



# COUNTRY REPORT

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PT SEMEN PADANG – INDONESIA

**CTI SIXTH WORKSHOP 2003**



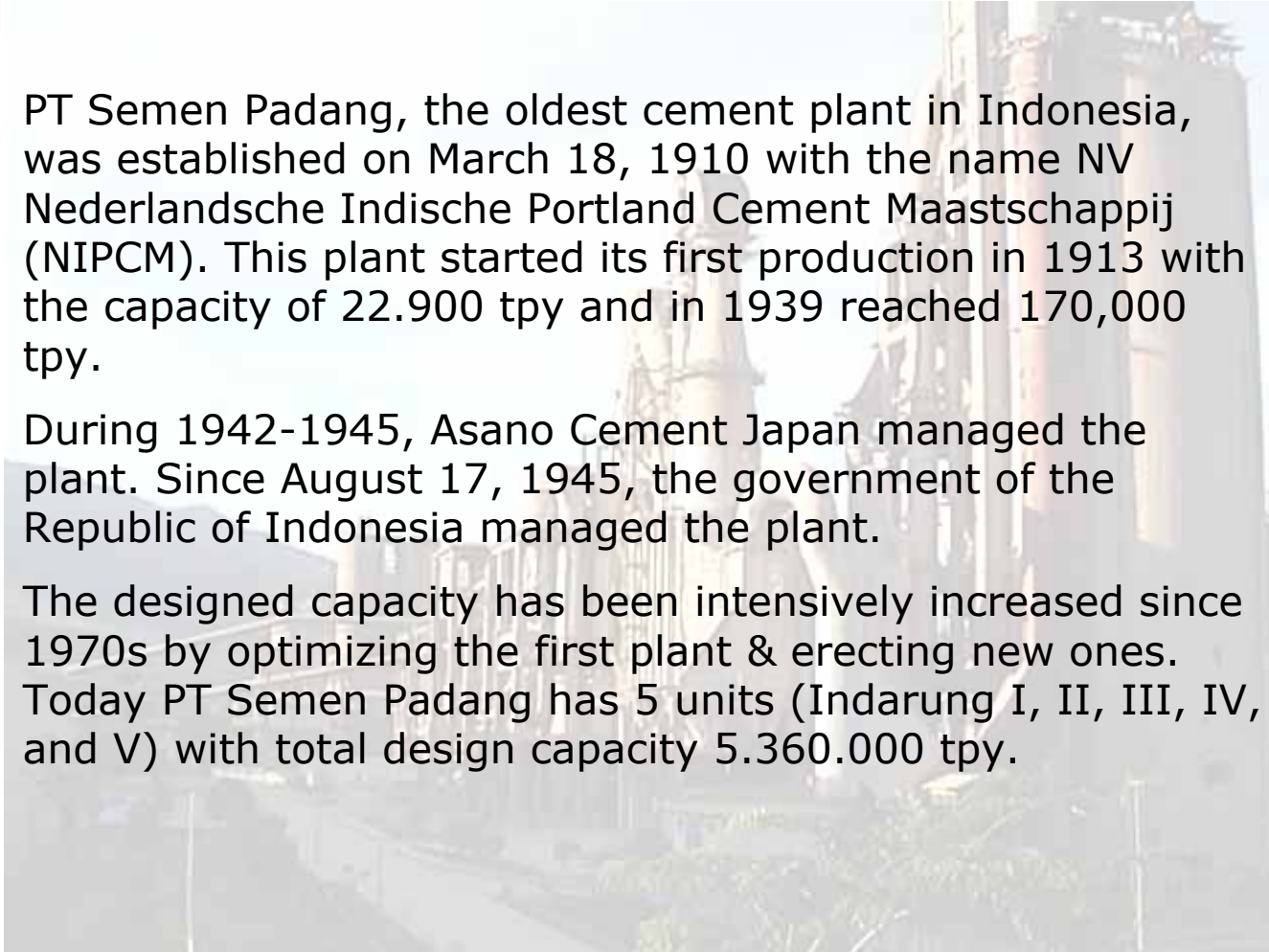
# OVERVIEW

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PT Semen Padang, the oldest cement plant in Indonesia, was established on March 18, 1910 with the name NV Nederlandsche Indische Portland Cement Maatschappij (NIPCM). This plant started its first production in 1913 with the capacity of 22.900 tpy and in 1939 reached 170,000 tpy.

During 1942-1945, Asano Cement Japan managed the plant. Since August 17, 1945, the government of the Republic of Indonesia managed the plant.

