

## Third-Party Opinion on Transition-Linked Loan Framework to TAIHEIYO CEMENT CORPORATION

Japan Credit Rating Agency, Ltd. (JCR) has submitted a third-party opinion on the transition-linked loan framework to TAIHEIYO CEMENT CORPORATION ("TAIHEIYO CEMENT" or "the Corporation").

### <Executive Summary>

This Third-Party Opinion has confirmed the conformity of Transition-Linked Loan Framework (hereinafter referred to as "the Framework") formulated by TAIHEIYO CEMENT CORPORATION (hereinafter referred to as "TAIHEIYO CEMENT" or "the Corporation") with the Climate Transition Finance Handbook (hereinafter referred to as "CTFH")<sup>1</sup>, Basic Guidelines for Climate Transition Finance<sup>2</sup> (hereinafter referred to as "CTF Basic Guidelines") (hereinafter CTFH and CTF Basic Guidelines are collectively referred to as "CTFH and so forth"), Sustainability-Linked Loan Principles (hereinafter referred to as "SLLP")<sup>3</sup> and Green Loan and Sustainability-Linked Loan Guidelines (hereinafter referred to as "the Guidelines")<sup>4</sup> (hereinafter SLLP and Ministry of the Environment Guidelines are collectively referred to as "SLLP and so on".) Japan Credit Rating Agency, Ltd. (hereinafter referred to as "JCR"), as an independent third-party institution, has evaluated the following so as to ensure the transparency and objectivity of the evaluations recommended by CTFH and so forth and SLLP and so on: (1) transition strategies and their relevance for TAIHEIYO CEMENT; (2) calibration of TAIHEIYO CEMENT's Sustainability Strategy, Key Performance Indicators (hereinafter referred to as "KPI") and Sustainability Performance Targets (hereinafter referred to as "SPTs") and (3) loan conditions and a monitoring structure during the period.

#### (1) Overview of TAIHEIYO CEMENT's Business, Transition Strategies and their Relevance

TAIHEIYO CEMENT is the largest cement corporation in Japan, established in October 1998 through a merger of Chichibu Onoda Co., Ltd. and Nihon Cement Co., Ltd. The Corporation has nine domestic manufacturing bases and overseas manufacturing bases in the Pacific Rim Region, including the United States, China, the Philippines, Vietnam and Papua New Guinea. TAIHEIYO CEMENT operates not only a cement business as its core but also a resource business that sells limestone and others produced from mines nationwide owned by the Corporation, an environment business that disposes/utilizes waste and a building material/construction civil engineering business that sells construction materials or undertakes ground improvement works.

TAIHEIYO CEMENT Group (hereinafter referred to as "the Group") has established a set of action guidelines that outline ideal actions as the Corporation based on its management philosophy, "to aim to be a leader who builds the future of the sustainable earth and to conduct business activities in harmony with not only economic developments but also environmental considerations and social contributions." The Group sets forth the following in the action guidelines: (1) to aim to maximize corporate value; (2) to strive to harmonize with the global environment and (3) to actively contribute to achieving recycling-oriented society. The Group has identified 22 key issues as a business materiality, and the Group has positioned "to achieve carbon neutral" and "to take actions for climate change" as

<sup>1</sup> International Capital Market Association ("ICMA") established in December 2020.

<sup>2</sup> Established by the Financial Services Agency, Ministry of Economy, Trade and Industry, and Ministry of the Environment in May 2021.

<sup>3</sup> Revised by Loan Market Association ("LMA"), Asia Pacific Loan Market Association ("APLMA") and Loan Syndication and Trading Association ("LSTA") in March 2022.

extremely important issues, both of which are of extremely high interest and importance to stakeholders and also are of greatly significance to the Group in the environmental sector.

The Group states "to exercise its integrated strength and to aim to become a corporate group that provides society with safety and security in the Pacific Rim region" as "an ideal figure/intended direction" that plans to be in the mid-2020s and aims to achieve both CSR Goal 2025 and Medium-Term Management Plan formulated in 2015. The Group has mapped out "23 Medium-Term Management Plan" for three years from FY 2021 to FY 2023 as a final step toward the realization of "the ideal figure/intended direction." In the 23 Medium-Term Management Plan, the Group strives to establish a new business model that only TAIHEIYO CEMENT is achievable, in which all of the businesses in the Group function comprehensively and in an integrated manner, that is, to become an "overwhelming leading company." The Group sets forth four items as key strategies in the 23 Medium-Term Management Plan as follows: (I) continuous investment in growth; (II) initiatives to achieve carbon neutral; (III) making plant and equipment resilient and (IV) to strengthen mines.

The Corporation announced its efforts toward the achievement of carbon neutral as Carbon Neutral Strategy 2050 in the 23 Medium-Term Management Plan in May 2021. TAIHEIYO CEMENT also formulated and announced a technological development roadmap and 2030 medium-term target in "Carbon Neutral Strategy 2050" in March, 2022, with which the targets on CO<sub>2</sub> emissions announced by the Group along with CRS Target 2050 are shown in the table below.

	Target year		Target Scope
CSR Target 2025	2025	Reduce 10% or more CO <sub>2</sub> emissions intensity (over FY 2000)	Scope1 (excluding alternative fossil fuels and self-generation)
Carbon Neutral Strategy 2050	2030	Reduce CO <sub>2</sub> emissions intensity by 20% over FY 2000	Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)
		Reduce total CO <sub>2</sub> emissions by 40% over FY 2000	Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only
	2050	Carbon neutral	Scope1, Scope2 and Scope3

The Group perceives the establishment of carbon neutral technology as the most important issue that leads to the future of the industry and simultaneously the Corporation's growing strategy in the cement industry with high CO<sub>2</sub> emissions, and it will make the most of the existing technology such as energy efficient and promote innovative technology for practical application and commercialization until FY 2030. The Group aims to realize carbon neutral as its whole supply chain by deploying the innovative technology developed sequentially.

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities. In addition, TAIHEIYO CEMENT launched "Carbon Neutral Technology Development Project Team (hereinafter referred to as "CNPT") in April 2021 so as to develop innovative technology that contributes to carbon neutral in the manufacturing processes. Furthermore, the Corporation announced to newly establish "Sustainability Promotion Department" as of April 1, 2023 in order to strengthen its sustainability management.

TAIHEIYO CEMENT announced a plan to invest JPY 20 billion in innovative technology in the name of Research & Development while making capital investments for energy efficient during the 23 Medium-Term Management Plan period. The Corporation continuously plans to invest in growth, including overseas M&A and domestic new product development for 10 years through FY 2030 and also plans to invest JPY 100 billion in three objectives as follows: (I) to address carbon neutral; (II) to make plant facilities resilient and (3) to strengthen mines, respectively, totaling JPY 300 billion.

JCR has evaluated that the aforementioned transition strategies and specific policies meet four elements in CTFH

and so forth.

## (2) TAIHEIYO CEMENT's Sustainability Strategy and Calibration of KPI/SPTs

JCR has confirmed that the following KPI and SPTs will be calibrated in Transition-Linked Loan (hereinafter referred to as "the Loan") to be made based on the Framework.

KPI1: CO <sub>2</sub> emissions intensity
KPI2: amount of CO <sub>2</sub> emissions
Reduction of the CO <sub>2</sub> emissions intensity (*1) in the supply chain by 20% from FY 2000 by FY 2030
Reduction of domestic CO <sub>2</sub> emissions (*2) by 40% from FY 2000 by FY 2030
*1 Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)
*2 Scope1 (excluding alternative fossil fuels) and Scope2

TAIHEIYO CEMENT set CO<sub>2</sub> emissions intensity and amount of CO<sub>2</sub> emissions as KPI and calibrated SPTs for the targets on the intensity and the total domestic emissions in FY 2030 in the Framework.

The aforementioned KPI is exactly as same as the medium-and long-term target for FY 2030 in the TAIHEIYO CEMENT Group (hereinafter referred to as "the Group") and directly contribute to "achieving carbon neutral" and "responding to climate change," which are key issues to be addressed through its businesses. A large amount of CO<sub>2</sub> is emitted worldwide in the cement industry since cement requires a high-temperature burning process and CO<sub>2</sub> derived from raw materials is emitted. On the other hand, cement will be continuously indispensable to maintain social functions from an infrastructure development perspective. Therefore, the initiatives to reduce CO<sub>2</sub> emissions are important and meaningful industrywide based on the assumption that cement should be stably supplied.

The aforementioned SPTs are inferior to those of international scenarios, such as GCCA and of peers in Europe, which are not comparable in general since the factor is presumed to be differences in standards between Japan and European countries (regional characteristics.) JCR has evaluated that these SPTs are ambitious, considering the comparison to peers in regions to which equivalent standards are applied and comparing to the roadmap in the Ministry of Economy, Trade and Industry and detailed measures.

## (3) Loan Conditions and Monitoring Structures during the Period

JCR confirmed that in cases where SPTs are achieved, the financial and structural characteristics are also changed in the loan agreement or other related documents. Definitions of KPI, calibration of SPTs and preconditions are also described in the loan agreement or other related documents described above. In cases where definitions of KPI, calibration of SPTs and preconditions are changed due to unforeseeable circumstances at the time when the Loan is made, the borrower will report the explanation on the changes to the lender through the agreement or other related documents. TAIHEIYO CEMENT will annually disclose progress in CO<sub>2</sub> reduction plans (CO<sub>2</sub> emissions intensity and domestic CO<sub>2</sub> emissions in the supply chains on cement manufacturing) as SPTs' progress that composes of KPI to the public and the lender, respectively on its website or in integrated reports. The CO<sub>2</sub> emission intensity and the performance of domestic CO<sub>2</sub> emissions in the supply chain will be verified by a third party. In cases where a significant change is made in SPTs during the period, an external evaluation institution will review the change so as to confirm whether the change is complied with CTFH and so forth and SLLP and so on and the ambition or meaningfulness, which were originally assumed are maintained. TAIHEIYO CEMENT, the lender and JCR review the Loan made based on the Framework in the year when it falls due for repayment and evaluate the achievement of SPTs and whether there is any impact on the Corporation and society.

Based on the aforementioned insight, JCR has confirmed that the Framework in TAIHEIYO CEMENT, which is subject to the third-party opinion at this time confirms with CTFH and so forth and SLLP and so on.

\*Please refer to the following pages for details of the opinions.



## **Third-Party Opinion**

Evaluation Subject: Transition-Linked Loan Framework  
Borrower: TAIHEIYO CEMENT CORPORATION

March 8, 2023

Japan Credit Rating Agency, Ltd.

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### (1) Overview of TAIHEIYO CEMENT's Business, Transition Strategies and their Relevance

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TAIHEIYO CEMENT Group (hereinafter referred to as "the Group") has established a set of action guidelines that outline ideal actions as the Corporation based on its management philosophy, "to aim to be a leader who builds the future of the sustainable earth and to conduct business activities in harmony with not only economic developments but also environmental considerations and social contributions." The Group sets forth the following in the action guidelines: (1) to aim to maximize corporate value; (2) to strive to harmonize with the global environment and (3) to actively contribute to achieving recycling-oriented society. The Group has identified 22 key issues as a business materiality, and the Group has positioned "to achieve carbon neutral" and "to take actions for climate change" as extremely important issues, both of which are of extremely high interest and importance to stakeholders and also are of greatly significance to the Group in the environmental sector.

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The Group states "to exercise its integrated strength and to aim to become a corporate group that provides society with safety and security in the Pacific Rim region" as "an ideal figure/intended direction" that plans to be in the mid-2020s and aims to achieve both CSR Goal 2025 and Medium-Term Management Plan formulated in 2015. The Group has mapped out "23 Medium-Term Management Plan" for three years from FY 2021 to FY 2023 as a final step toward the realization of "the ideal figure/intended direction." In the 23 Medium-Term Management Plan, the Group strives to establish a new business model that only TAIHEIYO CEMENT is achievable, in which all of the businesses in the Group function comprehensively and in an integrated manner, that is, to become an "overwhelming leading company." The Group sets forth four items as key strategies in the 23 Medium-Term Management Plan as follows: (I) continuous investment in growth; (II) initiatives to achieve carbon neutral; (III) making plant and equipment resilient and (IV) to strengthen mines.

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		Reduce total CO <sub>2</sub> emissions by 40% over FY 2000	Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only
	2050	Carbon neutral	Scope1, Scope2 and Scope3

The Group perceives the establishment of carbon neutral technology as the most important issue that leads to the future of the industry and simultaneously the Corporation's growing strategy in the cement industry with high CO<sub>2</sub> emissions, and it will make the most of the existing technology such as energy efficient and promote innovative technology for practical application and commercialization until FY 2030. The Group aims to realize carbon neutral as its whole supply chain by deploying the innovative technology developed sequentially.

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities. In addition, TAIHEIYO

CEMENT launched "Carbon Neutral Technology Development Project Team (hereinafter referred to as "CNPT")" in April 2021 so as to develop innovative technology that contributes to carbon neutral in the manufacturing processes. Furthermore, the Corporation announced to newly establish "Sustainability Promotion Department" as of April 1, 2023 in order to strengthen its sustainability management.

