



**NIPPON STEEL  
ENGINEERING**

November 29, 2011

New Energy and Industrial Technology Development Organization  
Nippon Steel Engineering Co., Ltd.

**Energy Efficiency Significantly Improved at a Steel Plant in India  
—Joint Demonstration Project with the Indian Government for Coke Dry  
Quenching System—**

A completion ceremony was held on November 28, 2011 at Tata Steel's Jamshedpur plant in Jharkhand, India, marking the completion of the installation of a system for "The Model Project for Increasing the Efficient Use of Energy Using a Coke Dry Quenching (CDQ) System," a joint project among the New Energy and Industrial Technology Development Organization of Japan (NEDO), the Ministry of Steel, the Ministry of Finance of India, Nippon Steel Engineering Co., Ltd. and Tata Steel.

In this project, which was carried out from 2006 to 2011, a CDQ system was installed at Tata Steel's Jamshedpur coke plant. The project demonstrated the effectiveness of the system compared to conventional wet quenching methods, including energy conservation effects, dust emission control and stable operations of a blast furnace using homogenized coke.

The dissemination of the system will be promoted in India and other countries through various activities, such as a promotion seminar.



## 1. Background and Objectives

In recent years, India's demand for energy has been soaring due to rapid economic growth. This has resulted in India's growing interest in energy conservation technologies that have been put into practical use in developed countries as measures to address energy and environmental issues.

The objective of this project was to reduce energy consumption at a steel plant by replacing a conventional wet (water) quenching method with a CDQ system that cools red hot coke through a dry quenching method (inert gas circulation). The CDQ system recovers waste heat to generate steam that is used for power generation during steel making processes, thereby saving energy. This project also aimed to demonstrate the effectiveness of the CDQ system and promote the system throughout India and other countries.

## 2. Completion Ceremony Overview

1) Date: November 28, 2011 (Mon) 15:45-17:00 (local time)

2) Venue: Tata Steel Jamshedpur plant, Jharkhand, India

3) Attendees:

India side:

Ministry of Steel, Joint Secretary, Dr. Dalip Singh

Tata Steel, Managing Director, Mr. H.M. Nerurkar, Vice President, Mr. Varun Jha

Japan side:

Mr. Fumio Ueda, Executive Director, NEDO

Mr. Iwao Miyamoto, Chief Representative, New Delhi Representative Office, NEDO

Mr. Mitsuo Kawaguchi, Consul-General, Consulate-General of Japan in Kolkata

Mr. Kentaro Endo, Director, Iron and Steel Technology Office, Ministry of Economy, Trade and Industry

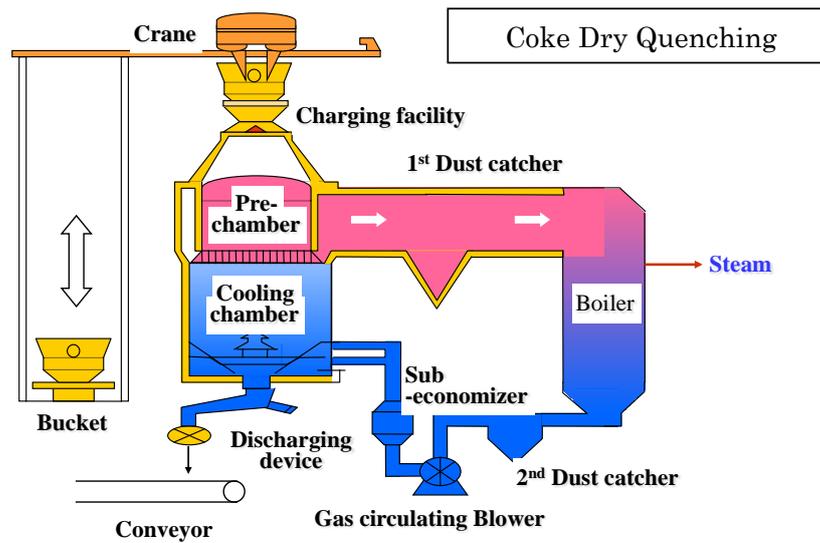
Mr. Masaaki Sawa, Managing Director, Nippon Steel Engineering Co., Ltd.

## 3. Project Overview

A CDQ system was installed at Tata Steel's Jamshedpur coke plant. Unlike conventional wet quenching methods that use water to cool red hot coke, the CDQ system uses inert gas circulation for cooling and recovers waste heat to generate steam that is recycled in steel making processes, while limiting emissions of air pollutants, including coal dust. The system consists of equipment used in transferring red hot coke to cooling chambers (bucket, crane and charging device), cooling chamber, equipment used to discharge cooled coke from the chamber, gas circulation fan, primary and secondary dust catchers for removing dust from inert gas circulation, and a waste heat recovery boiler used in generating steam from recovered waste heat.

This system recovers 84% of the waste heat generated from coke and is expected to reduce annual energy consumption by the equivalent of about 50,000 tons of oil as well as abate

annual CO<sub>2</sub> emissions by about 137,000 tons.



System specifications:

Maximum coke disposal rate: 135 ton/hour

Energy conservation (steam recovery) effect: oil equivalent of 50,000 tons/year

Environmental improvement (GHG emissions reduction): CO<sub>2</sub> equivalent of 137,000 tons of CO<sub>2</sub>/year

Entrusted company: Nippon Steel Engineering Co., Ltd.

#### 4. Dissemination Activities

With the aim of disseminating the system throughout India and other countries, dissemination activities are being organized, such as a promotion seminar.

#### 5. Contact Persons

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