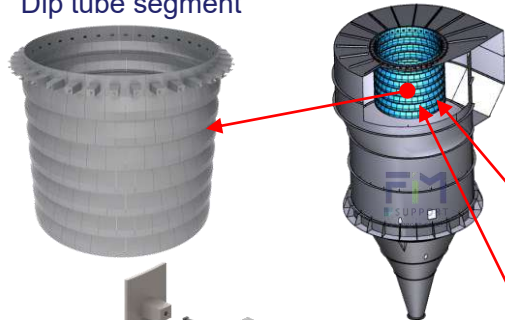
**NOTE:** For more information, please contact our company.



# FIMSUP product, Spare Parts, Supply and Logistic

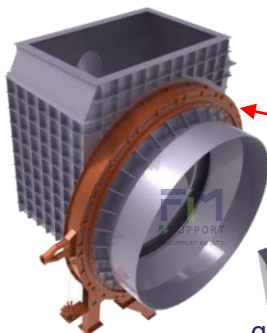
## ❖ Spare part of Preheater, Kiln & Cooler

- Dip tube segment



- Segment spare part

- kiln inlet seal

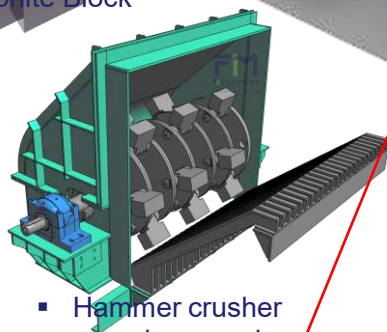


Kiln seal  
graphite Block

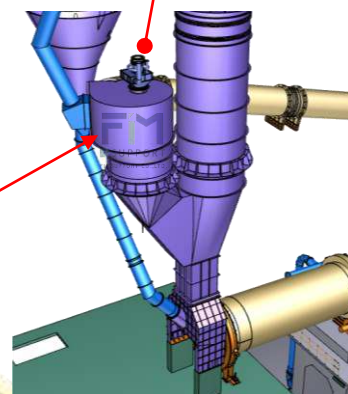
- kiln outlet seal



- Hammer crusher
  - hammer bar
  - grizzly bar

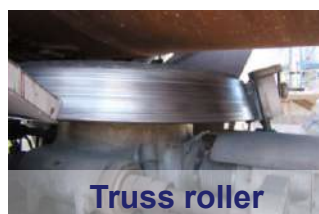
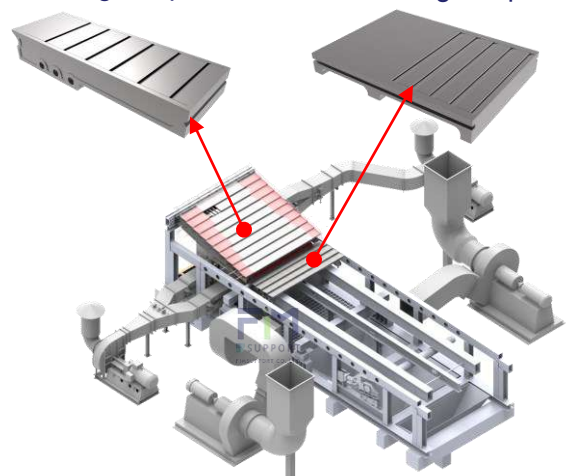


- AFR Burner



## ❖ Spare part of Kiln

- Fixed Inlet grate plate
- Movable grate plate



**NOTE:** For more information, please contact our company.





## FIMSUP product, Spare Parts, Supply and Logistic

### ❖ AFR Handling equipment

- Design and supply equipment



1. Front loader / Surface feeder.
2. Side wall conveyor (Z-belt).
3. Conveyor belt No.1
4. Dosing / weigh feeder.
5. Conveyor belt No.2
6. Double flap and slide gate.



AFR Burner for mixing chamber

**NOTE:** For more information, please contact our company.



# FIMSUP product, Spare Parts, Supply and Logistic

Gypsum



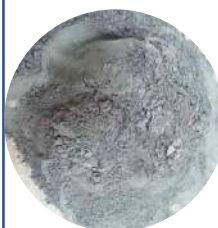
Alkaline or Alumina – Raw Material



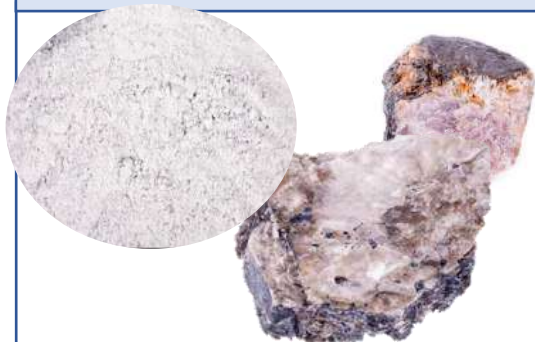
Clinker



Cement



Fluorine - Additive



Cement Bag - Packaging



Alternative Fuel



Logistic



Plant Operation  
Optimization &  
Improvement

Plant Upgrade

Engineering  
design services

Complete Cement  
Plant: EPC &  
Consulting

Terminal & Packing  
plant & Silo

Complete Dry  
Mortar Plant &  
Pendulum Mill

Innovative  
projects

Spare Parts,  
Supply and  
Logistic





## REFERENCES HIGHLIGHT OF FIMSUP TEAM





# REFERENCES HIGHLIGHT OF FIMSUP TEAM

**Feb 2020 – Apr 2020**



CAHYA MATA SARAWAK

**Plant assessment (process-focus) clinker line process (including raw mill and coal mill)**

**CMS CEMENT INDUSTRIES SDN. BHD. (CMS)**

**MALAYSIA**

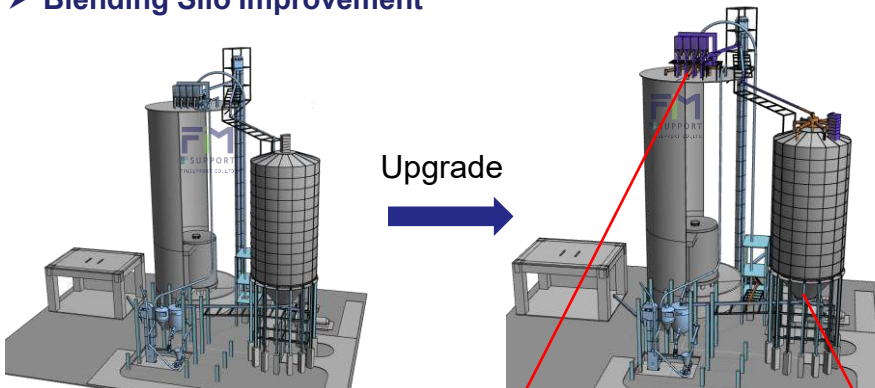
## FIMSUP's scope of works :

- Investigate how much the maximum currently of clinker production (Health-Check, to determine bottlenecks).
- Potential improvement for reduce production cost.
- Upgrade maximum production and minimum investment.



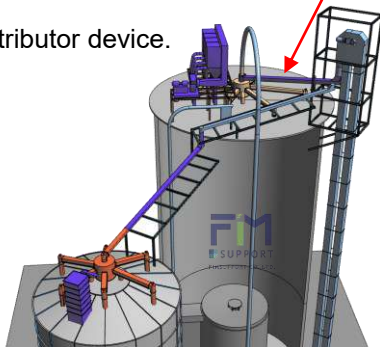
## ▪ Quality control checked:

### ➤ Blending Silo Improvement

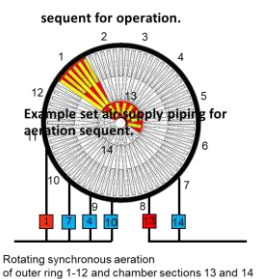
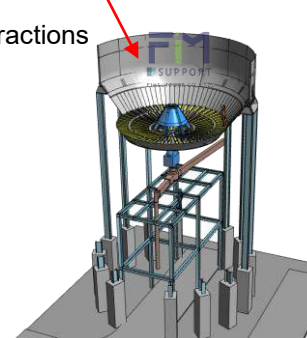


Gas Measurement in Raw mill and Coal Mill

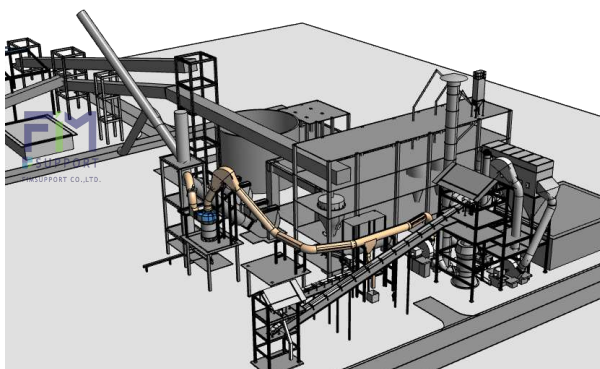
## ▪ Spider distributor device.



## ▪ silo extractions

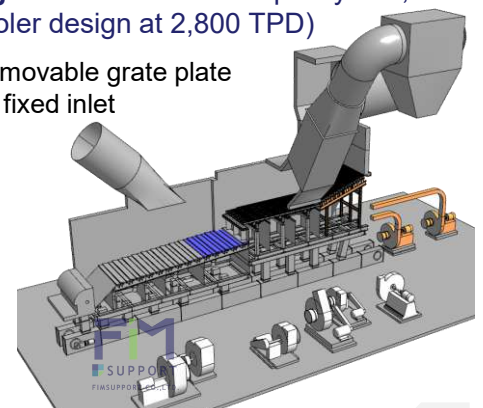


### ➤ Coal mill improvement:



### ➤ Cooler upgrade: to serve kiln capacity at 3,100 TPD (existing cooler design at 2,800 TPD)

- ✓ Replace movable grate plate
- ✓ Upgrade fixed inlet







# REFERENCES HIGHLIGHT OF FIMSUP TEAM

**July 2019 - Sep 2019**

**Plant assessment process focus potential for clinker production upgrading.**

PT.SOLUSI BANGUN  
INDONESIA TBK.,  
NAROGONG PLANT

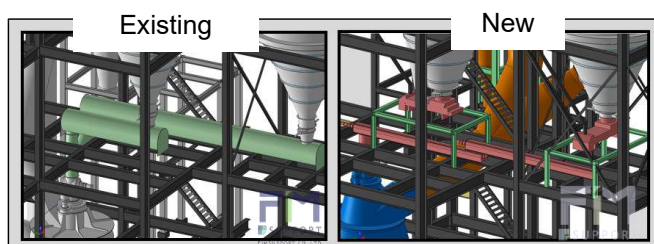


INDONESIA

## FIMSUP's scope of works :

- Upgrade clinker production from 7,800 TPD toward 9,000 – 9,500 TPD.
- To increase AFR level usage.
- Clinker cooler upgrade to increase efficiency and reduce heat consumption.