TAIHEIYO CEMENT announced a plan to invest JPY 20 billion in innovative technology in the name of Research & Development while making capital investments for energy efficient during the 23 Medium-Term Management Plan period. The Corporation continuously plans to invest in growth, including overseas M&A and domestic new product development for 10 years through FY 2030 and also plans to invest JPY 100 billion in three objectives as follows: (I) to address carbon neutral; (II) to make plant facilities resilient and (3) to strengthen mines, respectively, totaling JPY 300 billion.

JCR has evaluated that the aforementioned transition strategies and specific policies meet four elements in CTFH and so forth.

#### (2) TAIHEIYO CEMENT's Sustainability Strategy and Calibration of KPI/SPTs

JCR has confirmed that the following KPI and SPTs will be calibrated in Transition-Linked Loan (hereinafter referred to as "the Loan") to be made based on the Framework.

KPI1: CO<sub>2</sub> emissions intensity

KPI2: amount of CO<sub>2</sub> emissions

Reduction of the CO<sub>2</sub> emissions intensity (\*1) in the supply chain by 20% from FY 2000 by FY 2030

Reduction of domestic CO<sub>2</sub> emissions (\*2) by 40% from FY 2000 by FY 2030

\*1 Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)

\*2 Scope1 (excluding alternative fossil fuels) and Scope2

TAIHEIYO CEMENT set CO<sub>2</sub> emissions intensity and amount of CO<sub>2</sub> emissions as KPI and calibrated SPTs for the targets on the intensity and the total domestic emissions in FY 2030 in the Framework.

The aforementioned KPI is exactly as same as the medium-and long-term target for FY 2030 in the TAIHEIYO CEMENT Group (hereinafter referred to as "the Group") and directly contribute to "achieving carbon neutral" and "responding to climate change," which are key issues to be addressed through its businesses. A large amount of CO<sub>2</sub> is emitted worldwide in the cement industry since cement requires a high-temperature burning process and CO<sub>2</sub> derived from raw materials is emitted. On the other hand, cement will be continuously indispensable to maintain social functions from an infrastructure development perspective. Therefore, the initiatives to reduce CO<sub>2</sub> emissions are important and meaningful industrywide based on the assumption that cement should be stably supplied.

The aforementioned SPTs are inferior to those of international scenarios, such as GCCA and of peers in Europe, which are not comparable in general since the factor is presumed to be differences in standards between Japan and European countries (regional characteristics.) JCR has evaluated that these SPTs are ambitious, considering the comparison to peers in regions to which equivalent standards are applied and comparing to the roadmap in the Ministry of Economy, Trade and Industry and detailed measures.



### (3) Loan Conditions and Monitoring Structures during the Period

JCR confirmed that in cases where SPTs are achieved, the financial and structural characteristics are also changed in the loan agreement or other related documents. Definitions of KPI, calibration of SPTs and preconditions are also described in the loan agreement or other related documents described above. In cases where definitions of KPI, calibration of SPTs and preconditions are changed due to unforeseeable circumstances at the time when the Loan is made, the borrower will report the explanation on the changes to the lender through the agreement or other related documents. TAIHEIYO CEMENT will annually disclose progress in CO<sub>2</sub> reduction plans (CO<sub>2</sub> emissions intensity and domestic CO<sub>2</sub> emissions in the supply chains on cement manufacturing) as SPTs' progress that composes of KPI to the public and the lender, respectively on its website or in integrated reports. The CO<sub>2</sub> emission intensity and the performance of domestic CO<sub>2</sub> emissions in the supply chain will be verified by a third party. In cases where a significant change is made in SPTs during the period, an external evaluation institution will review the change so as to confirm whether the change is complied with CTFH and so forth and SLLP and so on and the ambition or meaningfulness, which were originally assumed are maintained. TAIHEIYO CEMENT, the lender and JCR review the Loan made based on the Framework in the year when it falls due for repayment and evaluate the achievement of SPTs and whether there is any impact on the Corporation and society.

Based on the aforementioned insight, JCR has confirmed that the Framework in TAIHEIYO CEMENT, which is subject to the third-party opinion at this time confirms with CTFH and so forth and SLLP and so on.

## **I. Positioning and Objectives of Third-Party Opinion**

JCR as a third-party institution evaluated the Framework in line with CTFH and so forth and SLLP and so on. CTF refers to a financial methodology, intending to support a company that is considering taking measures for climate change to reduce greenhouse gas in accordance with a long-term strategy toward the achievement of decarbonizing society. SLL means a loan facility, including loan instruments and commitment lines in order for a borrower and a lender to contribute to realizing sustainable society by incentivizing to achieve aggressive SPTs predefined by the borrower.

CTFH consists of four elements as follows: (Element 1) refers to transition strategies and governance, such as an issuer; (Element 2) should be environmental key issues in the Corporation's business model; (Element 3) should be scientifically evidence-based and (Element 4) refers to transparency-ensured investment plans on transition.

SLLP and so on consist of five principles as follows: (the first Principle) refers to selection of KPI; (the second Principle) refers to measurement of SPTs; (the third Principle) is characteristics of a loan; (the fourth Principle) refers to reporting and (the fifth Principle) refers to verification.

The objectives of this Third Party Opinion is for JCR as an independent third party to confirm the conformity with Principles 1 to 5 in SLLP in the Framework and simultaneously is to make sure the conformity with four elements in CTFH and the CTF Basic Guidelines so as to ensure the transparency and objectivity of the evaluations recommended in CTF Basic Guidelines and the fifth principles in SLLP.

## **II. Outline of the Third-Party Opinion**

The target of this evaluation is the Framework formulated by TAIHEIYO CEMENT in March 2023. The following is the evaluation items included in this Third Party Opinion.

1. Relevance to sustainability in the Framework
2. TAIHEIYO CEMENT's long-term visions and transition strategies
3. Consistency with items required in CTFH
4. Consistency with SLLP and so on (Principle 1): Appropriateness of KPI Selection
5. Consistency with SLLP and so on (Principle 2): Measurement of SPTs
6. Consistency with SLLP and so on (Principle 3): Characteristics of the Loan (Economical Conditions)
7. Consistency with SLLP and so on (Principle 4): Reporting and Verification
8. Conclusions on conformity with CTFH and so forth and SLLP and so on

### III. Confirm conformity with CTFH and so forth and SLLP and so on in the Framework

#### I. Relation with Sustainability in the Framework

TAIHEIYO CEMENT set KPI and SPTs related to the Corporation's materiality-focused efforts in financing based on the Framework as follows: these KPI and SPTs are exactly as same as 2030 Medium-Term Targets in the Group's "Carbon Neutral Strategy 2050," as described in the following section.

KPI1: CO<sub>2</sub> emissions intensity

KPI2: amount of CO<sub>2</sub> emissions

SPT1: Reduction of the CO<sub>2</sub> emissions intensity (\*1) in the supply chain by 20% from FY 2000 by FY 2030

SPT2: Reduction of the domestic CO<sub>2</sub> emissions (\*2) by 40% from FY 2000 by FY 2030

\*1 Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)

\*2 Scope1 (excluding alternative fossil fuels) and Scope2

#### II. TAIHEIYO CEMENT's Long-Term Visions and Transition Strategies

##### <Business Overview>

TAIHEIYO CEMENT is the nation's largest cement company, with more than 30% of a domestic sales volume in the whole industry. In October 1998, the Corporation was established through a merger of Chichibu Onoda Co., Ltd. and Nihon Cement Co., Ltd. The Group has nine domestic manufacturing bases and overseas manufacturing bases in the Pacific Rim Region, including the United States, China, the Philippines, Vietnam and Papua New Guinea. TAIHEIYO CEMENT operates not only a cement business but also a resource business that sells limestone and others from mines produced nationwide owned by the Corporation, an environment business that disposes/utilizes waste and a building material/construction civil engineering business that sells construction materials or undertakes ground improvement works. The sales breakdown in FY March ended 2022 is as follows: the cement business: 60.4% (domestic: 31.0%, overseas: 29.4%, respectively), the natural resources business: 10.1%, the environment business: 9.4%, the construction materials and civil engineering business: 8.5% and other businesses: 11.6%.

##### <Management Philosophy System>

The Group sets forth its management philosophy, "Our mission is to contribute to social infrastructure development by providing solutions that are environmentally efficient, enhance our competitive position and bring value to our stakeholders." The Group includes the following gist in its management philosophy: (I) to adopt a concept for sustainable development (hereinafter referred to as "SD concept")<sup>5</sup> recommended by World Business Council for Sustainable Development (hereinafter referred to as "WBCSD")<sup>6</sup> in which the

<sup>5</sup> Concepts for Sustainable Development.

To conduct harmonized business activities in line with a "triple-bottom line" with social responsibilities, environmental maintenance management in addition to conventional economic principles so as to maintain competitiveness in the future. It also aims to fulfill the current-generation needs without impairing capabilities to meet the future-generation needs.

<sup>6</sup> World Business Council for Sustainable Development

Group participates; (II) to recognize that resources on the earth are finite and there are environmental load constraints and (III) to aim to be a leader who develops the future of the earth that permanently develop not only for the present generations but also for the next generation. The said management philosophy has been unchanged since its establishment in June 2002 and it can be seen that the Group bore in mind that it would conduct corporate activities rooted in sustainability when the philosophy was established. The Group has established the following nine action guidelines as ideal actions for a corporation in order to materialize the management philosophy concerned.

Figure 1: Group Management Philosophy and Action Guidelines

**Mission of the Taiheiyo Cement Group**

Our mission is to contribute to social infrastructure development by providing solutions that are environmentally efficient, enhance our competitive position and bring value to our stakeholders.

**Business Principles** Governing the Way the Company Conducts Business

We are committed to maximizing our corporate value by generating synergies among Taiheiyo Cement Group companies.

We aim to manage the environmental impact of our operations while supporting the development of a recycling-based society.

We will act in an ethical manner and abide by the laws and regulations of those countries in which we operate.

We will openly communicate with our stakeholders and proactively report on our business activities in a transparent manner.

We are committed to the ongoing development and application of innovative technologies in order to provide products and services that benefit our customers and society.

We are committed to maintaining an international outlook and conducting our business in accordance with global standards.

We will strive to anticipate the changing business environment to assess new opportunities for growth.

We are committed to achieving our full potential through training and self-development.

We are devoted to providing a safe and healthy working environment where our employees are valued and the human rights of all individuals involved in our business are respected.

(Source: TAIHEIYO CEMENT Report in 2022)

<Materiality (Key Issues)>

The Group extracted/identified sustainability issues from international guidelines, information from stakeholders and TAIHEIYO CEMENT's business contents, discussed what its key theme was about the significant sustainability issues identified, prioritized these key sustainability issues through internal consultation and identified 22 great imperatives. In particular, the Group has positioned "to achieve carbon neutral" and "to take actions for climate change" as greatly important issues, both of which are of extremely high interest and of importance to stakeholders and also of extremely significance to the Group in the environmental sector.

Table 2: Materiality



(Source: TAIHEIYO CEMENT Report in 2022)

<CSR Target 2025>

In May 2015, the Group announced "CSR Target 2025" that consists of three items as follows: (I) disaster prevention; (II) greenhouse gas emissions control and (III) diversity, as long-term goals to be achieved in the processes to aim to be "a leader who develops the sustainable future" - how the Group should be - described in its management philosophy. The Group presents "to aim to be a corporate group that exerts the Group's collective strengths and provides safety and security to society in the Pacific Rim region as an ideal figure for the mid-2020s. To realize these targets, the initiatives on both CSR Target 2025 and Medium-Term Management Plan are inseparable pairs.

The Group's goals for FY 2025 are set as shown in the table below, respectively. In the meanwhile, only the greenhouse gas emissions control was set as Carbon Neutral Strategy 2050 for a longer-term target; however, diversity is currently under discussion for a medium-to long-term target. JCR confirmed that no fatal accident is a universal goal to prevent accidents.

Figure 3: CSR's Philosophy System and CSR Target 2025



CSR Objectives for 2025	
<b>I</b>	<b>Prevention of accidents</b> Zero fatalities
<b>II</b>	<b>Reduction of greenhouse gas emissions</b> Reduce the specific net CO <sub>2</sub> emissions per tonne of cementitious product by at least 10% from fiscal 2021 levels by fiscal 2025.
<b>III</b>	<b>Workplace diversity</b> Ratio of female recruits: At least 30% Ratio of female employees: At least 10% Ratio of newly appointed female managers: At least 10%

(Source: TAIHEIYO CEMENT website<sup>7</sup>)

**<23 Medium-Term Management Plan>**

In May 2021, the Group formulated the 23 Medium-Term Management Plan, which covers three years from FY 2021 to FY 2023 as a final step toward the achievement of "Ideal Figure/Intended Direction." In the 23 Medium-Term Management Plan, the Group aims to build a new business model that is achievable only by the Corporation, in which all of the Group's businesses function comprehensively and compositely or in other words, the Group aims to be an "overwhelming leading company."

In the 23 Medium-Term Management Plan, the Group set forth four key strategies to maximize corporate value as follows: (I) continuous investment in growth; (II) the initiatives to achieve carbon neutral; (III) to make plant and equipment resilient and (IV) to strengthen mines. In particular, the Group states Carbon Neutral Strategy 2050 as detailed in the later section and is making full-scale efforts to achieve carbon neutral in the entire supply chain in FY 2050.

