



TAIHEIYO CEMENT NEWS LETTER

June 18, 2020

Adoption of “Development of Carbon Circulation Technology for the Cement Industry” as a NEDO Project - Launching effort to develop innovative technologies for greenhouse gas emissions reduction -

“Development of Carbon Circulation Technology for the Cement Industry”, a project of Taiheiyo Cement Corporation (“Taiheiyo Cement”) has been adopted through public offering as a project of the New Energy and Industrial Technology Development Organization (“NEDO”). Accordingly, we have launched an effort to develop innovative technologies for greenhouse gas emissions reduction.

While active discussions are underway for greenhouse gas (CO₂) emissions reduction in line with the new international framework adopted at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21), Taiheiyo Cement has positioned CO₂ emissions reduction as its important growth strategy and, on March 30, 2020, announced specific measures formulated for its long-term vision of greenhouse gas emissions reduction toward 2050. The main pillar of the vision is the reduction of CO₂ emissions in cement production, with a long-term goal of 80% reduction by 2050. The specific measures include the development of innovative technologies such as CO₂ capture and utilization applicable to cement production and maximum reduction in raw material- and energy-related CO₂ emissions through maximum application of existing technologies as well as the introduction of new technologies.

The purpose of the project is to develop carbon circulation technology for the cement industry, based on innovative technology such as CO₂ capture from kiln exhaust gas at cement plants and utilization of captured CO₂ throughout the cement value-chain. We focused on the utilization of demolished concrete generated from existing buildings and infrastructures in order to circulate both resources and CO₂ effectively. The demolished concrete is reused for construction materials after the CO₂ sequestration by accelerated carbonation. In addition, some of it is reused for cement raw material after effectively retrieving calcium from the demolished concrete, which leads to the reduction of limestone consumption and CO₂ emissions in cement production. Such innovative technologies are yet to be established, and a comprehensive evaluation on our proposal for developing them must have led NEDO to the current decision.

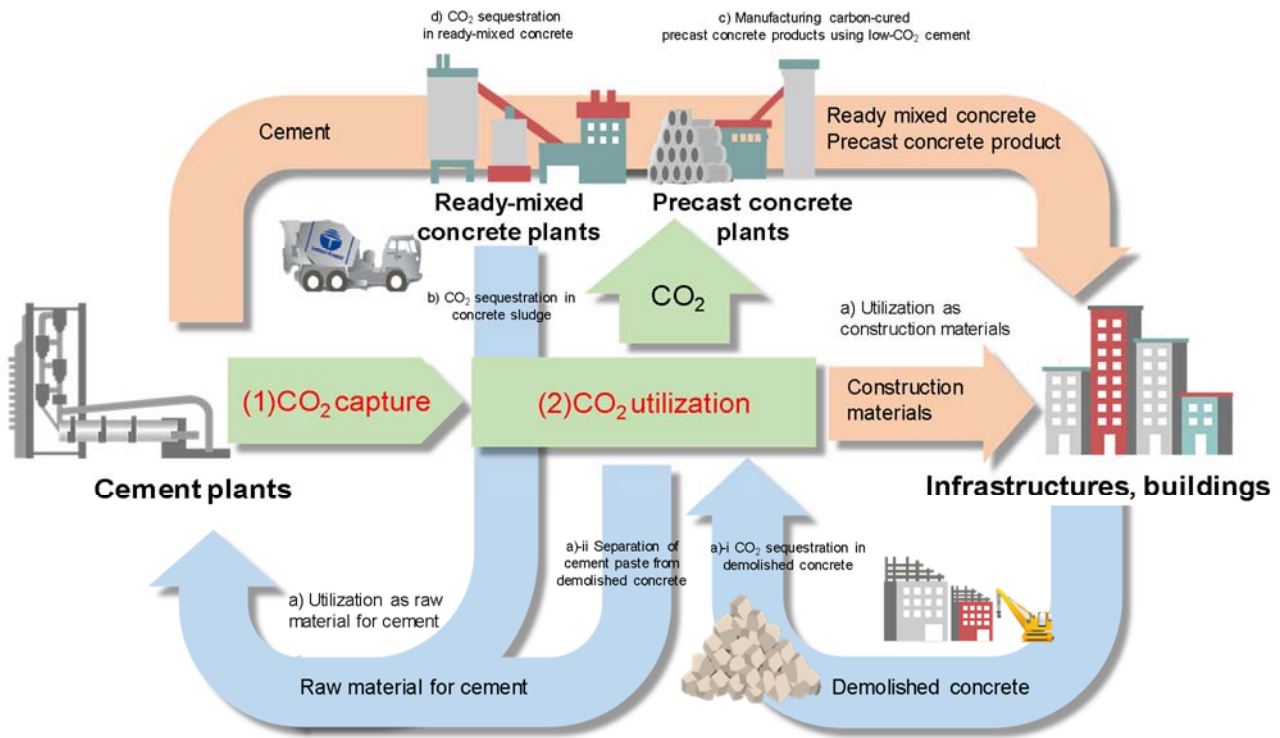
Through the project, Taiheiyo Cement will support the societal shift toward decarbonization as a member of the cement industry, while carrying out the announced measures and promoting technological development to achieve the long-term goals for 2050 under the policies set out in our long-term vision.

Overview of the Project

1. Title: Development of Carbon Circulation Technology for the Cement Industry
2. Period: Fiscal years 2020 to 2021
3. Summary: The goal of the project is to establish technologies to circulate and reuse CO₂ from the cement manufacturing process as cement raw materials or construction materials at cement plants and in neighboring communities, thereby creating innovative decarbonization technologies in the cement industry.

Specific technologies to be developed for achieving the goal include the following:

- (1) CO₂ capture from kiln exhaust gas at cement plants
- (2) Utilization of captured CO₂
 - (a) Accelerated CO₂ sequestration in demolished concrete and its use as cement raw materials or construction materials
 - i. Accelerated CO₂ sequestration in demolished concrete
 - ii. Efficient separation of cement paste from demolished concrete
 - (b) CO₂ sequestration in concrete sludge
 - (c) Manufacturing carbon-cured precast concrete products using low-CO₂ cement
 - (d) CO₂ sequestration in ready-mixed concrete



Concept of the Project