### ➤ Modify raw coal feeder: Prevent sticky materials



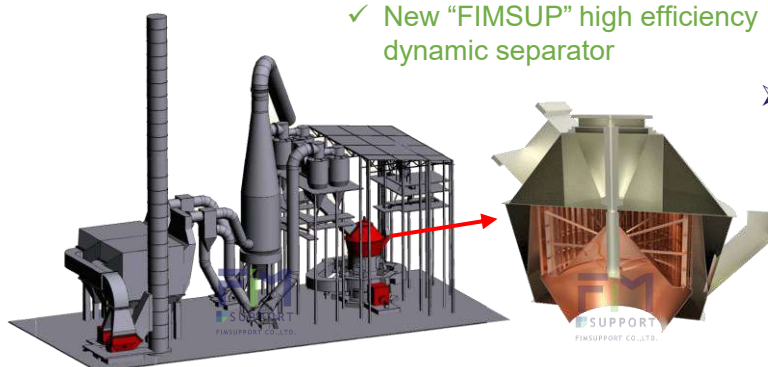
Conveyor belt type



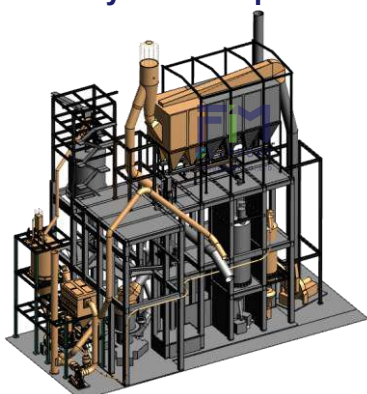
Dragged plate type feeder

### ➤ Raw mill upgrade: from 600 t/h toward 770 t/h

✓ New "FIMSUP" high efficiency dynamic separator

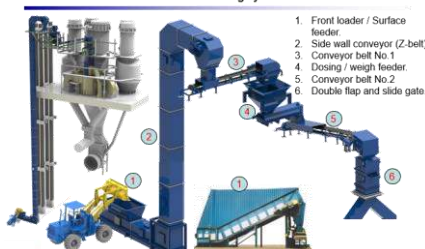


### ➤ Modify coal mill plant: Run AFR ≥ 25 % TSR

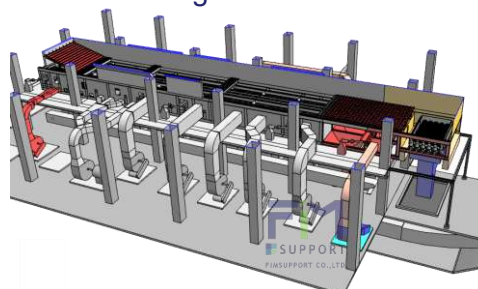


### ➤ AFR feeding system

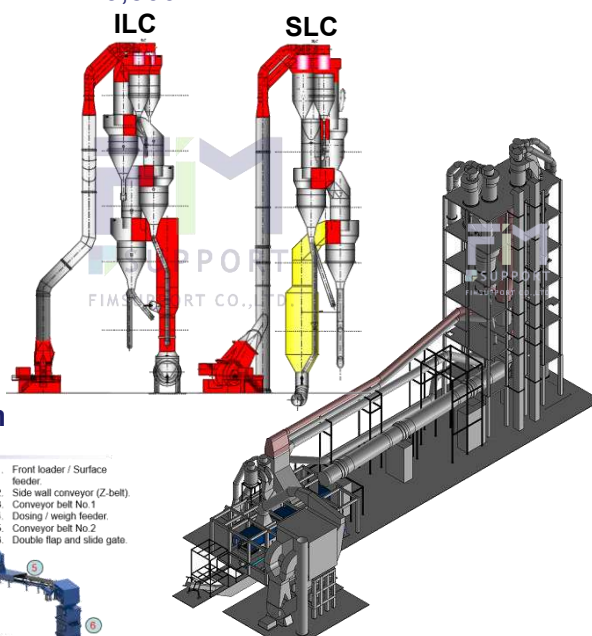
□ FIMSUP Recommendations for feeding system.



### ➤ Cooler Upgrade: Modify Fixed inlet grate + Extend cooler length.



### ➤ Preheater Upgrade: from 7,800 TPD toward 9,500 TPD







# REFERENCES HIGHLIGHT OF FIMSUP TEAM

**Mar 2019 - April 2019**



**Preheater upgrade**

**SIAM CITY CEMENT  
VIETNAM (SCCVN)**

**VIETNAM**

## FIMSUP's scope of works :

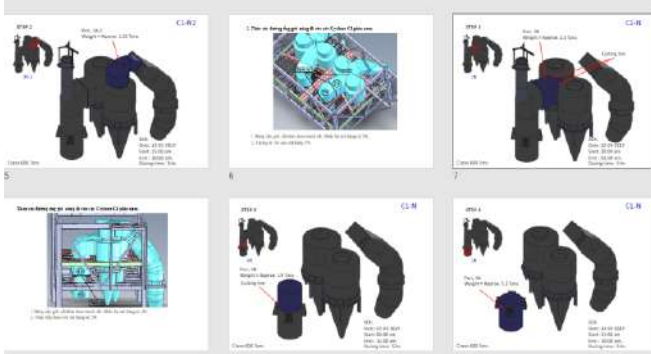
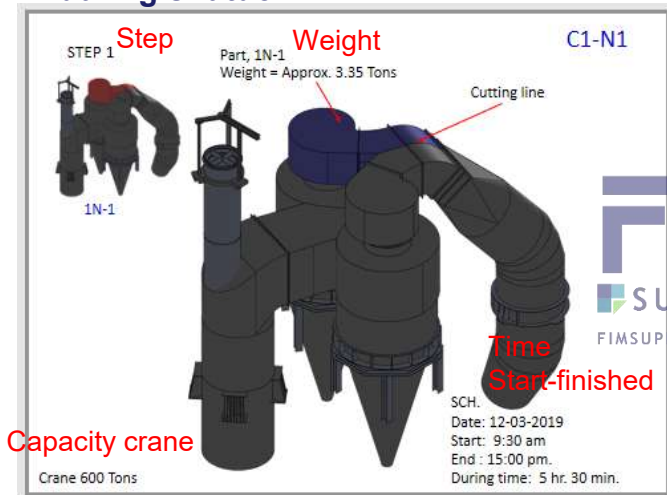
- Site Engineering Consultants – for erection works during kiln shutdown

**Activities (02/4/2019)**

**Update daily progress**



➤ **Step dismantle and erection work during shutdown.**







# REFERENCES HIGHLIGHT OF FIMSUP TEAM



Thai Pride Cement

**Feb 2019 – April 2019**

**Supply Spare parts of  
“FIMSUP” Kiln inlet seal**

TPCC – THAI PRIDE  
CEMENT, SARABURI  
PLANT

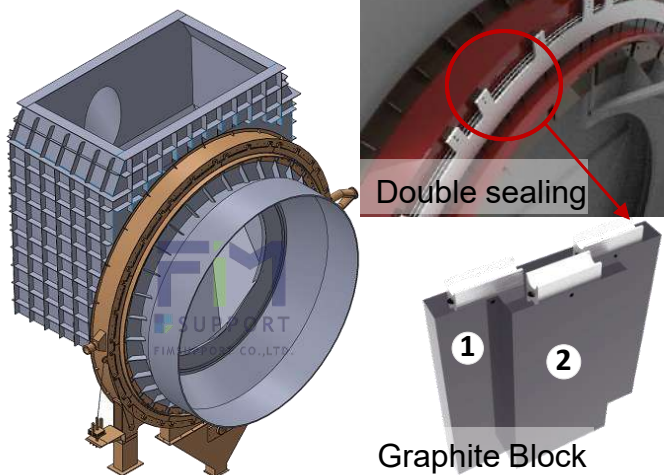
THAILAND

**FIMSUP’s scope of works :**

- EPC Project.

**“FIMSUP” kiln inlet seal**

Double rows graphite seal at Inlet



- ✓ To prevent cold air entry.
- ✓ Without moving parts.
- ✓ Self adjustment.
- ✓ Simple installation.
- ✓ Less maintenance.
- ✓ Kiln operation performance is improved.

- During installation.



- Before



**Replaced by “FIMSUP”  
kiln inlet seal**

- After, 3 months operation





Oct 2018 – Dec 2018



Preheater upgrade.

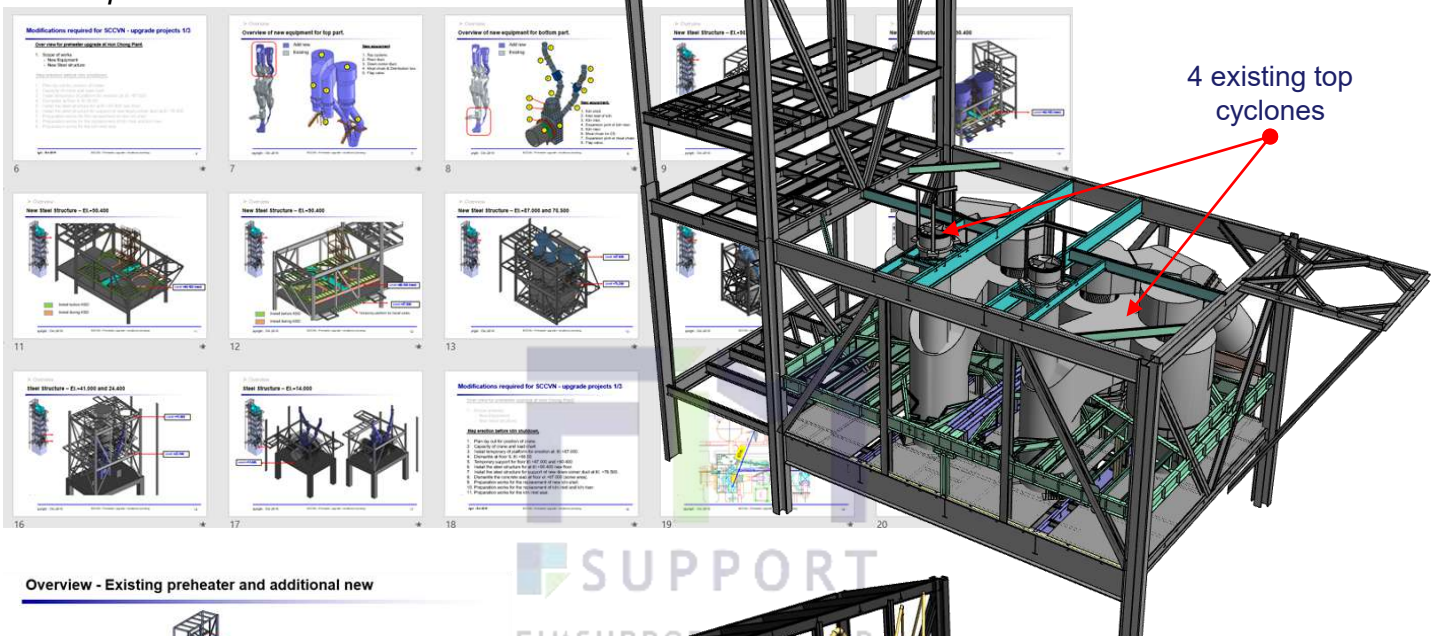
SIAM CITY CEMENT  
VIETNAM (SCCVN),  
HON CHONG PLANT

VIETNAM

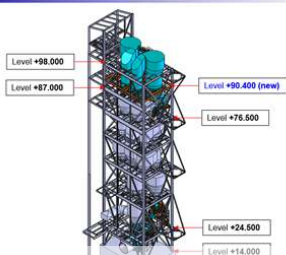
## FIMSUP's scope of works :