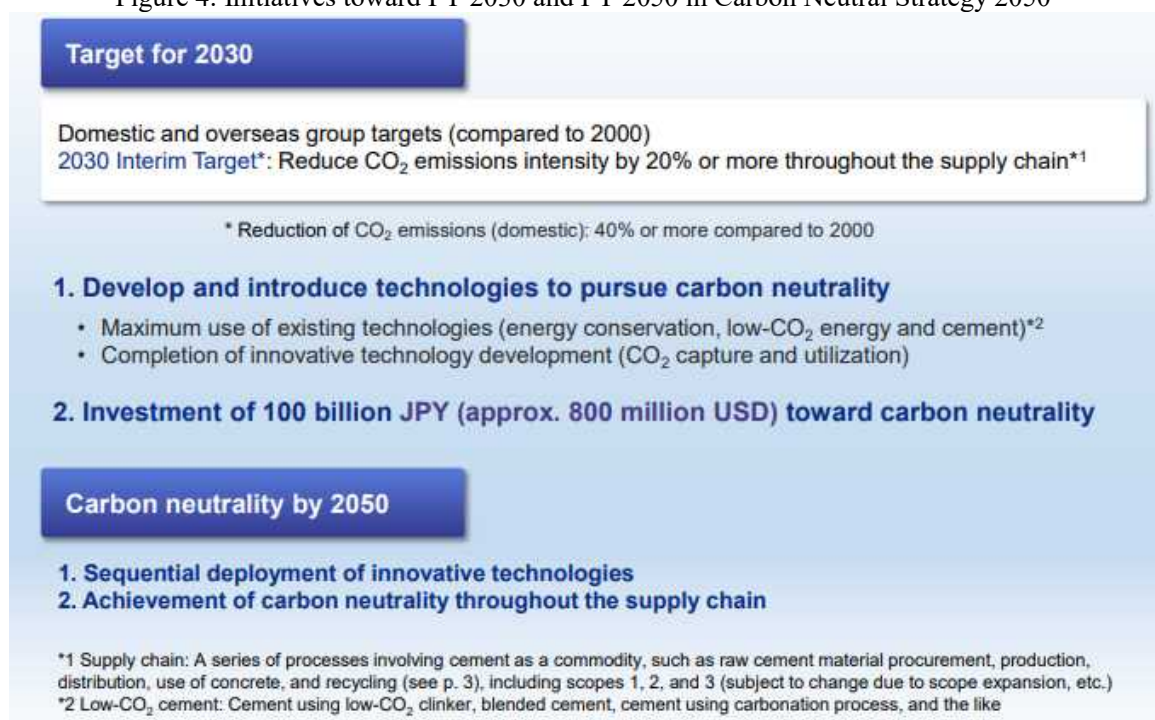
<sup>7</sup> TAIHEIYO CEMENT's Sustainability: [https://www.taiheiyo-cement.co.jp/english/csr/management\\_fr.html](https://www.taiheiyo-cement.co.jp/english/csr/management_fr.html)

<Carbon Neutral Strategy 2050>

In May 2021, the Group announced "Carbon Neutral Strategy 2050" to achieve carbon neutral throughout the supply chain in FY 2050 in the 23 Medium-Term Management Plan. In March 2022, the Group also formulated and published technological development roadmap and 2030 medium-term target in "Carbon Neutral Strategy 2050." In formulating this strategy, the Group refers to GCCA's<sup>8</sup> roadmap<sup>9</sup> and Transition Finance Technology Roadmap<sup>10</sup> in Ministry of Economy, Trade and Industry (hereinafter referred to as "METI".)

The Group perceives the establishment of carbon neutral technology as the most important issue that leads to the future in the cement industry with high CO<sub>2</sub> emissions and simultaneously positions as growth strategies for the Corporation. Then, respective initiatives toward FY 2030 and FY 2050 are publicized as shown in Figure 4. The Group will make the maximum utilization of the existing technology, such as energy efficient and promote to innovative technology for practical application and commercialization until FY 2030. The Group aims to realize carbon neutral as a whole supply chain by deploying the innovative technology developed sequentially toward FY 2050.

Figure 4: Initiatives toward FY 2030 and FY 2050 in Carbon Neutral Strategy 2050



(Source: TAIHEIYO CEMENT Group's Carbon Neutral Strategy 2050<sup>11</sup>)

<sup>8</sup> Global Cement and Concrete Association ("GCCA")

<sup>9</sup> Concrete Future – GCCA 2050 Cement and Concrete Industry Roadmap in October 2021

<https://gccassociation.org/concretefuture/wp-content/uploads/2022/10/GCCA-Concrete-Future-Roadmap-Document-AW-2022.pdf>

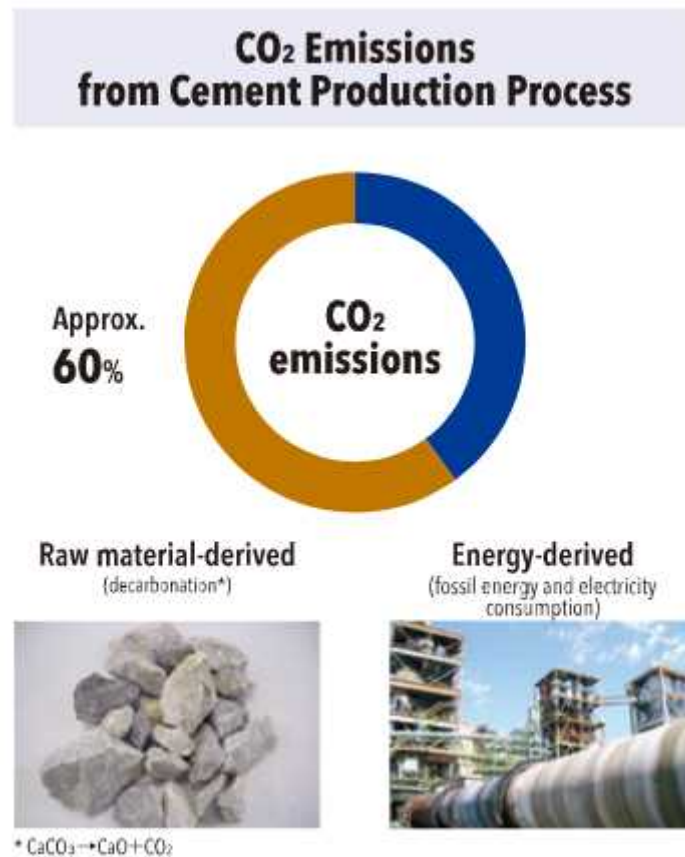
<sup>10</sup> Technology Roadmap in the Cement Segment on "Transition Finance" by METI in March 2022

[https://www.meti.go.jp/policy/energy\\_environment/global\\_warming/transition/transition\\_finance\\_technology\\_roadmap\\_cement\\_jpn.pdf](https://www.meti.go.jp/policy/energy_environment/global_warming/transition/transition_finance_technology_roadmap_cement_jpn.pdf)

<sup>11</sup> TAIHEIYO CEMENT Group's Carbon Neutral Strategy 2050 – Technological Development Roadmap and 2030 Medium-Term Target – in March 24, 2022: [https://www.taiheiyo-cement.co.jp/english/summary/pdf/220324\\_2.pdf](https://www.taiheiyo-cement.co.jp/english/summary/pdf/220324_2.pdf)

CO<sub>2</sub> emissions account for approximately 40% of energy derived through use of heat sources and electricity and roughly 60% of raw materials derived through decarbonization<sup>12</sup> of limestone in the conventional cement processes. Therefore, these initiatives to reduce CO<sub>2</sub> emissions from energy derived during manufacturing, such as conversion into low carbon heat sources from fossil energy, which is key measures in other industries or update to facilities with high efficiency and energy efficient can reduce only 40% or so at the maximum in the cement industry. That is to say, carbon neutral is unrealizable unless exploring is made over standardization with a higher volume of admixture or technology to utilize foreign admixture as a substitute for limestone - the main raw material, and unless commercializing the innovative technology, including low CO<sub>2</sub> cement or carbon circulation in reducing raw materials derived CO<sub>2</sub> emissions in the cement industry. The Group plans to take specific measures for respective raw materials derived and energy sources derived, as shown in Figures 6 and 7, based on a span of time that enables deployment of innovative technology.

Figure. 5: Breakdown of CO<sub>2</sub> Emissions during the Manufacturing Processes



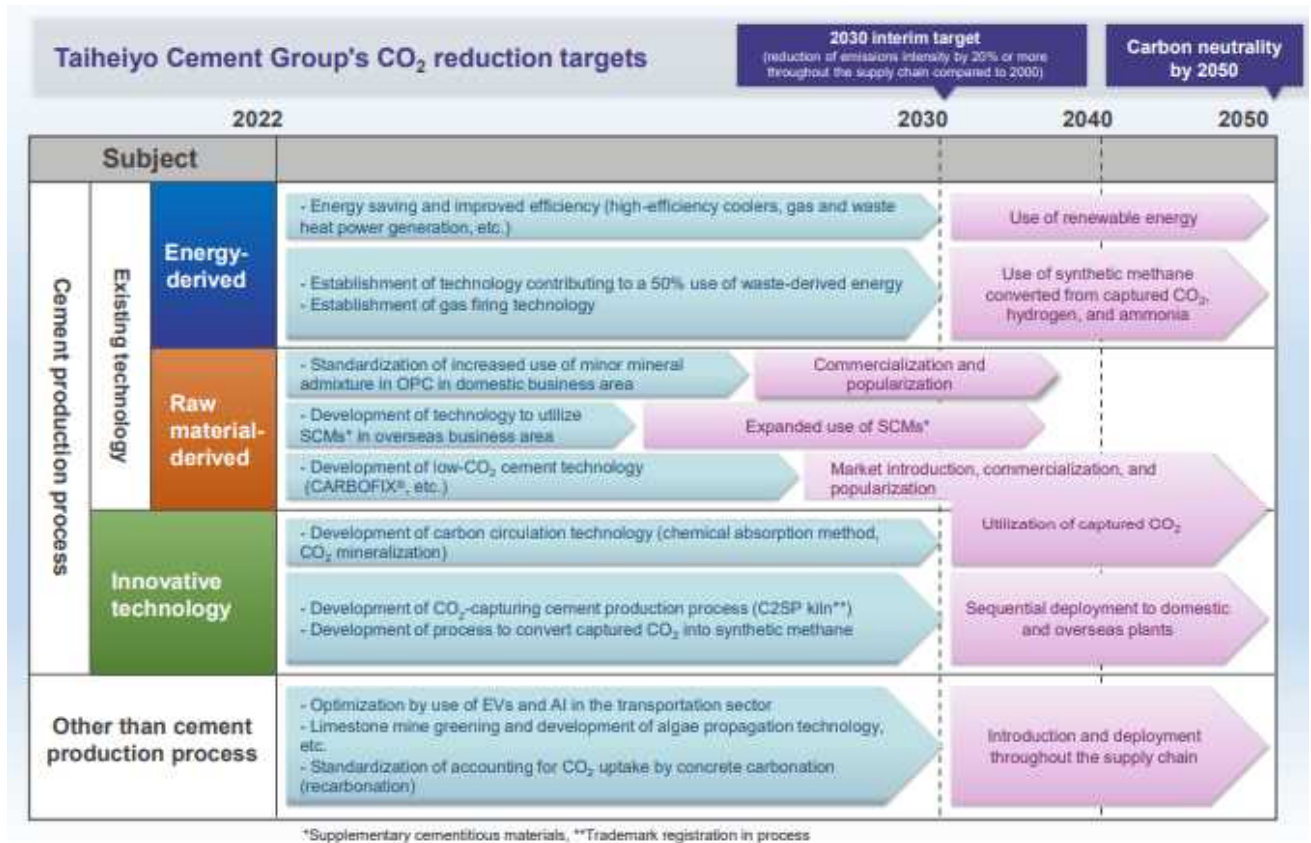
(Source: TAIHEIYO CEMENT website<sup>13</sup>)

<sup>12</sup> Deoxygenation reaction of limestone:  $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$

<sup>13</sup> Carbon Neutral Strategy 2050: [https://www.taiheiyo-cement.co.jp/csr/feature\\_fr.html](https://www.taiheiyo-cement.co.jp/csr/feature_fr.html)