The designed capacity has been intensively increased since 1970s by optimizing the first plant & erecting new ones. Today PT Semen Padang has 5 units (Indarung I, II, III, IV, and V) with total design capacity 5.360.000 tpy.





# OVERVIEW

Plant	Process	Service Year	Capacity (tpy)
Indarung 1	Wet	1913-98	-
Indarung 2	Dry	1982	660.000
Indarung 3	Dry	1984	660.000
Indarung 4	Dry	1986/1993	660.000/1.620.000
Indarung 5	Dry	1998	2.300.000

- Portland Cement Type I, II, III, IV, V, I/II, 42,5R-NA, 32,5R-NA
- Blended Cement (Pozzolan/Masonry)
- Oil Well Cement

All of our product meet national standart SNI (Standard Nasional Indonesia) and international standard (ASTM, JIS, DIN & BS), and for OWC (Oil Well Cement) Class G-HSR we have received API Spec. 10 A Certificate.

# ENVIRONMENTAL POLICY



Environment is considered as an integrated part of company operation and business activity



# CP-EE Organization

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In 2000 Energy Efficiency Team was established.

In March 2003 the EE team was dissolved into CP/EE Team to promote also cleaner production.

***Semen Padang has also acquired ISO 9001-2000 and ISO 14001 certification.***



# CP-EE PROGRAM

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- 1. Waste Heat Recovery System**
- 2. Utilization of Waste Material**
- 3. Power Distribution System Efficiency**
- 4. Utilization of High Efficiency Equipment**
- 5. Implementation of Better Energy Management**
- 6. Operation Management**



# Waste Heat Recovery System

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1. Introduce exhaust gas from Diesel Generator to replace diesel oil for hot air generator in clay dryer.
2. Technical study for Waste Heat Recovery Generator. This project will introduce facilities for waste heat recovery from manufacturing processes to generate electricity. This is a new technology and also expensive for us. But this technique is very challenging for reducing GHG and conserving energy. This project is planned to be implemented as a CDM project and feasibility study for this project is being prepared and studied by NEDO/JFE and PTSP.



# Utilization of Waste Material

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## 1. Waste Reduction

- a) Termination of Indarung 1 (wet process) operation
- b) Install new gas conditioning system for ESP system
- c) Modification of GCT in Indarung II from wet scrubber to dry conditioning tower. In this case gas temperature can be reduced without producing slurry as by-product
- d) Install new jet pulse filter (9 units operated + 18 in progress)
- e) Using water re-circulation
- f) Lowering the clinker to cement ratio
- g) Using less paper by using paperless office platform (trial)



# Utilization of Waste Material (cont'd)

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## 2. Using Waste Material

- a. Using copper slag from copper smelter to replace natural iron sand
- b. Burning of waste lubricant in calciner (2004)



# Power Distribution System Efficiency

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1. Promote hydro power by increasing capacity of old hydro power from 750 kW to 2000 kW average.

2. Improvement of Power Factor

The improvements are still in progress. In some feeder the power factor is improved from 0.75-0.85 to 0.93-1.

3. Optimization of power distribution system

The audit for system distribution has been carried out in some substation. Optimization will be done by reconfigure the power distribution system.



# Utilization of High Efficiency Equipment

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## **1. *Pregrinder Demonstration Project***

This project is implemented in 1994 by introducing modern pregrinding equipment in Cement Mill Indarung 3 and is sponsored by NEDO. The purpose is to reduce the power consumption in energy intensive ball mill. The result is 6 kwh/t saving in power consumption

## **2. *Reducing Fan Speed (on-going)***

Many fans operate at fixed and small damper/gate opening (25% to 55%). Fan speed reducer will be introduced to replace the damper controlled fan with fixed speed reducer. The study is still carried out to find the optimum speed for each inefficient fan

## **3. *Separator 3B retrofit***

High efficiency separator will be installed in cement mill Indarung 4 to replace old dynamic separator. Lower power consumption and better product quality is expected.



# Operation Management

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- 1) Improve plant operation stability by using new control system for Line 2/3 (finish) and Line 4 (on-going)
- 2) Termination of Indarung 1 (wet process) operation
- 3) Implement OPM (on-going)



# PROBLEMS & CHALLENGES

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- In the future fuel source is becoming scarce and cost of energy is becoming more expensive.
- Lack of knowledge (available information), technology
- Investment.
- No incentives from government for waste utilization in cement kiln.
- Even waste is still expensive compared to fossil fuel.



# GERIAP

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- Duration: 3 Years
- This program is designed to develop and demonstrate mechanism that can help industries to reduce gas emission especially greenhouse gas emission. In September 2003 energy audit has been carried out in Indarung IV plant.