- Engineering services, for the preheater steel structure / civil modification

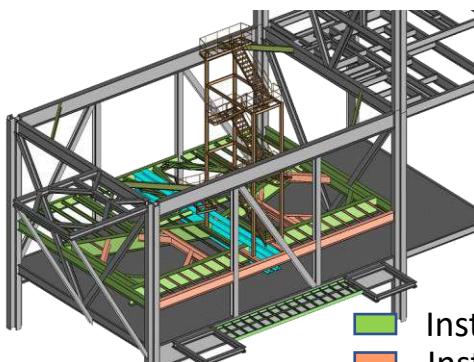
### step erection



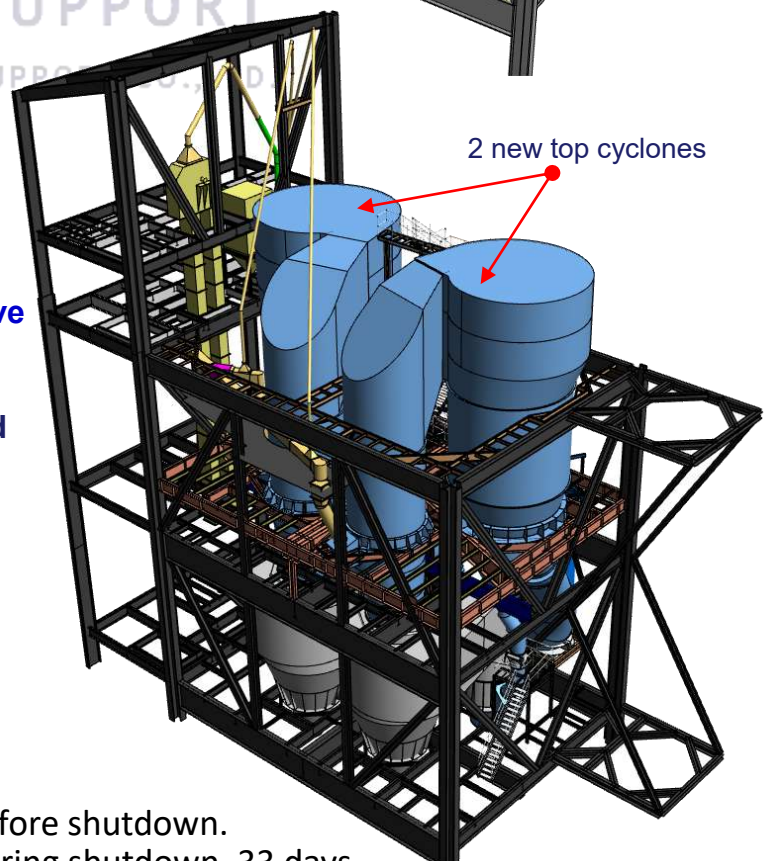
Overview - Existing preheater and additional new



- ✓ Civil design for optimizes cost, **Remove one floor for reduce load of preheater**
- ✓ Step erection for before shutdown and during shutdown (33 days).



- Install before shutdown.
- Install during shutdown, 33 days







# REFERENCES HIGHLIGHT OF FIMSUP TEAM



Holcim



LafargeHolcim

Holcim (Indonesia) Tbk.

Sep 2018 - Oct 2018

**PLANT ASSESSMENT: Process focus potential upgrade for coal mill plant (To improvement for Low Rank Coal utilization).**

PT. LAFARGEHOLCIM  
CEMENT INDONESIA,  
LHOK NGA PLANT

INDONESIA

## FIMSUP's scope of works :

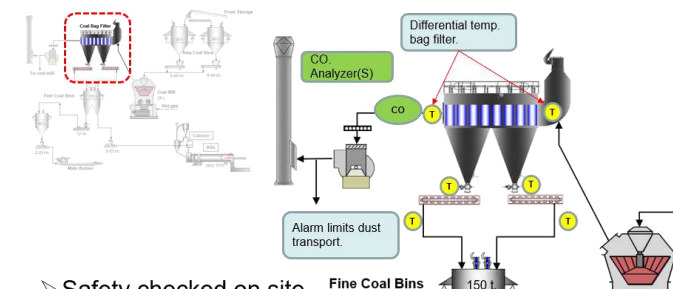
- Find potential to increase Flue of Low Rank Coal usage (reduce production cost).
- Upgrade the existing equipment and budgetary.
- Safety checked and environment.

➤ **Coal quality target:** Gross calorific value(GCV) = 3400 kcal/ kg coal and high moisture at 45%

➤ **Safety check:**

### ✓ Active Explosion Protection

➤ The position required at Bag filter and transport system.



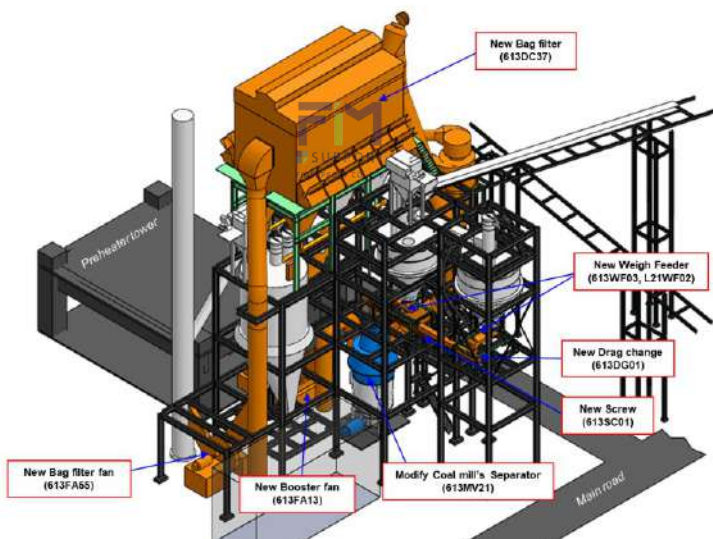
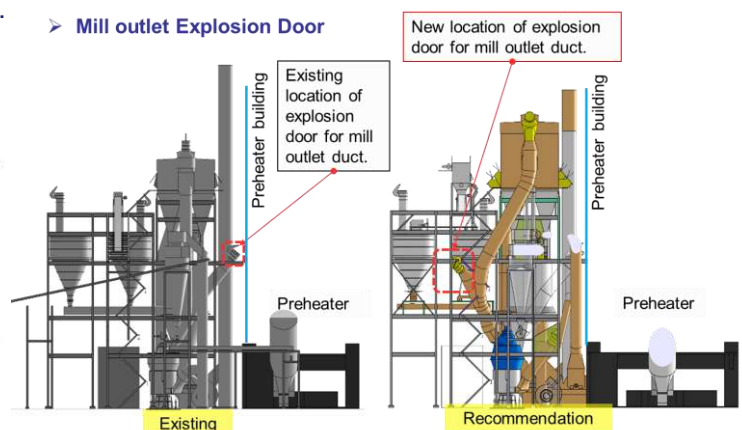
➤ Safety checked on site.

- Temperature monitoring → OK
- CO monitoring → OK

➤ **Coal mill upgrade:** from 25 t/h toward 38 t/h to match kiln capacity (upgrade from 3,600 TPD toward 4,100 TPD) and 75% Low Rank Coal usage.

### ✓ Passive Explosion Protection

➤ **Mill outlet Explosion Door**



*The upgrade should have a minimum investment !!*



## REFERENCES HIGHLIGHT OF FIMSUP TEAM



Thai Pride Cement

**May 2018 – Sep 2018**

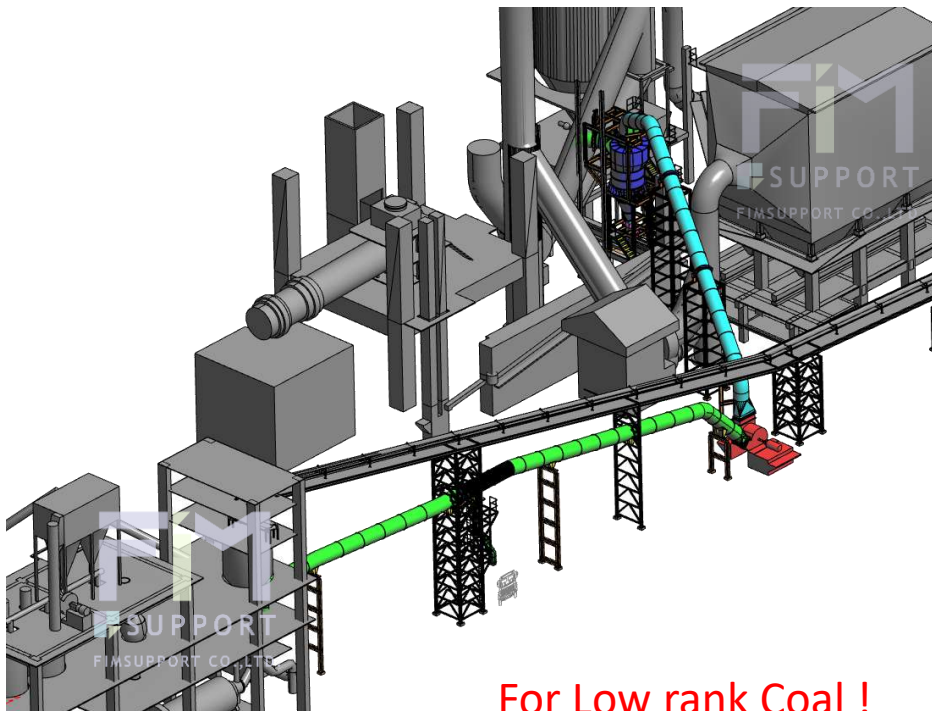
**Modify for Low Rank Coal usage: Rearrange hot gas for coal mill from cooler to from-preheater**

TPCC – THAI PRIDE CEMENT, SARABURI PLANT

THAILAND.

### FIMSUP's scope of works :

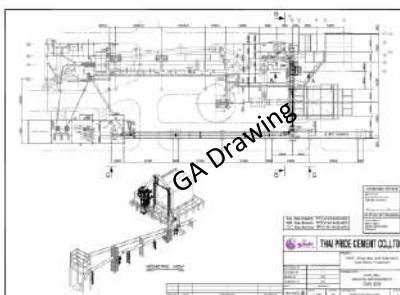
- Engineering services, for Coal Mill Hot Gas Duct with Cyclone and Booster Fan.



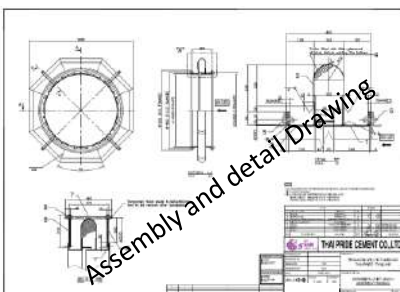
Cyclone



Expansion joint



GA Drawing



Assembly and detail Drawing



Booster Fan



Support and duct





## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**Mar 2017 - Sep 2017**



LafargeHolcim

**LHO grate cooler upgrading to serve 4100 TPD**

PT. LAFARGEHOLCIM  
CEMENT INDONESIA,  
LHOK NGA PLANT

INDONESIA

### FIMSUP's scope of works :

- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning

### "Existing Situation"



Red River in Cooler



Large size of clinker & tentatively high temperature

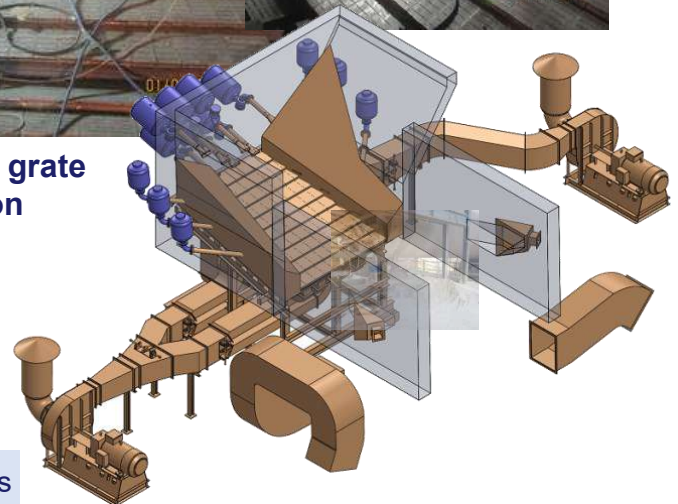


Burnt and deformed  
Grate Plates

- **Cooler upgrade:**
  - ✓ Replaced Fixed Inlet grate
  - ✓ Extended row of Fixed inlet grate from 5 rows to 10 rows

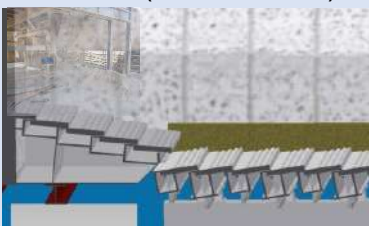


New "FIMSUP" grate  
plate installation



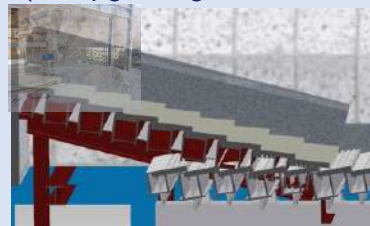
### Existing

Existing fix Inlet Grate with  
5 rows (for 3600 TPD)



### Upgrade

Fix Inlet Grate with 10 rows  
(for upgrading to 4100 TPD)



### Cooler Alignment Services

- Measure the grate beam during alignment



### Upgrade of fixed inlet grate will:

- ✓ Reduce frequency kiln down time
- ✓ Reduce specific heat consumption
- ✓ Eliminate problem such red river, increase characteristic of even clinker distribution



## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**July 2016 – December 2016**



Holcim (Philippines) Ltd.