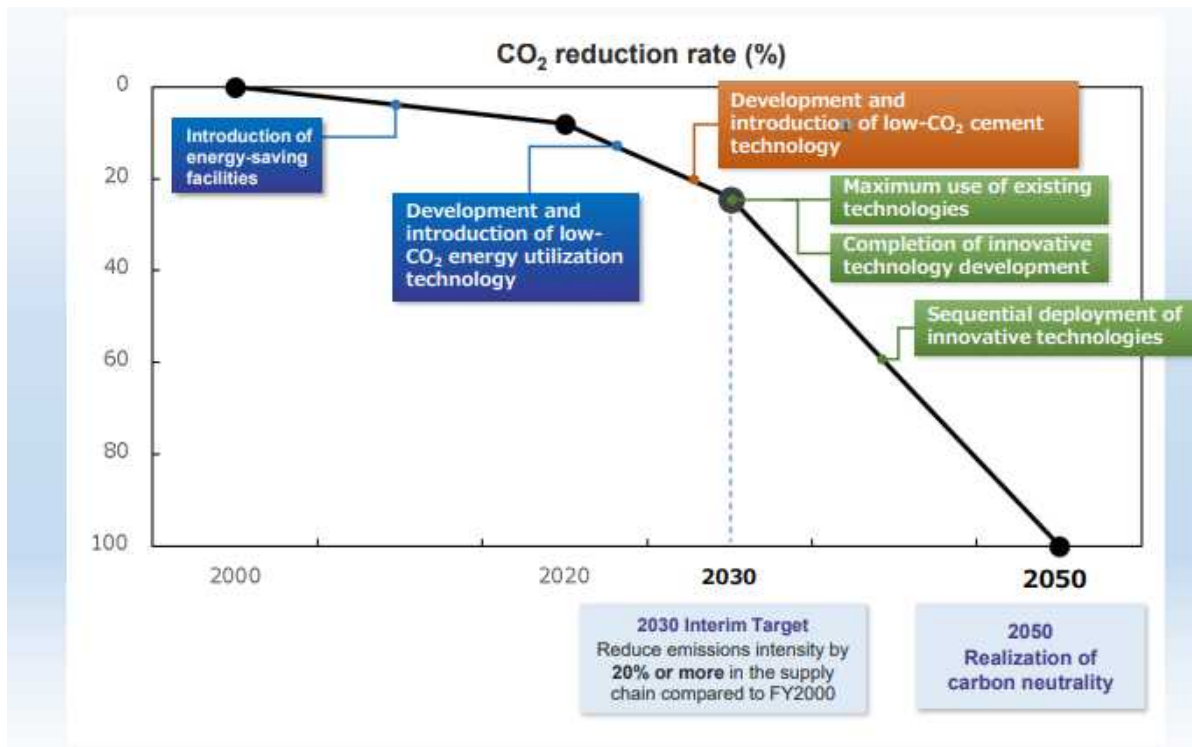


Figure 6: Technology Roadmap in Carbon Neutral Strategy 2050



(Source: TAIHEIYO CEMENT Group's Carbon Neutral Strategy 2050)

Figure 7: Scenario toward the Achievement of Carbon Neutral in 2050



(Source: TAIHEIYO CEMENT Report in 2022)

**<CSR Management Promotion System>**

TAIHEIYO CEMENT has established "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and has promoted CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and the Group companies are involved to be applied to concrete activities. The director in charge is chaired in respective specialized committees, and a department that is the most relevant to issues serves as an office in charge.

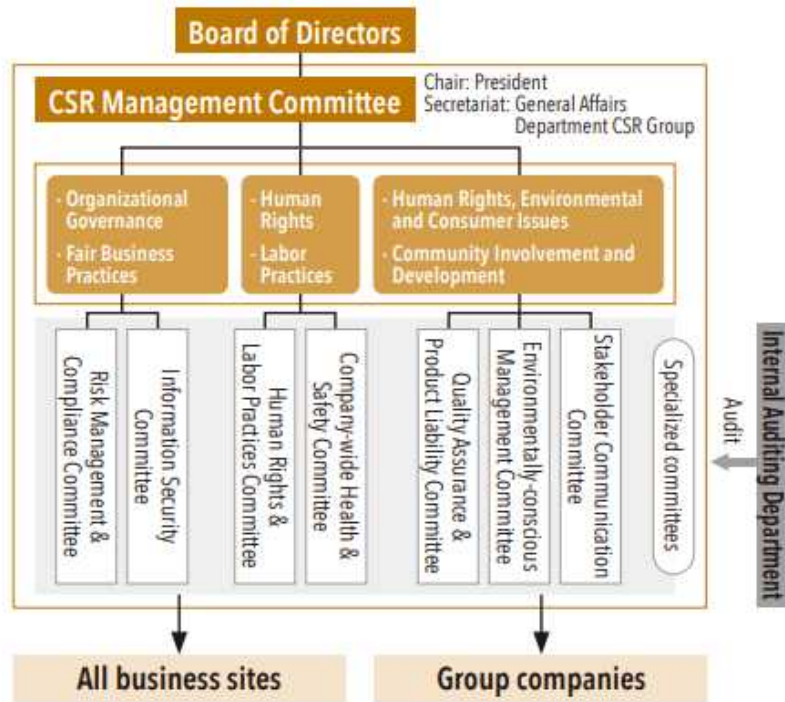
TAIHEIYO CEMENT also has launched "Carbon Neutral Technology Development Project Team (hereinafter referred to as "CNPT")" in April 2021 so as to develop innovative technology that contributes to carbon neutral in production processes. CNPT is headed by Vice President and Representative Director and approximately 30 members with master's/doctor's degrees in science and engineers are in charge of developing innovative technology that is essential for carbon neutral. CNPT is a cross-sectional organization and participates as a member of Environmental Management Committee among the seven specialized committees mentioned above and is mainly engaged in addressing countermeasures against global warming.

Furthermore, the Corporation announced that it will establish "Sustainability Promotion Department" on April 1, 2023 in order to strengthen its sustainability management.<sup>14</sup> By strengthening this organizational structure, the Corporation intends to integrate business activities with sustainability issues as companywide initiatives, disclose more ESG performance to improve its corporate value and brand image and additionally promote sustainability management, aiming to enforce individual initiatives on ESG.

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<sup>14</sup> TAIHEIYO CEMENT News Release: [https://www.taiheiyo-cement.co.jp/english/summary/pdf/230209\\_3.pdf](https://www.taiheiyo-cement.co.jp/english/summary/pdf/230209_3.pdf)

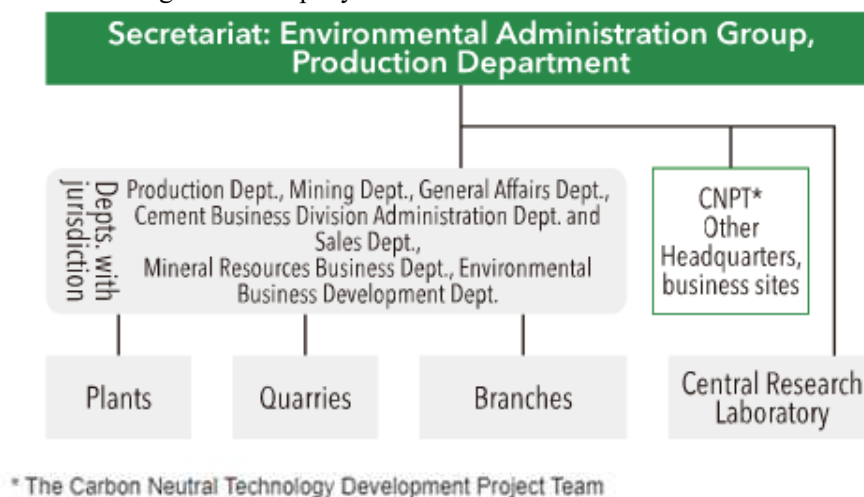
Figure 8: CSR Management Promotion System



(Source: TAIHEIYO CEMENT Report in 2022)

The Corporation has established a companywide EMS system for environmental management and all of its manufacturing bases (domestic and overseas sites in which ISO certification is predominate) are ISO-certified, including the Group companies as of January, 2023. In countries where ISO certification is uncommon, the Corporation operates its proprietary EMS system.

Figure 9: Company-wide EMS Readiness



\* The Carbon Neutral Technology Development Project Team

(Source: TAIHEIYO CEMENT website<sup>15</sup>)

<sup>15</sup> Environmental Management: [https://www.taiheiyo-cement.co.jp/english/csr/env\\_management\\_fr.html](https://www.taiheiyo-cement.co.jp/english/csr/env_management_fr.html)

### III. Consistency with items required in Climate Transition Finance Handbook

#### 3-1. Element 1: Transition Strategies and Governance of Issuers or Others

- (1) Does an issuer who does financing have strategies to mitigate climate change?

The Group sets forth the following targets as medium-and long-term targets to reduce CO<sub>2</sub> emissions in CSR Targets 2025 and Carbon Neutral Strategy 2050. The medium-and long-term targets in Carbon Neutral Strategy 2050 were established based on internal and external views, such as voices calling for more ambitious targets for CSR Target 2025 or opinions that the target subject to only Scope1 is insufficient.

Table 1. Medium-and long-term targets for CO<sub>2</sub> Emissions in the Group

	Target year		Target Scope
CSR Target 2025	2025	Reduce 10% or more CO <sub>2</sub> emissions intensity (over FY 2000)	Scope1 (excluding alternative fossil fuels and self-generation)
Carbon Neutral Strategy 2050	2030	Reduce CO <sub>2</sub> emissions intensity by 20% over FY 2000	Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)
		Reduce total CO <sub>2</sub> emissions by 40% over FY 2000	Scope1 (excluding alternative fossil fuels) and Scope2, both of which are domestic only
	2050	Carbon neutral	Scope1, Scope2 and Scope3

(Source: Prepared by JCR from TAIHEIYO CEMENT's materials publicized)

Various measures will be taken, including to optimize the existing technology (energy efficient, low CO<sub>2</sub> energy and low CO<sub>2</sub> Cement<sup>16</sup>) and to develop innovative technology (CO<sub>2</sub> capture/utilization) until FY 2030 and to deploy innovative technology sequentially in and after FY 2030 toward the achievement of the aforementioned targets.

- (2) Is utilization of a label of "transition" in financing intended that the issuer effectively addresses climate change-related risks and contributes to achieving corporate strategies to transition to a business model that is contributable to achieving the targets in the Paris Agreement?

The Group clarifies/evaluates and identifies companywide risks to create corporate value. After reviewing companywide risks in FY 2019, the Corporation adopts future business strategies as contributions to achieving carbon neutral based on business opportunities, including environmental risks such as extreme metrological phenomena/drastric increases in weather disasters and growing needs for eco-efficient products.

The Group also addresses carbon pricing, identifies climate change-related risks, such as soaring fossil energy or declining coal-fired power generation and effectively strives to address these with the transition strategies mapped out. The Group's transition strategies are formulated by organizing under long-term climate-related scenarios developed based on scientific grounds, such as IEA's<sup>17</sup> "World Energy Outlook (hereinafter referred

<sup>16</sup> It refers to cement with low CO<sub>2</sub> emission clinker, admixture-cement or cement using carbonatization processes.

<sup>17</sup> International Energy Agency ("IEA")

to as "WEO"<sup>18</sup>) and Energy Technology Perspectives (hereinafter referred to as "ETP"<sup>19</sup>) or IPCC's<sup>20</sup> "Fifth Assessment Report (hereinafter referred to as "AR5"<sup>21</sup>)" and examining business impacts in the two CO<sub>2</sub> reduction scenarios (1.5°C and 4°C, respectively) that affect the Corporation's businesses in addition to analyzing risk scenarios in accordance with the guidance of Climate-Related Financial Disclosure Task Force (hereinafter referred to as "TCFD".)

Consequently, JCR has evaluated that transition strategies in the Group are key strategies, aiming to transition to a business model that is contributable to the achievement of the goals in the Paris Agreement.

(3) Is a governance structure established to secure the effectiveness of the transition strategies?

TAIHEIYO CEMENT has established a structure to promote CSR management in the whole group as described in the management promotion structure in CSR management. In April 2021, CNPT was established to strengthen the structure for developing and commercializing innovative technology essential for carbon neutral.

JCR has confirmed that the management grasps sustainability-related efforts in the whole group under its structure since CSR management is incorporated into respective plants, branches and group companies through Expert Committee, and initiatives in respective plants, branches and group companies are reported to CSR Committee. JCR also has confirmed that a considerable number of experts with doctorate degrees in science belong to CNPT and they are developing/commercializing innovative technology for carbon neutral across the Corporation. Accordingly, JCR has evaluated that a governance structure is in place to deploy transitional strategies.

### 3-2. Element 2: Should be Important Environmental Issues in the Corporation's Business Model

A considerable amount of CO<sub>2</sub> is generated in the manufacturing processes since cement needs to be burned at a high temperature of 1,450°C and limestone - the raw material is decarbonized with chemical reactions in the burning processes in terms of the environment. CO<sub>2</sub> emissions by manufacturing cement/concrete account for approximately 7%<sup>22</sup> of CO<sub>2</sub> emissions worldwide.

In the meanwhile, there is potential growth in demand for cement in infrastructure developments in emerging countries and cement is also essential materials in Japan and developed countries from the viewpoint of investment for disaster prevention/mitigation or public infrastructure improvements (bridges, shore protection and expressways) so as to adapt climate change. The cement industry effectively utilizes waste, including waste tires as heat sources and raw materials and plays an important role from the perspective of social value and the construction of recycling-oriented society through receipts of waste. According to IEA, global cement production is expected to slightly increase<sup>23</sup> to 4.333 billion tons in FY 2030 from 4.270 billion tons in FY 2021, and is also

<sup>18</sup> IEA World Energy Outlook: <https://www.iea.org/reports/world-energy-outlook-2022>

<sup>19</sup> IEA Energy Technology Perspectives: <https://www.iea.org/topics/energy-technology-perspectives>

<sup>20</sup> Intergovernmental Panel on Climate Change ("IPCC") established by the World Meteorological Organization ("WMO") and the United Nations Environment Programme ("UNEP") in 1988 in which 195 countries/regions participated as of August 2021.