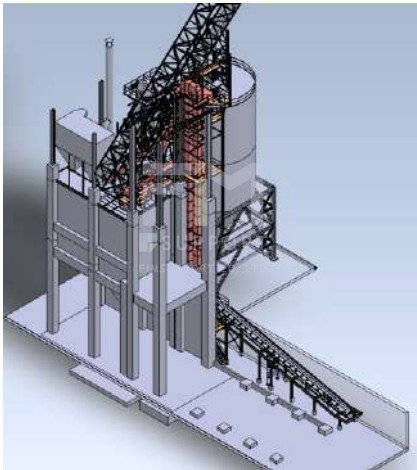
**Finish mill 3 upgrade**

HOLCIM PHILIPPINES,  
INC – DAVAO PLANT

PHILIPPINES

**FIMSUP's scope of works :**

- Civil and ME Engineering.



Holcim (Philippines) Ltd.

**June 2016 – September 2016**

**Finish mill 2 and 3 upgrade**

HOLCIM PHILIPPINES,  
INC – LUGAIT PLANT

PHILIPPINES

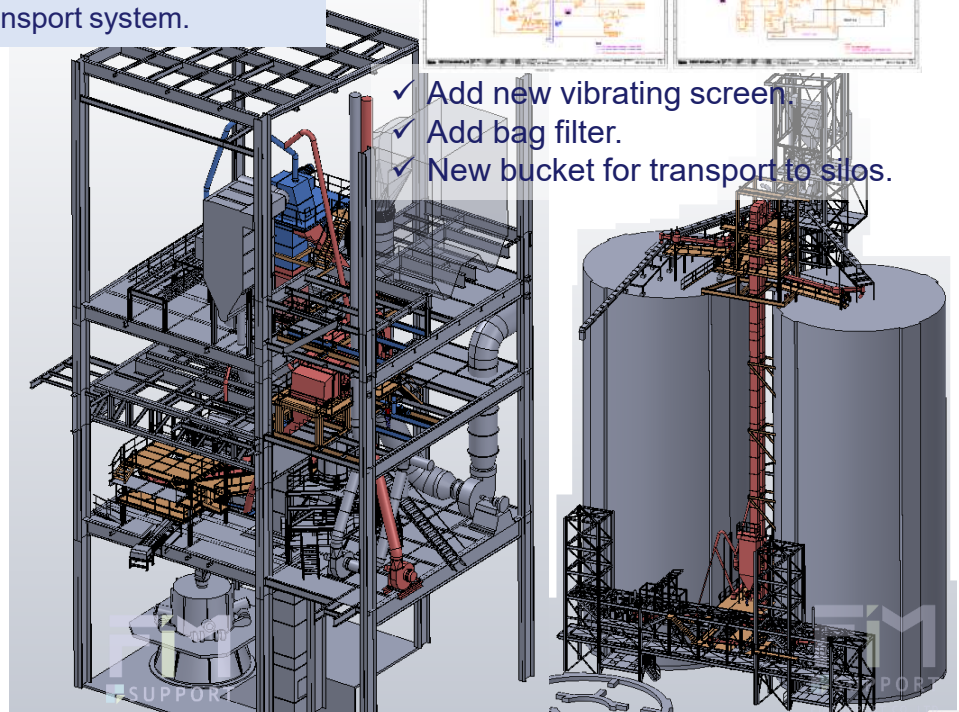
**FIMSUP's scope of works :**

- Process, Civil and ME Engineering for;
- Mill upgrade and upgrade transport system.



**Benefit:**

- Increase mill capacity
- Reduce dust lost/production with minimal dust







# REFERENCES HIGHLIGHT OF FIMSUP TEAM



Siam City Cement Plc.

**July 2015 – Sep 2015**

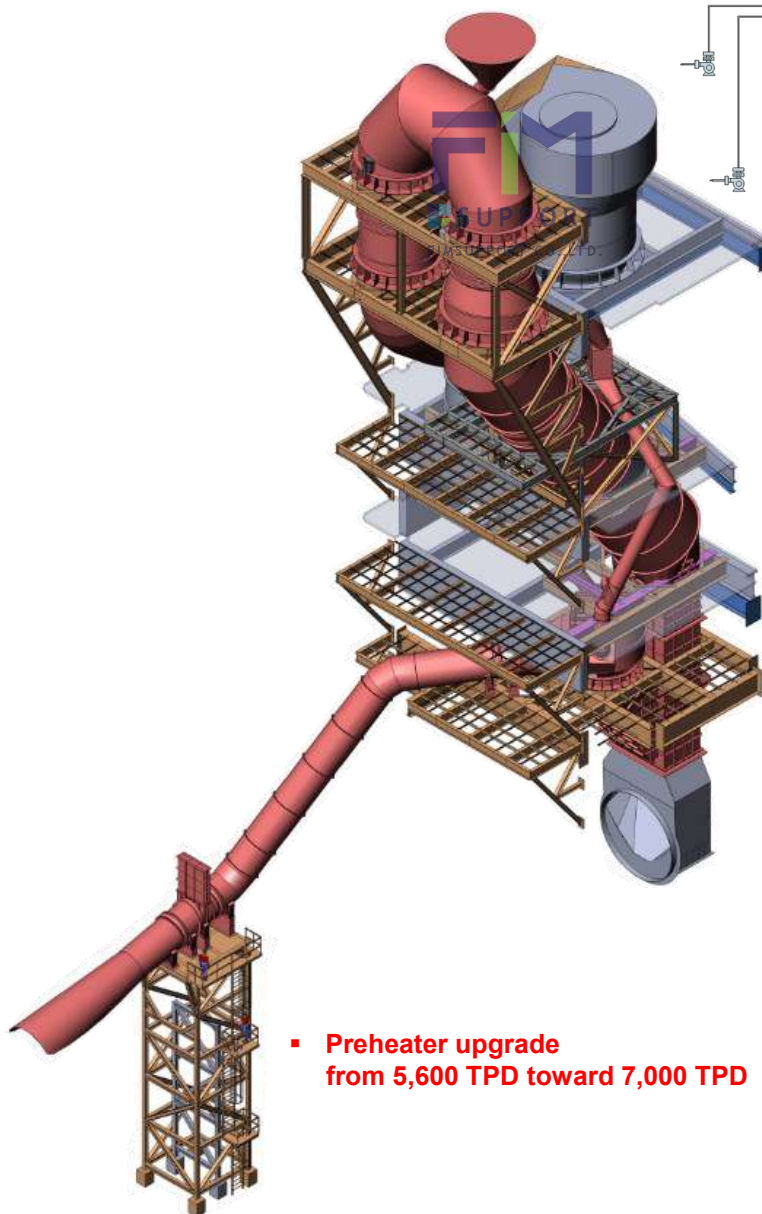
**Engineering services, preheater upgrade from 5,600 TPD toward 7,000 TPD**

**SIAM CITY CEMENT – SARABURI PLANT**

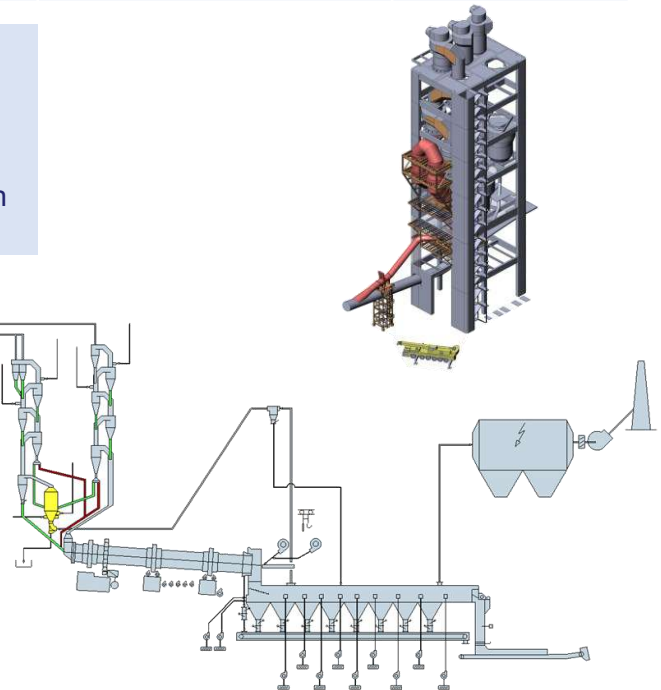
**THAILAND**

## FIMSUP's scope of works :

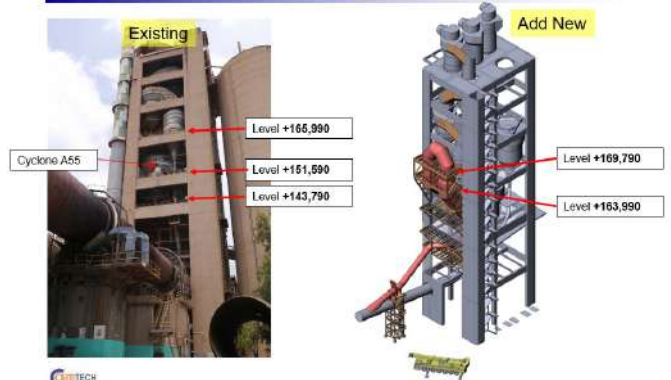
- Process design (with AFR used).
- Equipment design.
- Civil engineering.
- Construction before shutdown and during shutdown (25 days).