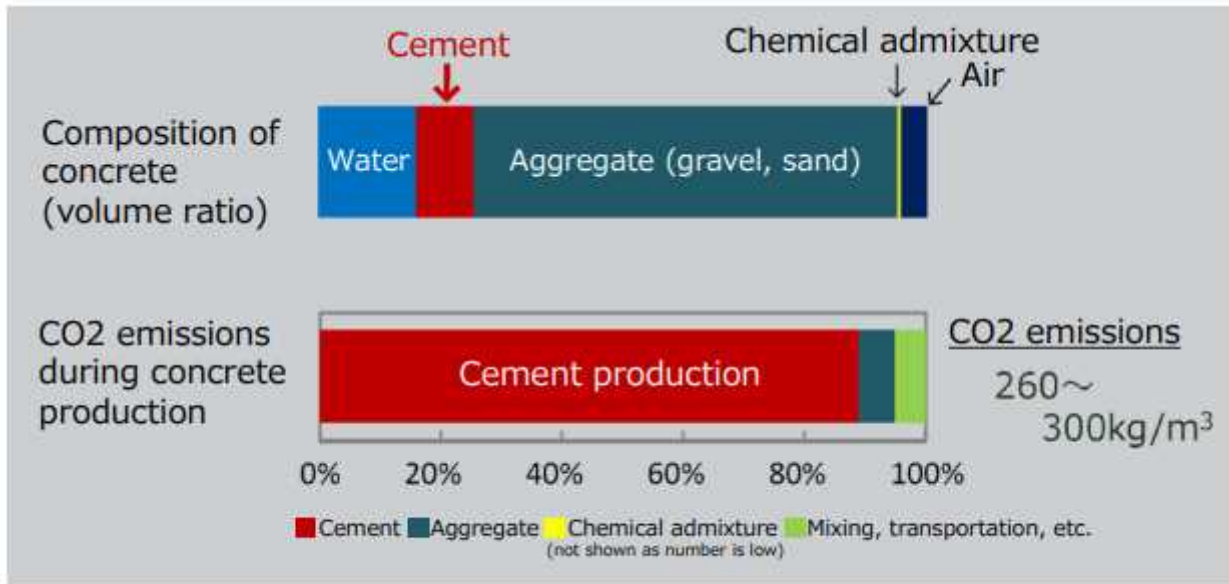
<sup>21</sup> IPCC AR5 Synthesis Report: Climate Change 2014 in October 2014: <https://www.ipcc.ch/assessment-report/ar5/>

<sup>22</sup> GCCA website: <https://gccassociation.org/netzeroaccelerator/>

<sup>23</sup> IEA Global cement production in the Net Zero Scenario, 2010-2030: <https://www.iea.org/reports/cement>

likely to continue to increase afterward through FY 2050. As all countries in the world moves toward carbon neutral hereafter, the entire cement industry, which is required to maintain social functions, needs to work on reducing CO<sub>2</sub> emissions to achieve carbon neutral.

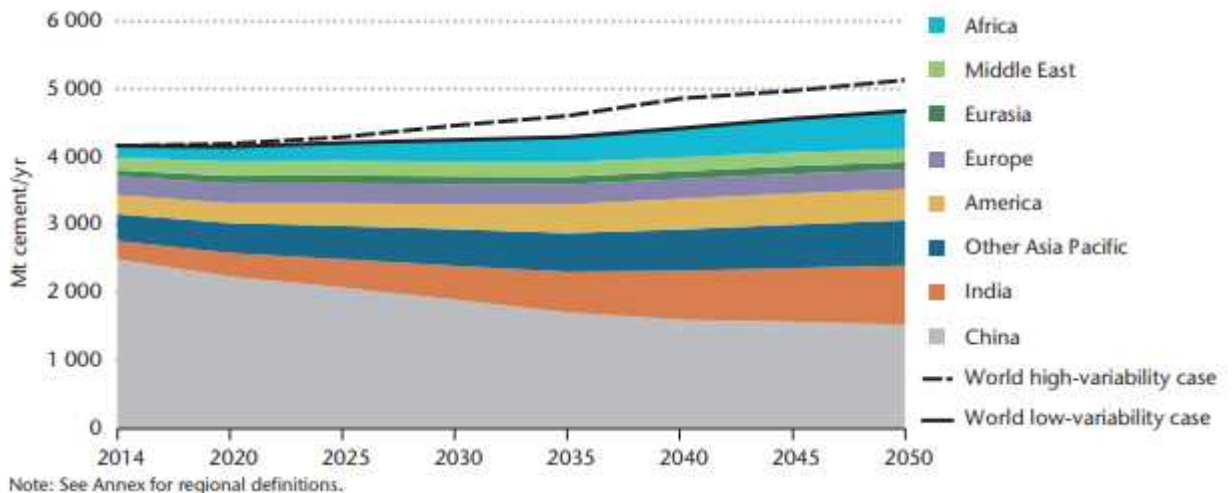
Figure 10: Composition of Concrete Materials and Ratio of CO<sub>2</sub> Emissions



Prepared based on various pieces of published data

(Source: Technology Roadmap in the Cement Sector on "Transition Finance" by METI)

Figure 11: Forecast of Cement Production



(Source: Technology Roadmap, Low-Carbon Transition in the Cement Industry<sup>24</sup> by IEA)

Mr. Masafumi Fushihara, President and Representative Director of TAIHEIYO CEMENT mentioned, "Carbon neutral is an initiative for our Corporation to survive in the industry and is also the largest management issue in which any barrier should be broken through." Mr. Fushihara recognizes that achieving carbon neutral is essential

<sup>24</sup> IEA Technology Roadmap Low-Carbon Transition in the Cement Industry in April 2018. Mt refers to million ton. <https://iea.blob.core.windows.net/assets/cbaa3da1-fd61-4c2a-871931538f59b54f/TechnologyRoadmapLowCarbonTransitionintheCementIndustry.pdf>

while fulfilling roles in the arterial and venous industries for the Group's sustainable. The Corporation, as the world's top runner, views an early establishment of carbon neutral technology that is socially implementable as one of the important growth strategies. Based on this recognition, the Corporation positions to achieve carbon neutral and to respond to climate change as extremely high interests/significance for stakeholders and significant importance for the Group.

Based on the aforementioned, JCR has evaluated that efforts for TAIHEIYO CEMENT to realize carbon-free society are positioned as the most important business issues.

### 3-3. Element 3: Should be based on Scientific Grounds

Does the transition roadmap meet the following?

- (1) Quantitatively measurable and the targets cover Scope1 and 2. (It is desirable to set a goal for Scope 3 to the extent feasible.)

TAIHEIYO CEMENT measures CO<sub>2</sub> emissions on Scope1, Scope2 and Scope3 (Category 1 and 3) for domestic and overseas group companies and limited assurance<sup>25</sup> is provided by a third party. The Corporation expresses its targets on CO<sub>2</sub> emissions as follows: (I) to aim to reduce Scope1 (excluding alternative fossil energy), Scope2 and Scope3 (category 1 and 3) by 20% over FY 2000 by FY 2030 as the intensity target in FY 2030 and (II) to aim to reduce domestic Scope1 (excluding alternative fossil energy) and Scope2 by 40% over FY 2000 as the total amount target.

- (2) Consistent with generally recognized scientific-based target setting

Transition strategies for TAIHEIYO CEMENT is formulated based on GCCA's "The Net Zero Pathway," IEA's "WEO" and "ETP," and IPCC's "AR5."

As detailed in Chapter 5, TAIHEIYO CEMENT's targets for FY 2030, "to reduce CO<sub>2</sub> emissions intensity in the supply chain by 20% over FY 2000" and "to reduce total domestic CO<sub>2</sub> emissions by 40% over FY 2000" are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

- (3) The published report (including the midpoint's milestones)

The Corporation publishes CSR Target 2025, Target in FY 2030 and Target in FY 2050 in Carbon Neutral Strategy 2050.

- (4) Should be certified/verified by an independent third party

TAIHEIYO CEMENT is provided limited assurance by a third party based on GCCA from KPMG AZSA Sustainability Co., Ltd. for environmental data, including historical data of CO<sub>2</sub> emissions of Scope1, Scope2 and Scope3 (Category 1 and 3), including domestic and overseas Group companies.

<sup>25</sup> TAIHEIYO CEMENT's website: [https://www.taiheiyo-cement.co.jp/csr/pdf/warranty\\_report\\_01\\_2.pdf](https://www.taiheiyo-cement.co.jp/csr/pdf/warranty_report_01_2.pdf)

**3-4. Element 4: Transparency for Investment Plans on Transition should be Secured**

TAIHEIYO CEMENT formulated and announced key strategies for medium-to long-term investments, looking ahead to the business environment for 10 years from FY 2021 to FY 2030, including the periods of the 23 Medium-Term Management Plan so as to strengthen the business foundation that supports sustainable growth. During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient.

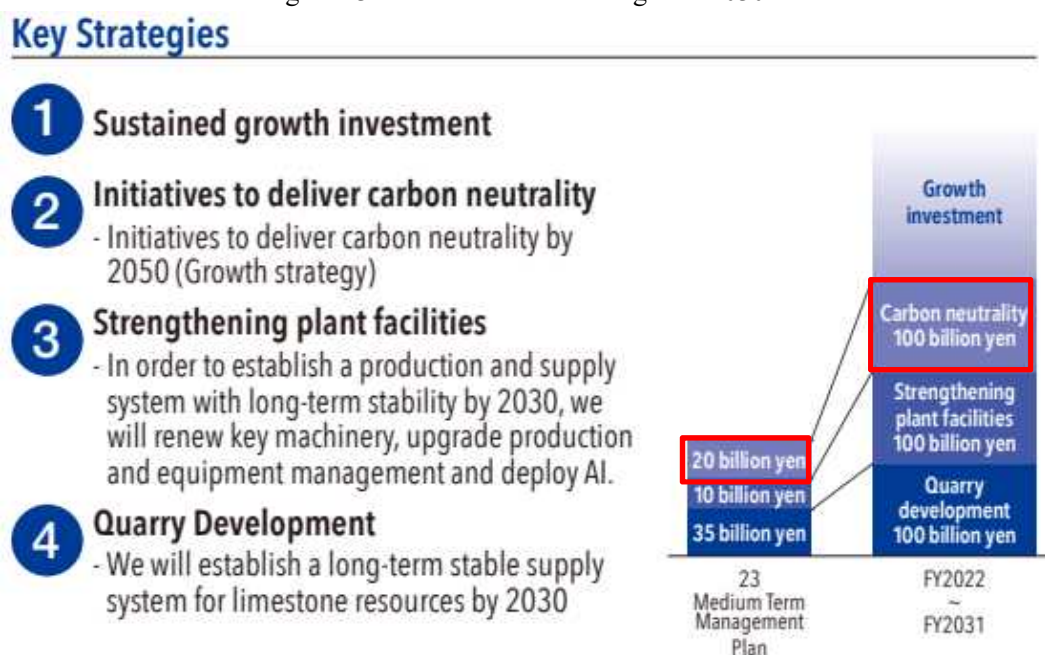
Figure 12: Investment Plan to Achieve Carbon Neutral during the Periods of 23 Medium-Term Management Plan

Target	Main strategies	Main initiatives in the 23 Medium Term Management Plan	Investment sum
Energy-derived	- Energy-efficiency - Low-carbon energy	- Waste heat recovery power generation system - Installation of high-efficiency clinker coolers - More waste plastic processing	20 billion yen
Raw material -derived	- Low-CO <sub>2</sub> cement	- Increase of cement admixtures - Low-CO <sub>2</sub> clinker	
Innovative technologies	- CO <sub>2</sub> capture and utilization	- Development of innovative CO <sub>2</sub> capture technologies - Utilization of dismantled concrete and ready-mixed concrete sludge - Utilization of cement cured with CO <sub>2</sub>	

(Source: Overview of TAIHEIYO CEMENT's 23 Medium-term Period (FY 2021-FY 2023))

The Corporation plans to continuously invest in growth, such as overseas M&A and domestic new product development, and also invest in JPY 100 billion in (1) efforts for carbon neutral, (2) to make plant and equipment resilient and (3) to strengthen mines, respectively totaling JPY 300 billion for a decade through FY 2030.

Figure 13: Investment Plan through FY 2030



(Source: TAIHEIYO CEMENT's Report in 2022)



As described above, JCR has evaluated that TAIHEIYO CEMENT discloses specific investment plans to achieve the targets to reduce CO<sub>2</sub> emissions in FY 2030 and FY 2050, respectively along with the medium-term management plan and that these plans have a high level of transparency.

There is no negative impact on employment or society except for climate change along with the implementation of the transition strategies for TAIHEIYO CEMENT. The Corporation in terms of the environment commits itself to address eco-efficient business activities and complies with environmental laws and regulations in the environmental management policy. JCR has confirmed that TAIHEIYO CEMENT is actively working on not only addressing climate change but also contributing to resource recycling-oriented society by using waste or others generated from any industry and daily life as raw fuels for cement. The Corporation foresees to deal with energy efficient in respective manufactories, utilization of renewable energy and use of methanation methane, hydrogen and ammonia toward the achievement of the medium-to long-term CO<sub>2</sub> emission reduction targets for the possibility of a fossil fuel lock-in as well. Therefore, there is no possibility of a fossil fuel lock-in. Furthermore, it is unlikely that the investment planning on transition in the Framework causes significant damages (so-called "Do No Significant Harm") on other environmentally beneficial projects, and it is not currently anticipated that the investment has any impact on a fair transition due to the investment described above.