- **Preheater upgrade from 5,600 TPD toward 7,000 TPD**



## Existing preheater and Add new - overview



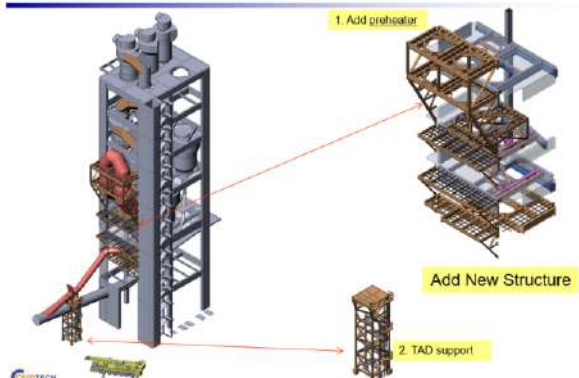
© Copyright : March 2015

SCCC-K3 upgrade - shutdown planning - preheater

3

## A. CIVIL WORKS

A. Civil Works



© Copyright : March 2015

SCCC-K3 upgrade - shutdown planning - preheater

4



# REFERENCES HIGHLIGHT OF FIMSUP TEAM



2015

Cement packing terminal of Balikpapan

HOLCIM

INDONESIA

Cement Silo: silo discharge

**FIMSUP's scope of works :**

- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning



Flow control gate



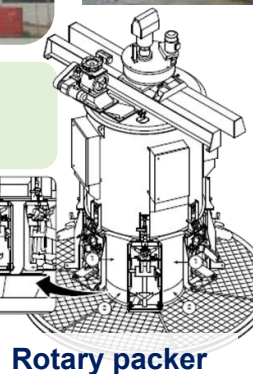
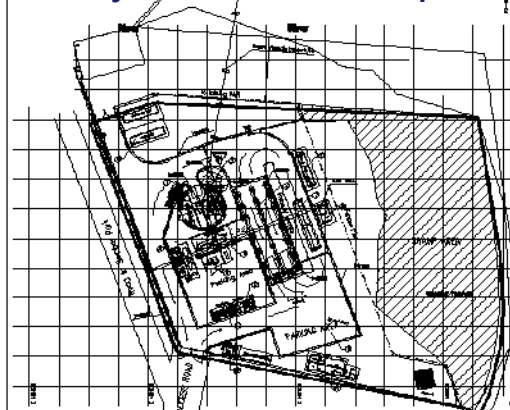
Slide gate



Blower for aeration

- ✓ Customized Silo size, truck traffic and design to match operation

Plant layout & Truck Traffic Optimization



Rotary packer

Bulk loading



Truck loader



Cement Unloading and Transport



Air slide

Vibrating screen and Bag filter



Bucket elevator





## REFERENCES HIGHLIGHT OF FIMSUP TEAM



**2013 – 2014**

**The Myanmar complete 5,000 tons clinker production per day project (MCL1)**

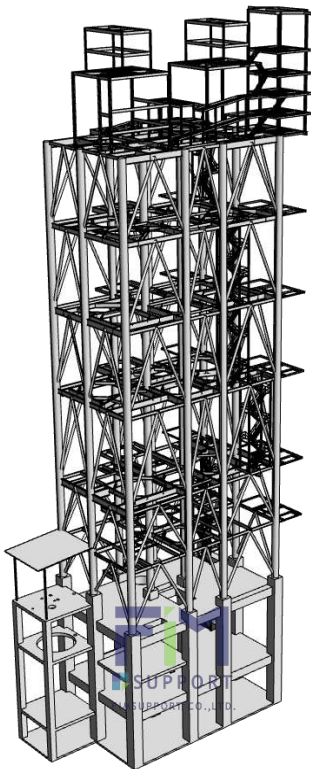
**MAWLAMYINE  
CEMENT COMPANY  
LIMITED (MCL1)**

**MYANMAR**

### **FIMSUP's scope of works :**

- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning

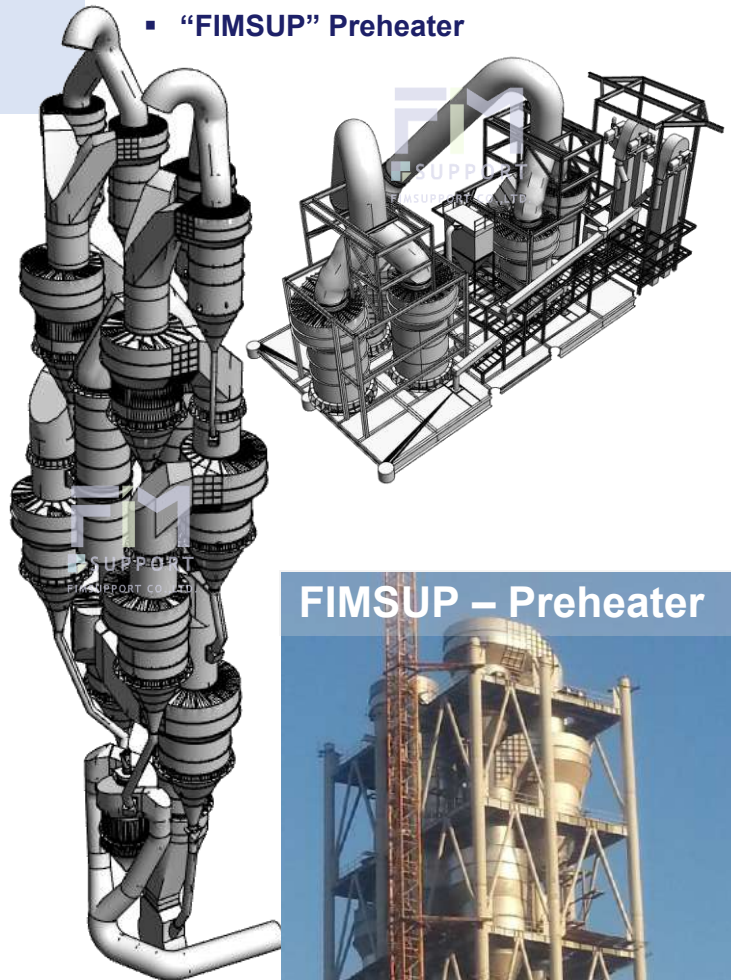
#### ▪ **Preheater steel structure**



#### ▪ **Calcliner and mixing chamber**



#### ▪ **“FIMSUP” Preheater**



### **FIMSUP – Preheater**



### **Jetty location**







## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**June 2012 – 2013**



**The second line with 2500 tons clinker production per day project (KCC2)**

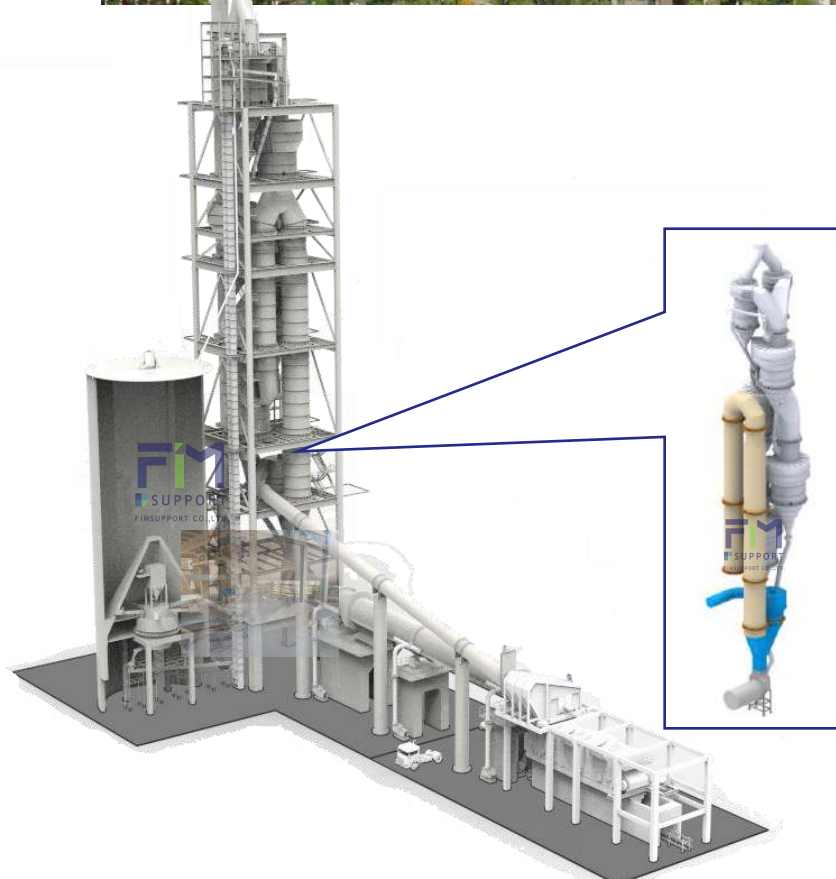
**KAMPOT CEMENT  
COMPANY LIMITED  
(KCC)**

**CAMBODIA**

### **FIMSUP's scope of works :**

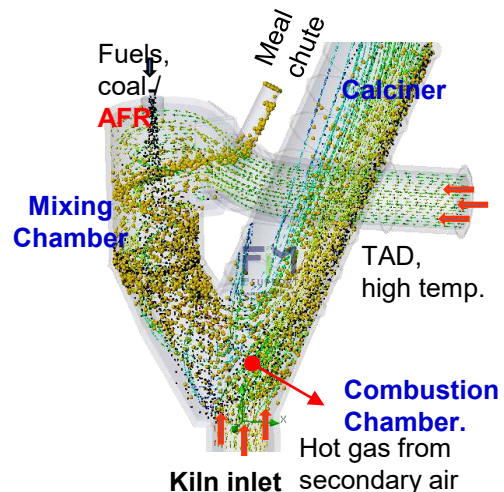
- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning

### **FIMSUP – Preheater**



### **“FIMSUP” Calciner and Mixing Chamber**

- Simulation (CFD) result







# REFERENCES HIGHLIGHT OF FIMSUP TEAM



**BOSOWA CORPORATION**

**August 2012**

**Coal mill upgrade from 35 tph toward 50 tph to match kiln capacity**

**PT SEMEN BOSOWA  
MAROS / SOUTH  
SULAWESI**

**INDONESIA**

## FIMSUP's scope of works :

- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning

Meeting of Planning Step  
Installation and Solution of works



Meeting to  
Prepare Installation works



Installation works during normal annual  
plant shutdown



Transportation and loading on site



Existing Coal Mill



Existing at 35 t/h

"FIMSUP" high efficiency  
dynamic separator



Upgraded at 50 t/h



# REFERENCES HIGHLIGHT OF FIMSUP TEAM

October 2012 – April 2013



Crushing and screening stations

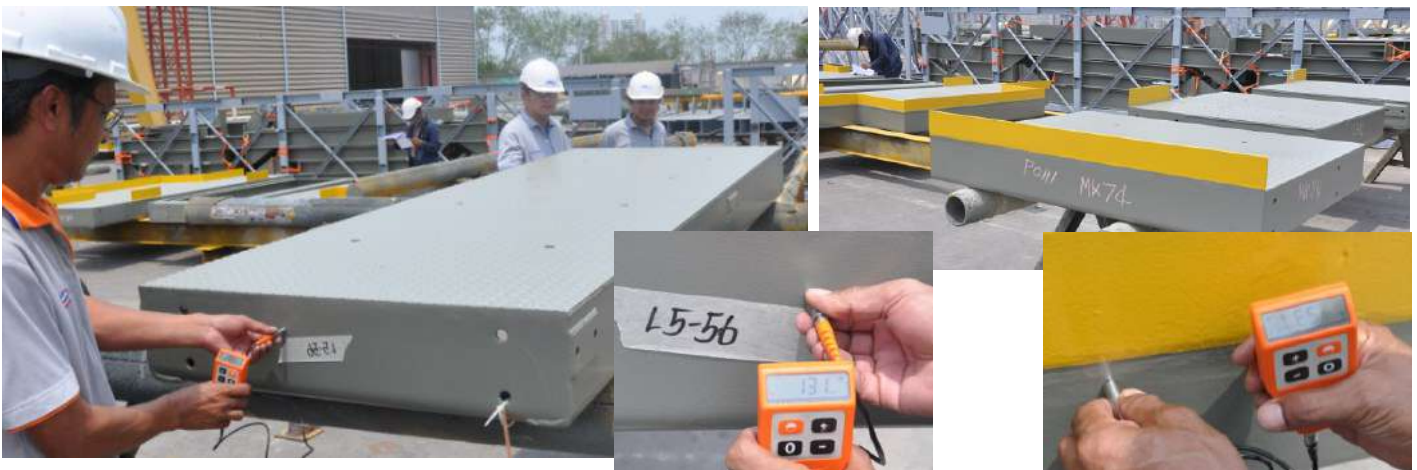
METSO

AUSTRALIA

## FIMSUP's scope of works :

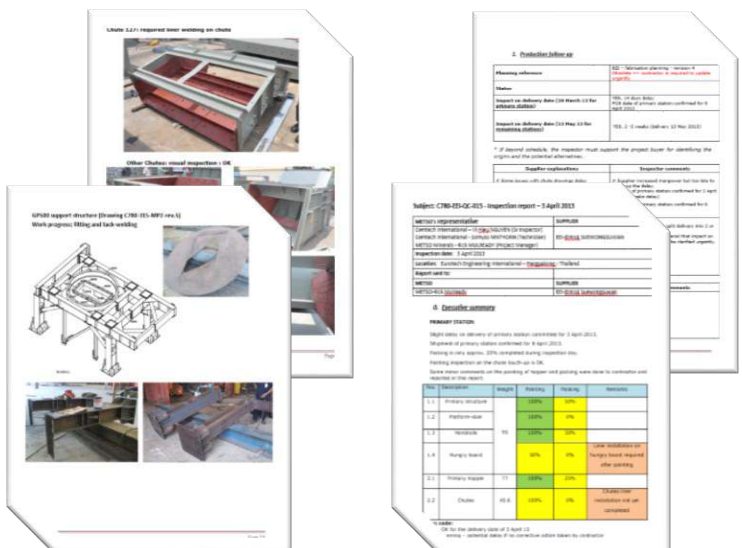
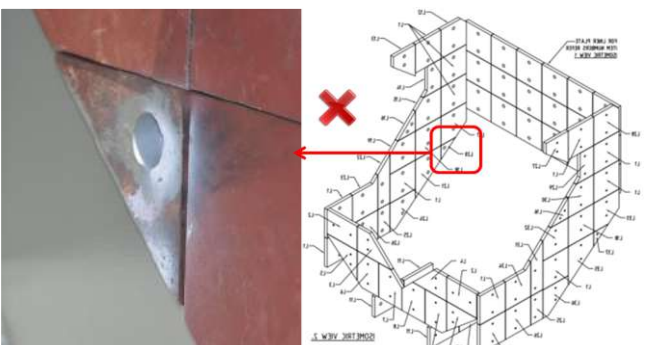
- Inspectors for Crushing and Screening stations, Structure, Hopper and another parts

## QC inspection



## Inspection Report

## Schedule follow up







# REFERENCES HIGHLIGHT OF FIMSUP TEAM



Phonesack Cement

2012

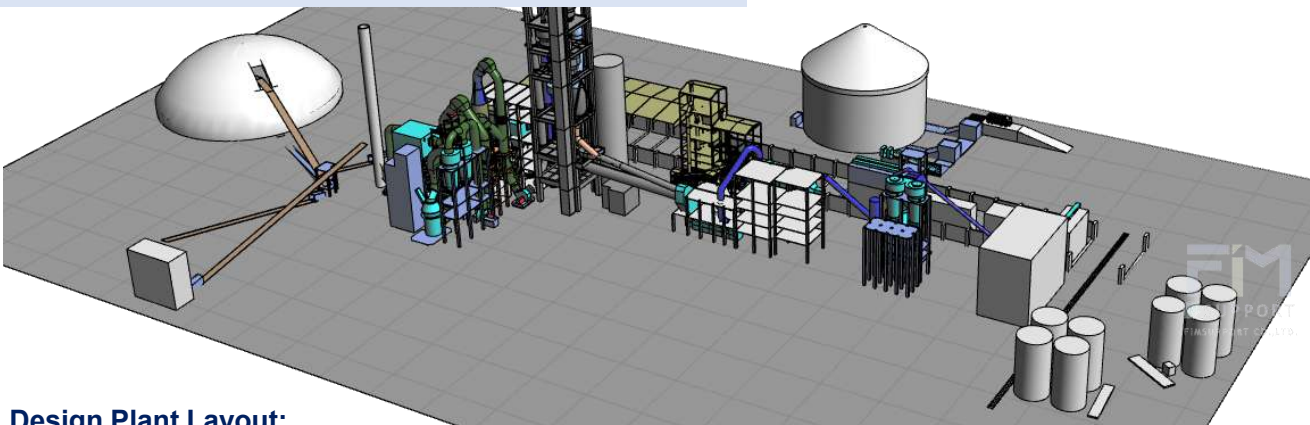
**PHONESACK feasibility cement plant project**

Phonesack Group  
Co.,Ltd

LAOS

## FIMSUP's scope of works :

- Feasibility Study of Cement Plant Greenfield Project

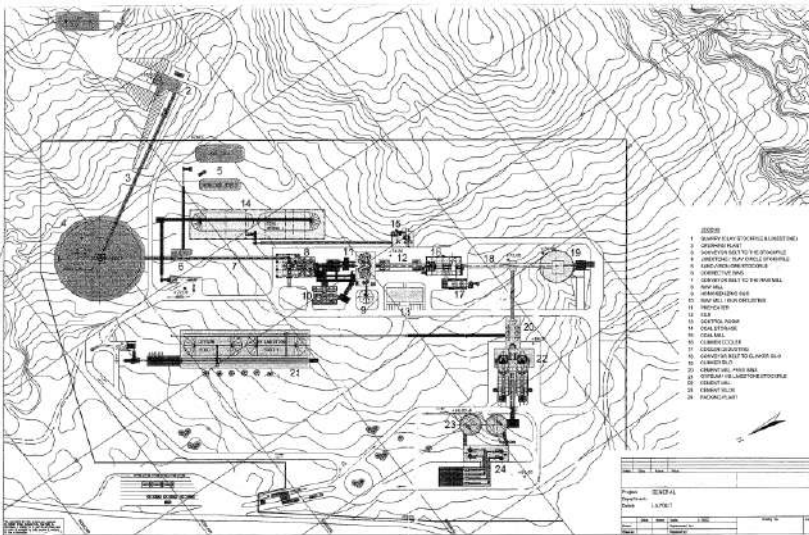


### Design Plant Layout:

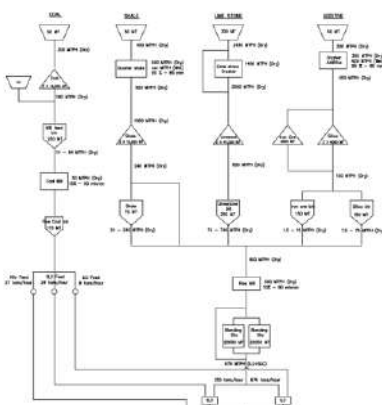
Design machines and location to match future operations

### Raw Material Exploration:

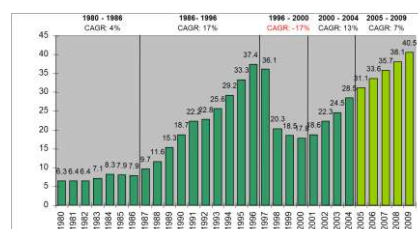
Find raw material with enough reserves for plant operations



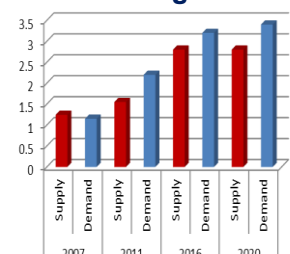
### Mass Flow diagram



### Cement Demand Forecast



### Marketing forecast





## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**June 2011 – Sept 2012**



**BOSOWA CORPORATION**

**BOSOWA Upgrade project from 5,000 to 7,000 tpd clinker production (BSW1)**

**PT SEMEN BOSOWA  
MAROS**

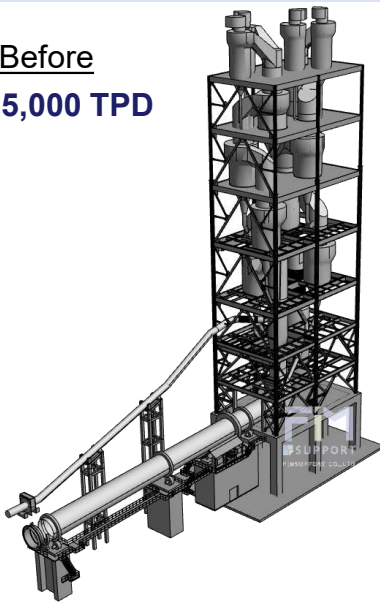
**INDONESIA**

### FIMSUP's scope of works :

- Process, Mechanical and Civil Engineering
- Project Management consultancy and Commissioning

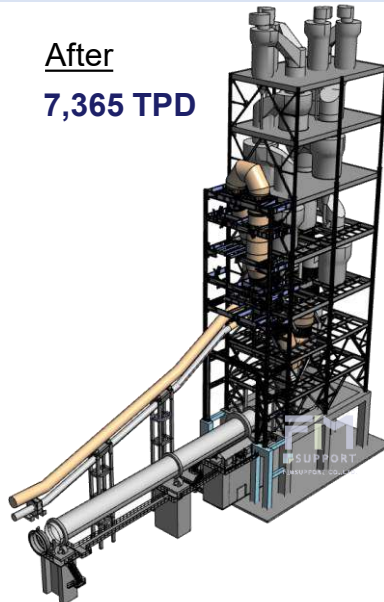
Before

**5,000 TPD**



After

**7,365 TPD**



**Mixing Chamber**  
allow good mix between  
Fuel and raw meal

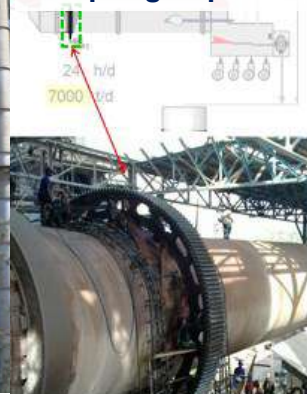
**Capacity increase up to 40%**  
**For example: Upgrade capacity from 5,000 to 7,000 TPD.**

**Mixing chamber**



- **New tertiary air duct (TAD)**

**V-Spring Replacement and Mirror Girth gear**

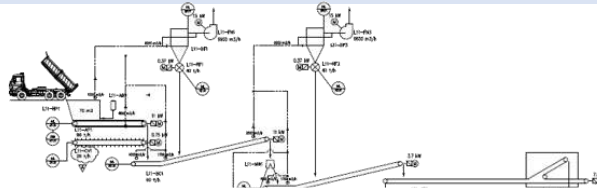






# REFERENCES HIGHLIGHT OF FIMSUP TEAM

**2010 – 2012**



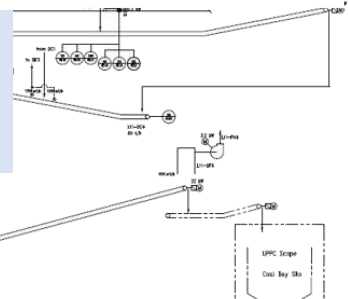
**UPPC - Coal storage and material handling system.**

**UNITED PULP And PAPER CO., INC**

**PHILIPPINE**

**FIMSUP's scope of works :**

- EPC project.
- Unloading, storage, stacker, reclaimer, and transportation system



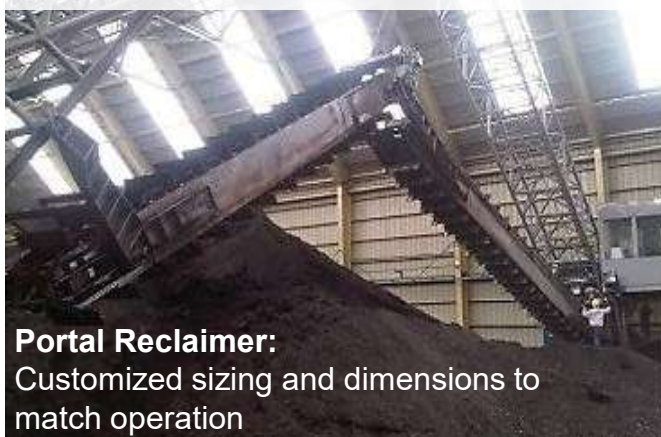
**Coal unloading & storage**



**Tripper Belt**



**Portal Reclaimer**



**Portal Reclaimer:**  
Customized sizing and dimensions to match operation

**Chain & Scraper of Reclaimer**



**Vibrating Screen**



**Conveyor Belts**



**Crusher**







## REFERENCES HIGHLIGHT OF FIMSUP TEAM



**2009 – 2010**

**Kiln shell replacement.**

**PT SEMEN TONASA**

**INDONESIA**

**FIMSUP's scope of works :**

- EPC Contract.