Based on the aforementioned, JCR has evaluated that the Framework satisfies the four elements required in the Climate Transition Finance Handbook.

## IV. Consistency with SLLP and so on: Principle 1, Appropriateness of KPI Selection

### 4-1. JCR's Key Consideration in this Factor

In this section, JCR evaluates mainly whether the meaningfulness of the KPI selected by the borrower includes the following elements as illustrated in SLLP and so on:

- 1) Is it related to the whole business of the borrower, and is it core/important and strategically significant in the borrower's current and/or future business?
- 2) Is it measurable or quantitative based on a consistent methodology and externally verifiable?
- 3) Can it be benchmarked (e.g., are external indicators/definitions usable to evaluate SPTs ambition)?

### 4-2. Current Status of Evaluation Targets and JCR Evaluation

(Evaluation results)

KPI set forth in the Framework includes all the elements required by SLLP and so on and a meaningful KPI that contributes to achieving the medium-and long-term goals of TAIHEIYO CEMENT is selected.

KPI selected in the Framework is CO<sub>2</sub> emissions intensity and total domestic CO<sub>2</sub> emissions, both of which are directly contribute to "Achievement of Carbon Neutral" and "Responding to Climate Change," which are key issues to be addressed through the Group's businesses. TAIHEIYO CEMENT regards the establishment of carbon neutral technology, which achieves real zero-carbon-emissions, as one of the uppermost issues, which lead to the future in the cement industry with a large amount of CO<sub>2</sub> emissions and the efforts toward the achievement is positioned as the Group's growth strategies and the Corporation undertakes these initiatives across the entire Company.

Cement will continuously be essential for maintaining social functions hereafter from the viewpoint of infrastructure development as mentioned above and it is crucial to promote the initiatives to reduce CO<sub>2</sub> in the whole industry while supposing that cement is stably supplied.

KPI 1 and 2 are measured based on a consistent methodology, respectively and are externally verified. KPI 1 and 2 also use comparable figures that benchmarked countries, international initiatives, peers or others. Thus, JCR has evaluated that any KPI selected in the Framework is meaningful.

## V. Consistency with SLLP and so on: Principle 2, Measurement of SPTs

### 5-1. JCR's Key Consideration in this Factor

In this section, JCR evaluates mainly whether the meaningfulness of the SPTs selected by the borrower includes the following elements as illustrated in SLLP and so on:

- 1) Are SPTs related to significant improvements in each KPI value, and do these exceed a "Business as Usual" scenario?
- 2) Are SPTs comparable to a benchmark or a referable external indicator (if possible)?
- 3) Are SPTs conformity with the pre-defined borrower's overall sustainability/ESG strategies?
- 4) Are SPTs decided based on a timeline established before making a loan (or simultaneously when a loan is made)?

Then, the benchmarks considered in calibrating the borrower's SPTs are confirmed. The following elements are illustrated in SLLP and so on.

- ✓ Establish a quantitative figure based on the latest performance level of the borrower (to select KPI with at least a three-year track record to the extent possible) and disclose KPI's forecast information as much as possible.
- ✓ Relative positioning of SPTs calibrated when comparing to peers (e.g., whether it is an average level of performance or the best level in the industry.)
- ✓ Scenario analyses based on scientific grounds or absolute value (e.g., budgets for carbon), national/regional units, international targets (e.g., the Paris Agreement on climate change, net zero goals, SDGs or others), certified Best Available Techniques (hereinafter referred to as "BAT") and other indicators that determine relevant targets across the ESG themes.

### 5-2. Current Status of Evaluation Targets and JCR Evaluation

(Evaluation results)

SPTs calibrated by TAIHEIYO CEMENT are more ambitious than those in the Corporation's historical results and those by peers, respectively.

SPTs calibrated in the Framework are as follows:

SPT1: Reduction of the CO<sub>2</sub> emissions intensity (\*1) in the supply chain by 20% from FY 2000 by FY 2030

SPT2: Reduction of domestic CO<sub>2</sub> emissions (\*2) by 40% from FY 2000 by FY 2030

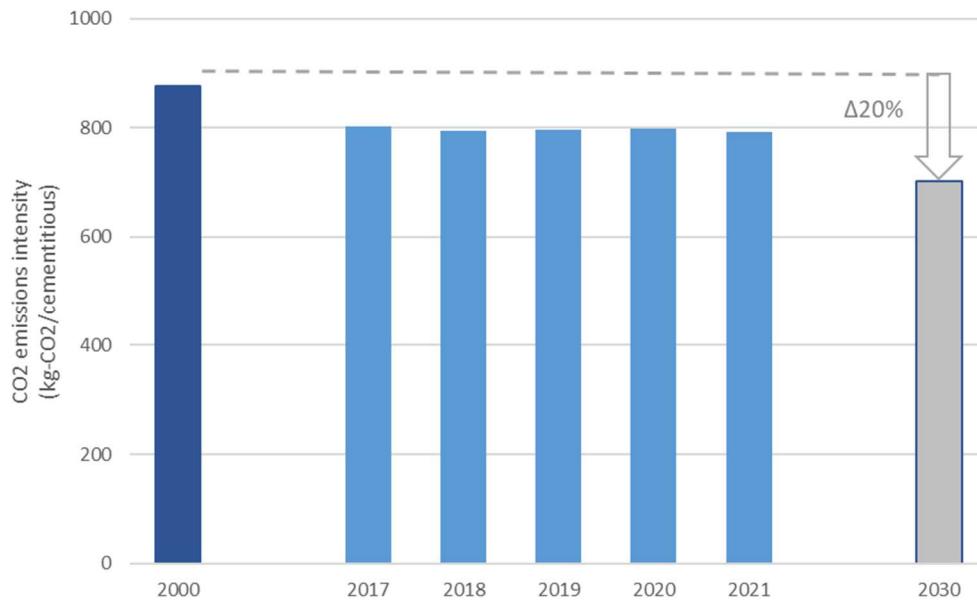
\*1 Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3)

\*2 Scope1 (excluding alternative fossil fuels) and Scope2

#### (1) Comparing to the Corporation's past track records

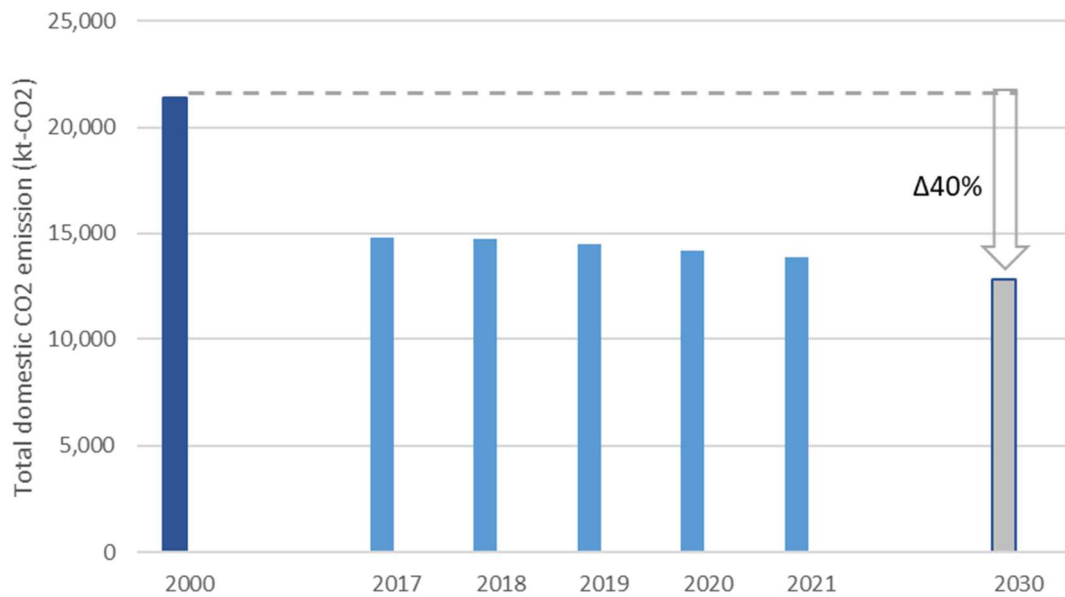
The following figure shows historical results on the CO<sub>2</sub> emissions intensity and the total domestic CO<sub>2</sub> emissions in the supply chain in TAIYEIYO CEMENT. As shown in the figure, the CO<sub>2</sub> emissions intensity and the total domestic CO<sub>2</sub> emissions in the entire supply chain for Group remain unchanged for the last five years.

Figure 14: CO<sub>2</sub> Emissions Intensity in the Supply Chain



(Source: Prepared by JCR from materials provided by TAIHEIYO CEMENT)

Figure 15: Total Domestic CO<sub>2</sub> Emissions



(Source: Prepared by JCR from materials provided by TAIHEIYO CEMENT)

A mean reduction ratio of 0.67% per annum is required to reduce SPT1 by 20% for 30 years over FY 2000 as a baseline. In the meanwhile, the historical average reduction rate in the intensity of TAIHEIYO CEMENT (from FY 2017 to FY 2019, excluding the coronavirus pandemic period) is 0.4% per annum (3.3kg-CO<sub>2</sub>/cementitious), and the Corporation cannot achieve the 2030 target by merely continuing the current efforts. Additionally, demand for cement is expected to increase worldwide, and this SPT1 is an ambitious and high target since TAIHEIYO CEMENT needs to step up efforts to achieve the target by decreasing CO<sub>2</sub>

emissions while growing its businesses.

When applying as same ideas as those for SPT1 on SPT2, the average reduction rate required is 1.33 percent per annum and the historical average reduction rate in the total domestic emissions (from FY 2017 to FY 2019, excluding the coronavirus catastrophe period) is 1.1 percent per annum (163kt-CO<sub>2</sub>.) Given that the domestic cement demand is expected to decline, it is apparently probable that SPT2 will achieve the targets even TEIHEIYO CEMENT continues to take only the current initiatives. However, as mentioned below, the measures that can be taken by FY 2030 are limited only to constant energy efficient activities and expansion of utilizing energy derived from waste. In energy efficient activities, TAIHEIYO CEMENT has promoted its activities in its various plants so far; however, it cannot expect significant effects of CO<sub>2</sub> emissions reduction. Use of energy derived from waste may not grow as expected since material recycling, such as plastics will progress hereafter. Furthermore, the domestic cement production from FY 2000 to FY 2021 decreased by approximately 30%<sup>26</sup> to 55.74 million tons in FY 2021 from 82.37 million tons in FY 2000. On the other hand, an estimated figure in domestic production in FY 2030 is 55.58 million tons<sup>27</sup>, which is expected to remain unchanged from FY 2021. Taking the aforementioned into consideration, this SPT2 is an ambitious goal.

Accordingly, this SPTs need the initiatives that exceed "Business As Usual" in light of the past track records, a volume of activities in the whole industry and difficulties of measures hereafter, and accordingly, JCR has evaluated that this SPTs are ambitious.

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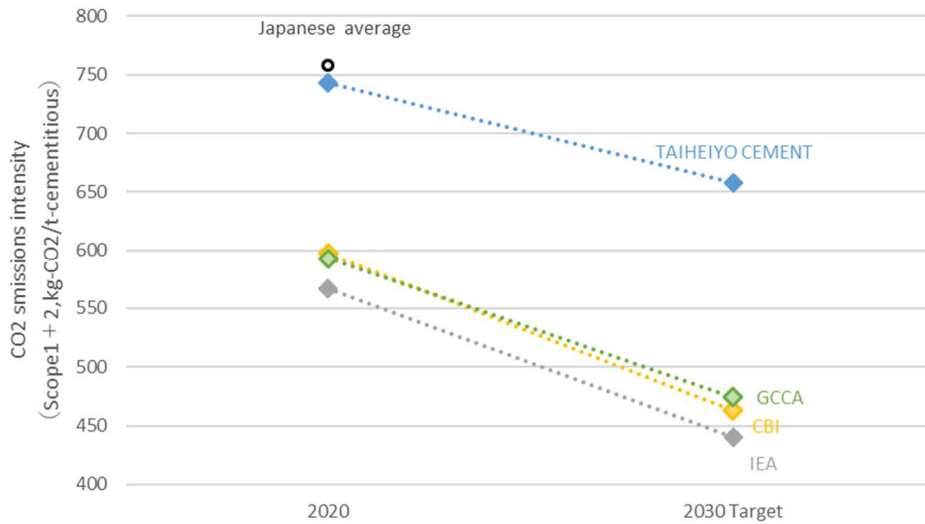
<sup>26</sup> Cement Supply and Demand by Japan Cement Association: [https://www.jcassoc.or.jp/cement/3pdf/jh1\\_1012\\_a.pdf](https://www.jcassoc.or.jp/cement/3pdf/jh1_1012_a.pdf),  
[https://www.jcassoc.or.jp/cement/4pdf/jc5\\_01.pdf](https://www.jcassoc.or.jp/cement/4pdf/jc5_01.pdf)

<sup>27</sup> "Operation Plan for Low Carbon Society" in the Cement Industry (Targets in 2030)  
[https://www.meti.go.jp/shingikai/sankoshin/sangyo\\_gijutsu/chikyu\\_kankyo/seishi\\_wg/pdf/2020\\_001\\_05\\_02.pdf](https://www.meti.go.jp/shingikai/sankoshin/sangyo_gijutsu/chikyu_kankyo/seishi_wg/pdf/2020_001_05_02.pdf)

(2) Comparing to the benchmarks

The following is a comparison of global benchmarks to SPT1. JCR compares only SPT1 to the international benchmarks in this report since targets are often set on an intensity basis for the international benchmarks.

Figure 16: Comparing Benchmarks to TAIHEIYO CEMENT Intensity Targets\*



\*For comparative purposes, the scope of TAIHEIYO CEMENT's intensity is adjusted to Scope1 and Scope2, respectively.

(Source: Prepared by JCR from materials<sup>28</sup>provided by TAIHEIYO CEMENT and materials<sup>29,30,31</sup>published by various organizations)

This SPT1 is inferior to international scenarios, such as GCCA due to differences in standards between Japan and foreign countries (regional characteristics), which are estimated by JCR.

<Regional characteristics>

Cement is made by mixing hydraulic clinker made by calcining limestone with gypsum, which functions as setting modifiers. Cement can be broadly divided into three categories: "Portland cement" that consists of clinker and gypsum; "mixed cement" with admixture-cement whose chemical compositions are similar to those of clinker, such as blast-furnace slag and "others." Of Portland cement, the most common and versatile cement is ordinary Portland cement (hereinafter referred to as "OPC".) The following table shows the use per cement type and CO<sub>2</sub> emission intensity unit and the distribution ratio per cement type in respective countries.

<sup>28</sup> The scope of SPT1 is Scope1, Scope2 and Scope3; however, data of Scope1 and Scope2 are used to compare to the benchmarks.

<sup>29</sup> Results in GCCA in FY 2020: <https://gccassociation.org/sustainability-innovation/gnr-gcca-in-numbers/>  
Targets in FY 2030: <https://gccassociation.org/concretefuture/wp-content/uploads/2022/10/GCCA-Concrete-Future-Roadmap-Document-AW-2022.pdf>

<sup>30</sup> CBI: <https://www.climatebonds.net/files/files/Cement-Criteria-Document-Final-241022.pdf>

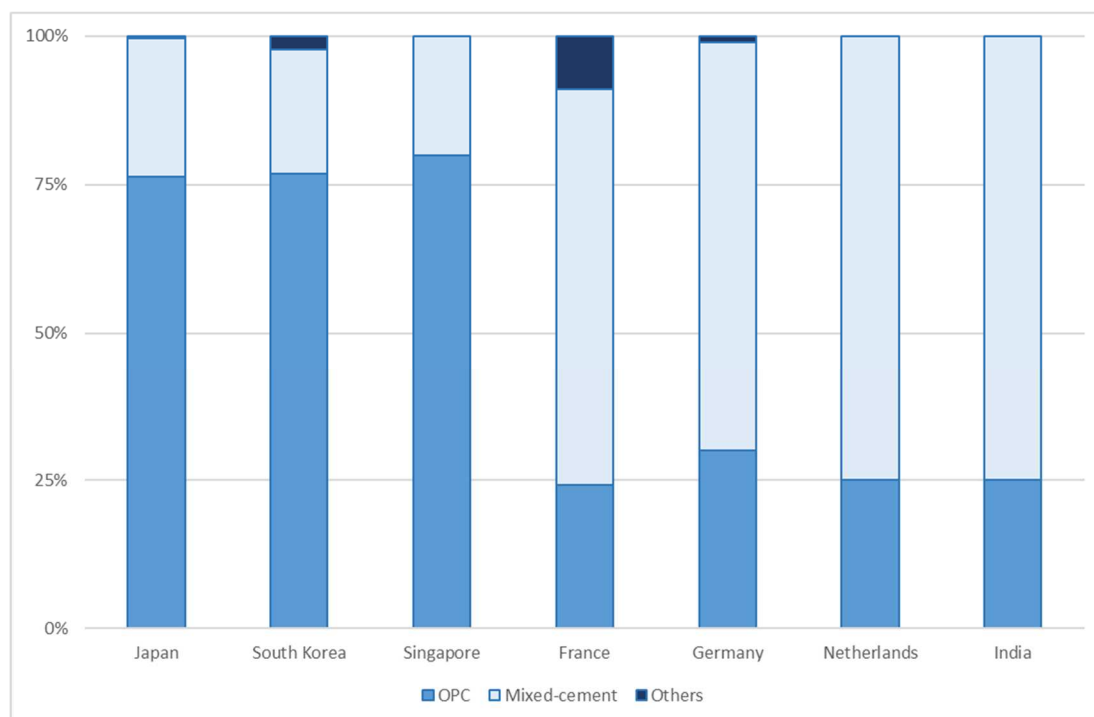
<sup>31</sup> IEA: [https://iea.blob.core.windows.net/assets/7f8aed40-89af-4348-be19-c8a67df0b9ea/Energy\\_Technology\\_Perspectives\\_2020\\_PDF.pdf](https://iea.blob.core.windows.net/assets/7f8aed40-89af-4348-be19-c8a67df0b9ea/Energy_Technology_Perspectives_2020_PDF.pdf)

Table 2. Use and CO<sub>2</sub> Emissions Intensity per Cement Type

Cement type		CO <sub>2</sub> emissions intensity (kg-CO <sub>2</sub> /t-cement)	Use
<b>Ordinary Portland Cement ("OPC")</b>		<b>758.2</b>	<b>General Construction/Civil Engineering (All-purpose Cement)</b>
Mixed-cement	<b>Blast furnace cement</b>	<b>469.6</b>	Large-scale civil works, such as dams and ports
	<b>Fly ash cement</b>	<b>626.3</b>	Large-scale civil works, such as dams and ports Structures by which water-tightness is required

(Source: Prepared by JCR from materials<sup>32</sup>provided by METI and materials<sup>33</sup>provided by JCA)

Figure 17: Distribution Ratio per Cement Type in Each Country



(Source: Prepared by JCR from materials<sup>34</sup>provided by METI)

OPC is used for general buildings due to its good compatibility with steel in terms of thermal expansion

<sup>32</sup> Domestic and international trends toward carbon neutral of concrete/cement provided by Agency for Natural Resources and Energy, Manufacturing Industries Bureau at METI in November 2, 2022: [https://www.meti.go.jp/shingikai/sankoshin/green\\_innovation/energy\\_structure/pdf/011\\_04\\_00.pdf](https://www.meti.go.jp/shingikai/sankoshin/green_innovation/energy_structure/pdf/011_04_00.pdf)

<sup>33</sup> Website at Japan Cement Association: <https://www.jcassoc.or.jp/cement/1jpn/jd1.html#01>

<sup>34</sup> Survey on dissemination/expansion measures of energy-efficient manufacturing processes in the Cement Industry/Considerations on dissemination/expansion measures of mixed cement in the Cement Industry in March, 2016, Housing Industry, Ceramics and Construction Materials Division, Manufacturing Industries Bureau at METI: [https://www.meti.go.jp/policy/mono\\_info\\_service/mono/jyutaku/semntohoukokusyo.pdf](https://www.meti.go.jp/policy/mono_info_service/mono/jyutaku/semntohoukokusyo.pdf)

coefficient<sup>35</sup>of neutralization speed.<sup>36</sup> In the meanwhile, the blast furnace cement with a lower clinker ratio limits its use due to the following: (1) developing the initial strength is slower and the curing period is longer; (2) a neutralization speed is slightly faster, which makes the steel inside concrete, such as reinforcement rods, corrode easier; (3) a quality tends to change depending upon thermal environments and (4) a shrinkage increases when hardening as the mixing amount of slag increases, which causes cracks or others.

The distribution ratio per cement type shows that a ratio of clinker is higher in Japan than those in Europe, and OPC with a higher clinker ratio and high CO<sub>2</sub> emissions is normally used. As shown in the table below, this reason is probably due to Japanese stricter standards that place restrictions on use of mixed materials<sup>37</sup>compared to those in Europe.

Table 3. Standards on Cement in Each Country

	Admixture accepted	Whether one or more admixture is usable or not	Blending ratio		
			Blast furnace slag	Silica	Fly ash
Japan (JIS Standards)	Blast furnace slag, silica and fly ash	Not usable	5 - 70%	5 - 30%	5 - 30%
Europe (EN197-1 Standards)	Blast furnace slag, silica, fly ash, shale, pozzolan and limestone	Usable	6 - 95%	6 - 35% ( up to 55% *1)	6 - 35% (up to 55% *2)
Korea (KS-L Standards)	Blast furnace slag and fly ash	Not usable	5 - 70%	N/A	5 - 30%
Singapore (SS-EN197-1 Standards)	Blast furnace slag, silica, fly ash, shale, pozzolan and limestone	Basically as same as the European standards (quoted from EN197-1)			

\*1 In cases where however mixing with pozzolan or fly ash, it is mixable up to 55% in total.

\*2 In cases where however mixing with silica or pozzolan, it is mixable up to 55% in total.

(Source: Prepared by JCR based on materials<sup>32</sup>provided by METI and data<sup>38</sup>published by each country)

In Europe, CO<sub>2</sub> emission intensity is presently lower in the first place since mixed-cement with a lower clinker ratio becomes more popular than that in Japan and raw material-derived CO<sub>2</sub> emissions can be also reduced and moreover it is highly probable to substantially reduce the clinker ratio hereafter. In the meanwhile, industrywide initiatives are essential, taking revisions to the standards into consideration so as to popularize mixed-cement in Japan and Korea, and the extent of reduction at the European level is not achievable only with the efforts by a single company. Singapore uses flexible standards based on European standards; however, it is estimated that the demand for OPC is higher while infrastructure development progresses, including

<sup>35</sup> Thermal expansion coefficient: It refers to the rate at which the length or volume of an object expands with an increase in temperature, per one degree Celsius. Note: When materials with different thermal expansion coefficients are used, cracks may occur.

<sup>36</sup> Neutralization: It refers to degradation phenomena that lower pH of pore solutions by reacting carbonation with cement hydrates, such as calcium hydroxides, when carbon dioxide in air penetrates concrete with a strong alkaline of pH 12 to 13.

<sup>37</sup> It means "admixture of mixed-cement standards" in this third party opinion.

<sup>38</sup> South Korea: Korea Cement website: [http://koreacement.co.kr/bbs/content.php?co\\_id=business\\_02e](http://koreacement.co.kr/bbs/content.php?co_id=business_02e)  
Singapore: <https://www.singaporestandardseshop.sg/Product/SSPdtDetail/abc0a2c7-6604-4323-b33b-d123ce6fa170>



subways or expressways, and the OPC utilization rate is currently higher.

Based on the above background, JCR has determined that the benchmark of TAIHEIYO CEMENT seems to be inferior to the global benchmarks; however, these are not unconditionally comparable side by side, taking the differences between Japan and Europe, such as the standards, into consideration.

The roadmap of METI is referred to as a benchmark taking circumstances in Japan into consideration with which the measures for 2050 carbon neutral, the development period for respective measures and the installation period for actual equipment for TAIHEIYO CEMENT are consistent.

JCR has evaluated that the measures in the roadmap of METI are in conformity with the Corporation's initiatives toward the carbon neutral although comparing ambition between METI and TAIHEIYO CEMENT is difficult since the roadmap of METI does not indicate any quantitative target for FY 2030.

### (3) Comparison to peers

The following table presents comparison of SPT1 to that of peers. As aforementioned, European companies in which a wide range of admixture is allowed to use under the standards and mixed-cement is highly utilized, set forth higher ambitious targets than those of TAIYEIYO CEMENT. However, Japanese peers establish their targets only for the part on energy derived CO<sub>2</sub> emissions. Korean companies with stricter standards as same as those in Japan internationally have not announced their interim targets for FY 2030 although they have clearly mentioned to contribute to 2050 Carbon Neutral (as of January 2023.) Thus, JCR has determined that the goals set by TAIHEIYO CEMENT are inferior to those in Europe that have highly flexible cement standards; however, as same as (2) above, these are not unconditionally comparable side by side. JCR has evaluated that SPT1 is ambitious since only TAIHEIYO CEMENT sets and publishes quantitative targets for CO<sub>2</sub> emissions on the entire supply chain, comparing to peers in Japan/South Korea that have similar stricter standards.

Table 4. Comparison to Peers

		Basic intensity targets announced (in FY 2030)	Over FY 2020 (Scope1 and Scope2)*
Japan	TAIHEIYO CEMENT	- 20% over FY 2000 (Scope1, Scope2 and Scope3)	- 11%
	Sumitomo Osaka Cement	- 30% over FY 2005 (energy sources only)	N/A
Europe	Holcim	- 25% over FY 2018 (Scope1 and Scope2)	- 22%
	Heidelberg Materials	- 47% over FY 1990 (Scope1) - 65% over FY 2016 (Scope2)	- 30%
South Korea	Hanil Hyundai Cement	Targets for FY 2030 are undisclosed Declared to contribute to carbon neutral	

\*For comparative purposes, JCR uses a scope as same as Scope1 and Scope2, respectively for calculation based on the actual performance/targets announced.