### **Kiln Shell Replacement**

- **Reduce time from 60 to 25 days**

Normal kiln high: 50 m.

- Convention technic: Crane 500 ton can lift up kiln shell 62 ton. (at boom 14 m.)
- Our technic: we concept use the lift jack, so can be up to 600 ton.







# REFERENCES HIGHLIGHT OF FIMSUP TEAM

April – June 2008



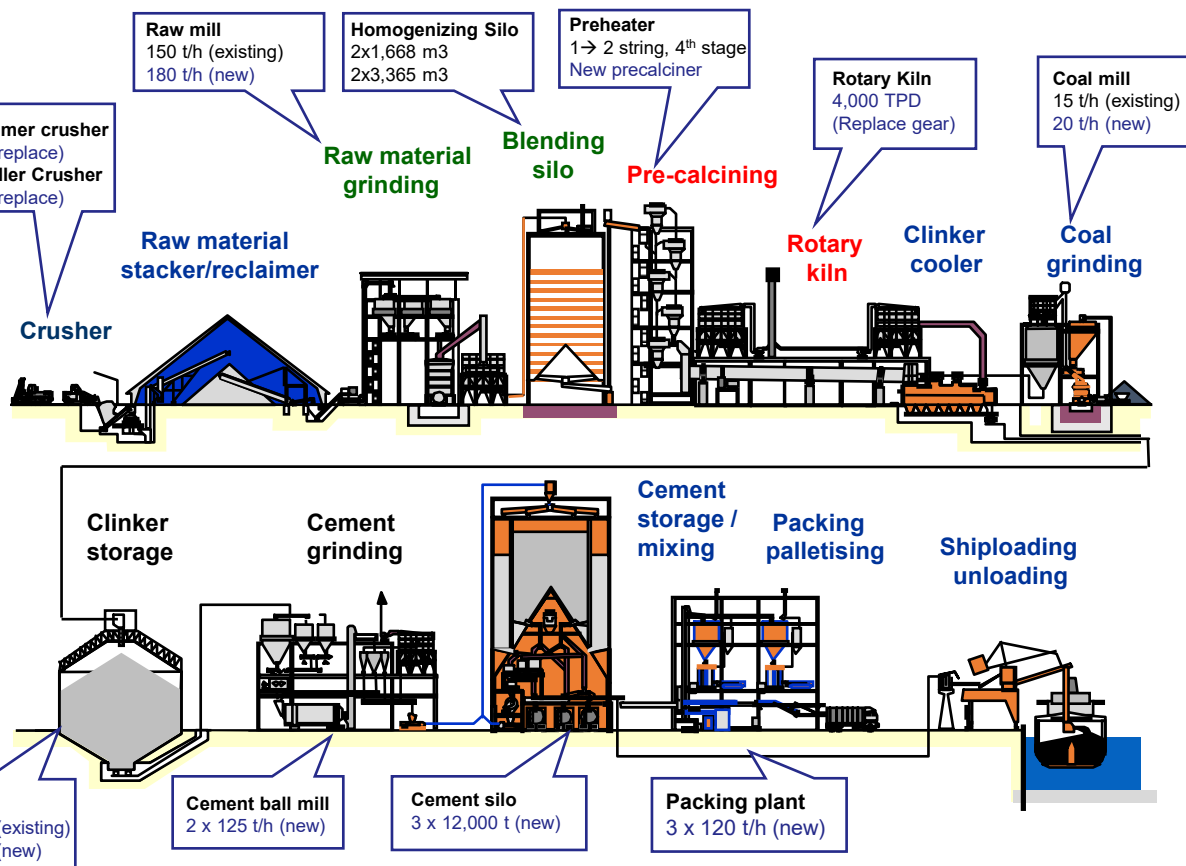
Kiln upgrade & plant upgrade.

BINTANG CEMENT  
MANDIRI

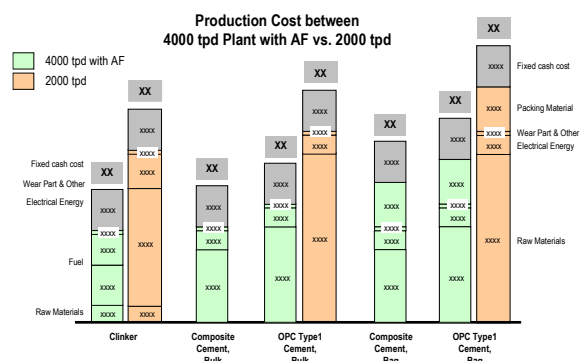
INDONESIA

## FIMSUP's scope of works :

- Techno-Economical Feasibility Study of Upgrading The Outstanding
- 2000 tpd to 4000 tpd Clinker Production Plant



- § The additional 180 tph raw mill is required to supply the 4,000tpd kiln. The grinding loop system is identical with the exiting making it easy to operate and at a low investment.
- § The additional 20 tph coal mill is required for sufficient supply to the 4,000 tpd kiln and has been foreseen for utilizing at low rank coal supplied.
- § All air lifts shall be replaced with bucket elevators to save energy and lower production costs.
- § Separate preheater into 2 strings with inline calciner for increase capacity to 4000 tpd and thermal energy saving.
- § The existing kiln can handle 4000 tpd clinker by replacing the gear unit.
- § Additional 30,000 t. clinker silo and 3 x 12,000 cement silo are proposed for buffering seasonal variation and Ramadan festival.





# REFERENCES HIGHLIGHT OF FIMSUP TEAM



2007 – 2008

Kiln Upgrade & Plant upgrade.

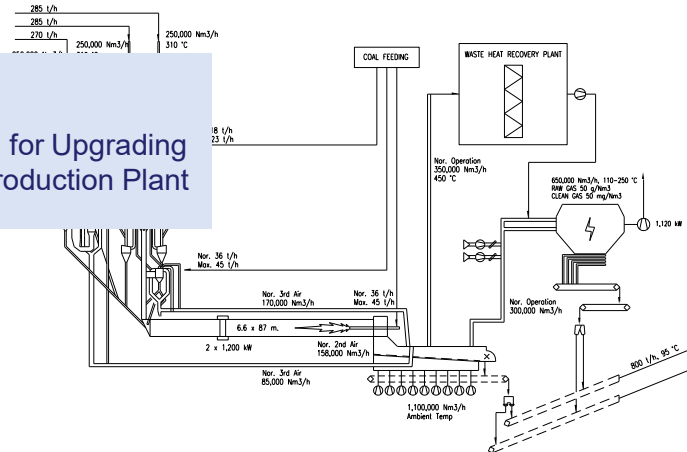
TPI POLENE CO.,LTD.

THAILAND

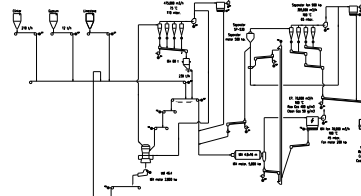
## FIMSUP's scope of works :

- Consultant, Basic Engineering, Until Detail Engineering for Upgrading The Outstanding 8500 tpd toward 12,000 tpd Clinker Production Plant

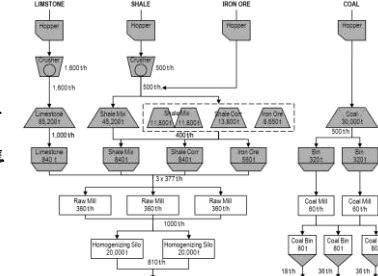
## Engineering – Line 4



## process flow diagram

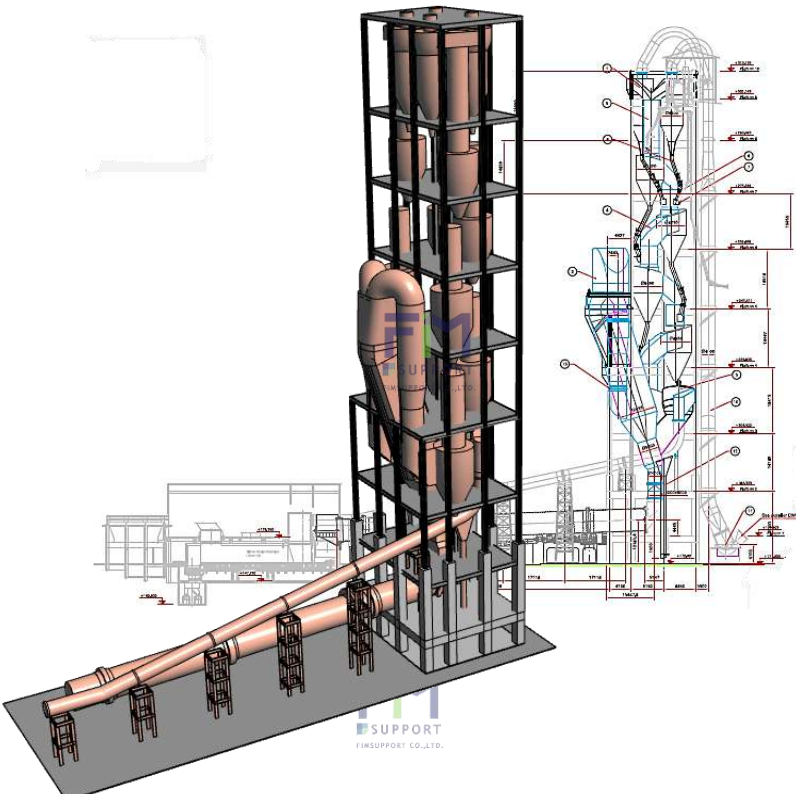


## mass flow diagram



## Preheater Modification

Upgrading from 8,500 TPD toward 12,000 TPD.







## REFERENCES HIGHLIGHT OF FIMSUP TEAM

2006 – 2007



### AFR sludge feeding project

SIAM CITY CEMENT  
PLC

THAILAND

#### FIMSUP's scope of works :

- EPC Contract, engineering, local supply and construction works.
- Sludge feeding system.

#### ➤ Sludge feeding system

##### ▪ Greenfield project



##### ▪ Construction works



Sludge hopper



Slurry pump for sludge feeding system



Hydraulic system for pump



Pressure test for pump





# REFERENCES HIGHLIGHT OF FIMSUP TEAM

2006 – 2007



AFR solid feeding project.

SIAM CITY CEMENT  
PLC

THAILAND

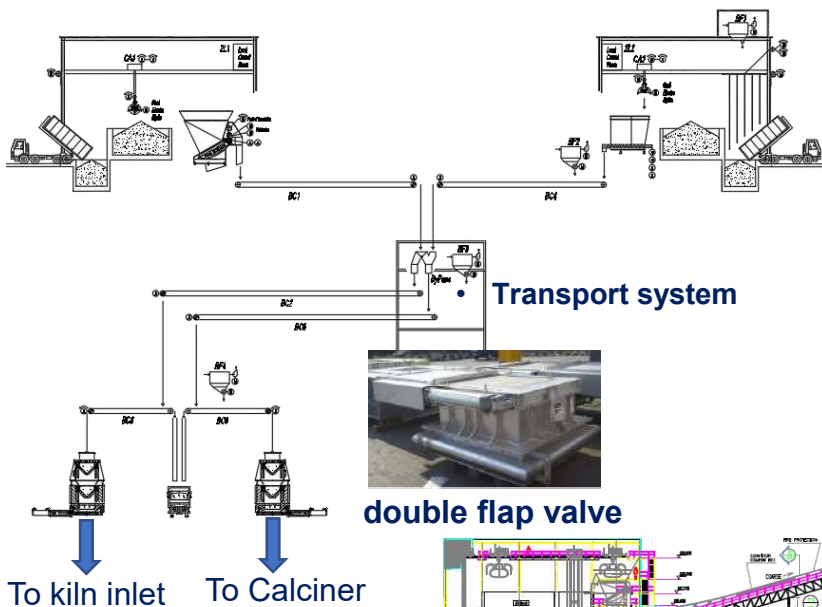
## FIMSUP's scope of works :

- EPC Contract, engineering, local supply and construction works.
- Solid feeding system.

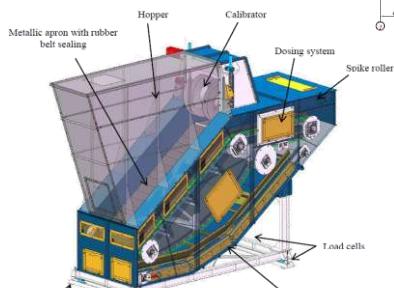
### ➤ Solid feeding system

#### ▪ Coarse material

#### ▪ Fine material



double flap valve



**coarse material extractor :** To load coarse solid AFR with accurate dosage.



**Fine material extractor:** To load fine solid AFR with accurate dosage.



**Transport system to preheater kiln**



**Fire protection system**







## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**2007**



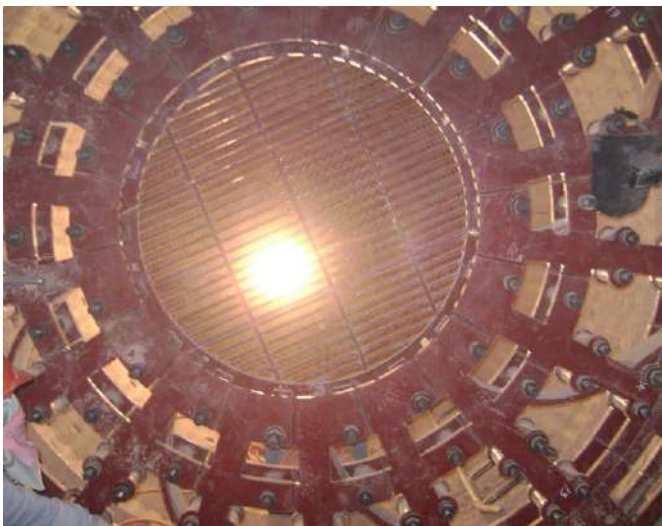
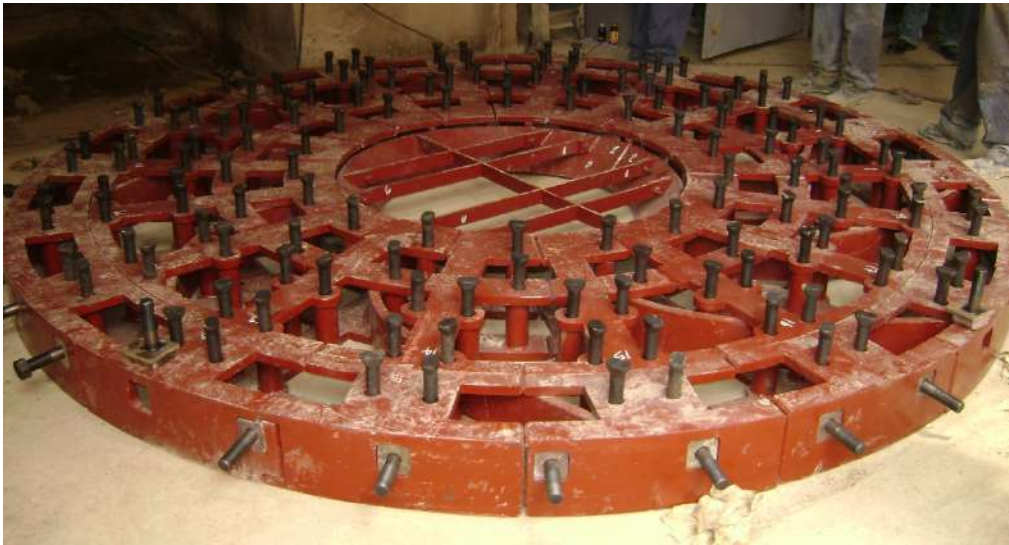
Modification of Mill Diaphragm

CEMEX (Thailand)  
CO.,LTD.

THAILAND

**FIMSUP's scope of works :**

- Design, supply and install.







## REFERENCES HIGHLIGHT OF FIMSUP TEAM



**2005 - 2006**

**Complete fiber cement plant**

CONWOOD CO.,LTD.

THAILAND

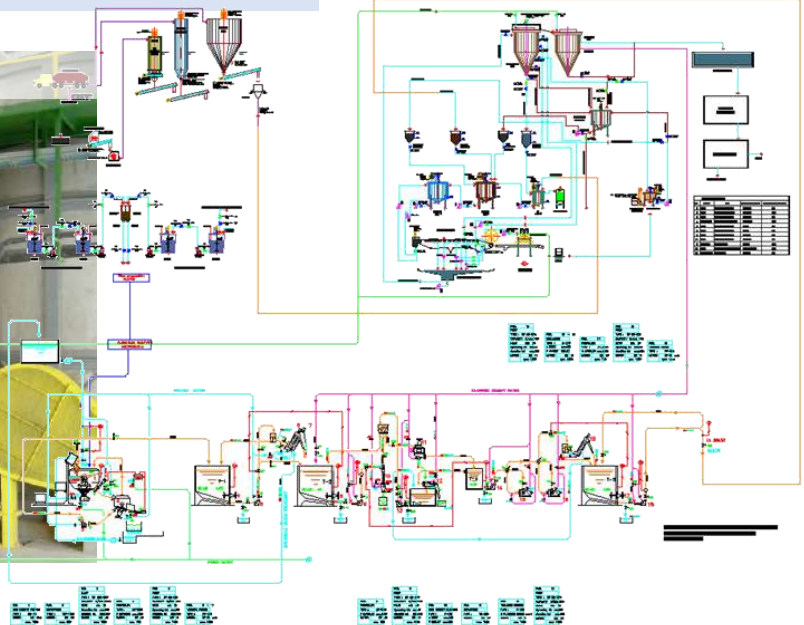
### FIMSUP's scope of works :

- Engineering & Supply of Local Mechanical Equipment,
- Engineering & Supply of Process Control, and Supervision for Installation & Commissioning

### ■ Process flow diagram



**Fiber preparation plant**



**Forming roll**



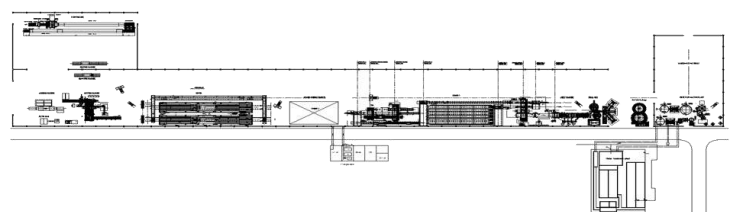
**Stacking & de-stacking machine**



**Oiling machine**



**Sheet machine**



**Transport system**







## REFERENCES HIGHLIGHT OF FIMSUP TEAM

**2005**



**Upgrade raw mill from 380 tph toward 440 tph**

**PT. SEMEN CIBINONG  
- NAROGONG  
PLANT**

**INDONESIA**

**FIMSUP's scope of works :**

- Process Engineering for Upgrading Raw Mill Plant.
- Engineering, Supply & Commissioning of High Efficiency Dynamic Separator



**2004**



**Upgrade raw mill from 315 tph toward 370 tph**

**HOLCIM VIETNAM,  
HON CHONG PLANT**

**VIETNAM**

**FIMSUP's scope of works :**

- Process Engineering for Upgrading Raw Mill Plant.
- Engineering, Supply & Commissioning of High Efficiency Dynamic Separator







## REFERENCES HIGHLIGHT OF FIMSUP TEAM



**2004 - 2005**

**Complete grinding terminal & jetty.**

**HOLCIM VIETNAM LTD.**

**VIENAM**

**FIMSUP's scope of works :**

- Engineering Consultant & Supervision for New 150 t/h Cement Grinding Plant with Jetty.

**Cement Grinding Plant**



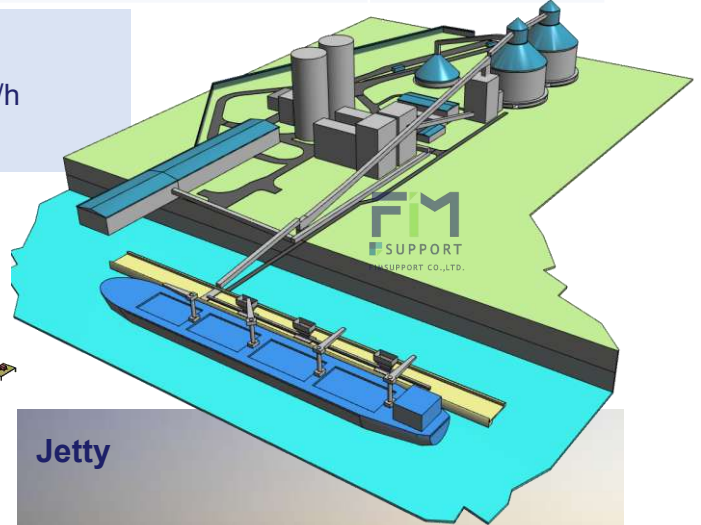
**Packing plant**  
**Cement silo multi chamber**  
**Cement grinding plant**



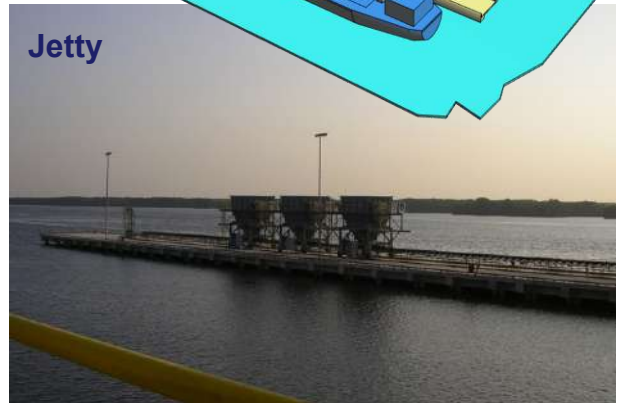
**Clinker silo**



**Transport system**



**Jetty**



**Receiving hopper for jetty**



**Truck and barge loader**







## **FIMSUPPORT CO., LTD.**

58 Soi Sri Rub Suk, Vibhavadi Rangsit Rd., Taladbangkhen,  
Laksi, Bangkok 10210, Thailand.

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