(Source: Prepared by JCR from materials published by respective companies)

#### (4) Initiatives toward the achievement of SPTs of TAIHEIYO CEMENT

Of CO<sub>2</sub> emissions in the cement manufacturing processes, 40 percent is energy derived from thermal and electric energy and 60 percent is raw materials derived that are certainly generated in the processes of decarbonizing limestone. The following measures will be taken to achieve CO<sub>2</sub> emissions reduction targets for TAIHEIYO CEMENT.

##### (i) Measures to contribute to reducing energy derived CO<sub>2</sub> emissions

The cement manufacturing has the following three processes and uses thermal and electric energy in respective processes.

- (1) Raw material processes to dry, crush and mix raw materials (limestone)
- (2) Burning processes that manufacture clinker, an interim product, by burring blending materials at a high temperature and rapidly cooling them
- (3) Finishing processes in which gypsum is added to clinker, which are crushed into cement

Of these, the burring processes in (2) has the largest energy consumption using the high temperature of approximately 1450 °C since these produce decarbonization of limestone. In the burning processes, coal is mainly used to obtain an enormous amount of heat at a low cost. The Group recognizes the vital is to reduce to utilize coal as its efforts to reduce energy derived CO<sub>2</sub> emissions, and it plans to use the existing technology, including installing high-efficiency equipment, such as next-generation coolers, optimizing facility/operation management (constant energy efficient activities) and alternative fuels through waste derived energy until FY 2030. However, TAIHEIYO CEMENT has partially addressed to optimize facility/operation management (constant energy efficient activities) to date, and the significant improvements are not easily expected in the future. The Corporation is working on maximizing the introduction amount for waste derived energy as alternative energy; however, it recognizes that material recycling of plastics will progress, making it difficult to ensure waste in the future. LNG, low-carbon heat sources, is often used as alternative fuels in other manufacturing industries. TAIHEIYO CEMENT has covered manufacturing-related energy with LNG co-firing at overseas bases, such as the U.S. West Coast in which LNG is easily procured, and it has already performed experiments to commercialize single fuel combustion of LNG. However, domestic infrastructures to transport/store a large amount of LNG are presumed to be immature by FY 2030; therefore, a large scale of capital expenditure, such as pipelines or a large capacity of tanks in plants, are required if the main heat energy source is to be converted into LNG. For this reason, the Corporation is simultaneously considering other alternative energy or measures that contribute to reducing raw material derived CO<sub>2</sub> emissions, and it is to consider to convert into LNG in cases where conditions, such as costs or procuring difficulties, are met. The Corporation is domestically converting into LNG for the part that requires relatively small capital expenditures, such as replacing diesel/coal with LNG for fuels in power generation facilities.

TAIHEIYO CEMENT considers to use renewable energy or alternative energy, such as hydrogen/ammonia, as initiatives in and after FY 2030. The Corporation is also working on developing technology so as to utilize synthetic methane produced by methanation as an alternative fuel by recovering raw material derived CO<sub>2</sub>.

(ii) Measures to contribute to reducing raw materials derived CO<sub>2</sub> emissions

Raw material derived CO<sub>2</sub> emissions are inevitably generated in the processes of decarbonizing limestone and making clinker in the burning processes of (i) (2.) Although the Group recognizes that lowering a clinker ratio is effective, the current JIS standards for admixture are less flexible than those of Europe; therefore, the Group will work on mitigating the standards industrywide by demonstrating technology of cement with a lower clinker ratio using admixture or by developing technology with overseas admixture until FY 2030. Concurrently, the Group plans to develop technology for lower CO<sub>2</sub> cements with CO<sub>2</sub> sequestration technology.

However, only lowering the clinker ratio is not enough to achieve carbon neutral since raw material derived CO<sub>2</sub> is emitted as long as limestone is used. Therefore, the Group will also actively promote deploying innovative technology shown in (iii), including technology for separating/recovering CO<sub>2</sub> or for effectively utilizing CO<sub>2</sub>. The Group plans to accelerate to reduce CO<sub>2</sub> emissions through commercializing/spreading development of technology for low CO<sub>2</sub> cement using CO<sub>2</sub> recovery/utilization technology in addition to expanding utilization of admixture from FY 2030 onward.

(iii) Innovative technology

TAIHEIYO CEMENT is developing an amine process and a C2SP kiln as technology for separating/recovering CO<sub>2</sub>. The amine process is a recovery method with an amine liquid (a chemical absorbent) and is utilized in other industries; however, there is an issue, which required a large scale of equipment. The C2SP kiln can directly recover high-concentrated CO<sub>2</sub> discharged from raw materials in compact facilities by devising designs of calcination furnaces and by burning with oxygen rather than the air. Relatively minor renovation work on conventional facilities enables efficient CO<sub>2</sub> recovery; however, there is an issue that incidental equipment is required for practical application.

The Corporation has developed technology to efficiently utilize CO<sub>2</sub> generated, including CO<sub>2</sub> recovered from a calcination furnace exit of the C2SP kiln. The typical technology is to convert into synthetic methane for reuse with the methanation technology, which is jointly developed with other companies. TAIHEIYO CEMENT reuses synthetic methane at its own cement plants and is also working on researching feasibility of a business to reuse it as raw materials for city gas.

The Corporation has developed CARBOFIX cement (its registered trademark), which is a cementitious material that fixes CO<sub>2</sub> and decreases intensity. CARBOFIX cement reduces raw materials derived CO<sub>2</sub> as a clinker composition that lowers calcium and also reduces energy derived CO<sub>2</sub> by lowering a burning temperature by approximately 100°C. In addition, CO<sub>2</sub> is fixed with materials that are hardened by reacting with CO<sub>2</sub> in the processes to soften concrete. CO<sub>2</sub> intensity is lower by roughly 60% than that of OPC as for the CO<sub>2</sub> emissions reduction effects as concrete.

TAIHEIYO CEMENT is working on technological development on these innovative technology for practical application around FY 2030.

Accordingly, the SPTs set by TAIHEIYO CEMENT are inferior to international scenarios, such as GCCA, and those established by peers in Europe, which are not comparable in general since the factor is presumed to be differences in standards between Japan and overseas countries (regional characteristics.) JCR has evaluated that these SPTs are ambitious, considering the comparison to peers in regions to which equivalent standards are applied and the roadmap in METI, and detailed measures, and these SPTs have specific measures on 2050 Carbon Neutral with raw materials derived CO<sub>2</sub> reducing technology to be commercialized around FY 2030.

### 5-3. Impact Evaluation by JCR

JCR discussed five elements (diversity, effectiveness, efficiency, multiplication and additionality) of impact evaluation standards exemplified in the fourth principle of Positive Impact Finance (hereinafter referred to as "PIF") Principle mapped out by the United Nations Environment Programme to confirm the following: (1) SPTs stipulated in the Framework are ambitious and meaningful, and contribute to sustainable growth and social value improvements for TAIHEIYO CEMENT and (2) a level of maximization of positive impacts and levels of avoidance, management and reduction of negative impacts.

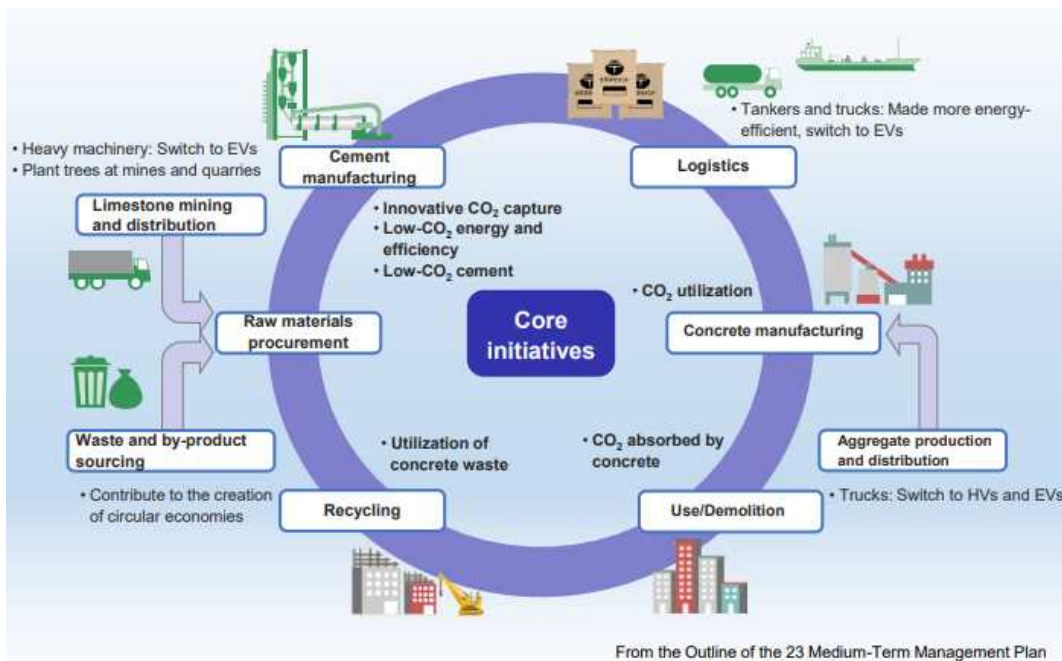
**(1) Diversity: Are there any significant impacts?**

(Impacts in the entire value chain, impacts per business segment, impact by region or others)

KPI set out in the Framework is CO<sub>2</sub> emissions intensity and total domestic CO<sub>2</sub> emissions, and the impact area includes only mitigation of climate change, which is limited.

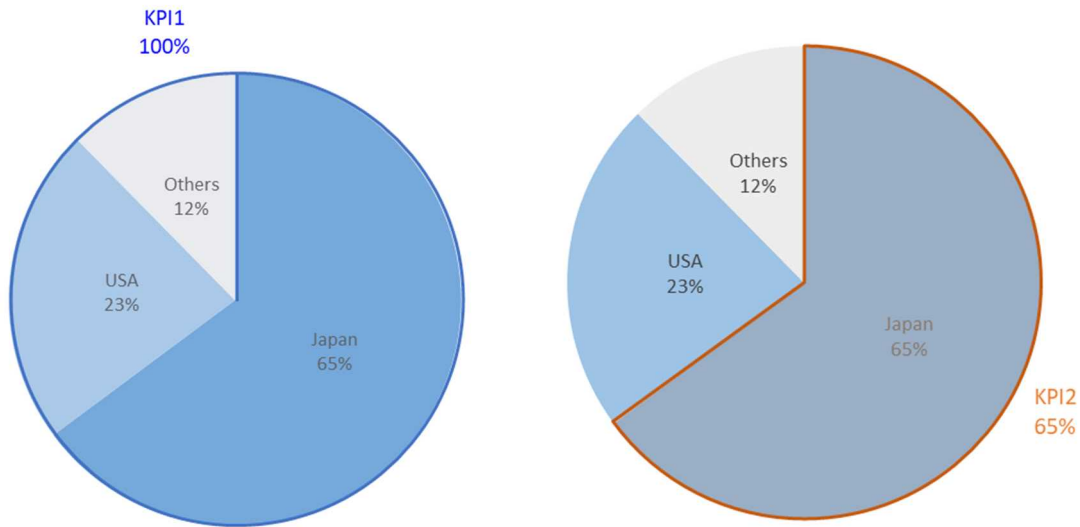
The scope of SPTs' calibration covers all of the Scope1, Scope2 and Scope3 of the Corporation's CO<sub>2</sub> emissions intensity and the impact in the entire value chain is significant. The impact on business segments is of significance since the amount directly discharged along with cement manufacturing accounts for 92 percent of the total of the greenhouse gas emitted from the Group's business activities per business segment. The measures to achieve this SPTs bring about impacts in all areas, including an environmental business that processes/utilizes waste. Additionally, although the aggregate scope of SPT2 is limited to domestic only, the scope of SPT1 brings about various impacts per region, including not only Japan but also foreign countries, such as the United States, China, the Philippines, Vietnam, and Papua New Guinea since the Group also has its bases overseas.

■ Impacts in the value chain



(Source: TAIHEIYO CEMENT's Carbon Neutral Strategy 2050)

■ Impacts per Region (Percentage of Consolidated Net Sales in FY 2021)



(Source: Prepared by JCR from materials publicized by TAIHEIYO CEMENT)

(2) Effectiveness: Are there any significant impacts?

(Domestic and international market shares of SPTs-covering sales, business activities, target regions and businesses that measure SPTs)

SPTs set in the Framework are expected to have significant impacts.

TAIHEIYO CEMENT is a leading domestic company in the cement industry, with total sales of JPY 708.2 billion on a consolidated basis and JPY 287.5 billion on a non-consolidated basis and has a relatively large influence on the market.

SPT1 is considered to have relatively large impacts in the industry and regions since domestic and overseas companies in the Group are subject to CO<sub>2</sub> emission reduction.

In SPT2, the impacts of this SPTS are significant for an intermediate- and long-term since the Corporation with a leading position in the industry takes initiatives to set environmental targets in Japan, considering the anticipated ripple effects on other peers.

(3) Efficiency: Do relatively large impacts made on invested capital?

Financing under the Framework is a highly efficient approach from the following perspectives:

TAIHEIYO CEMENT set targets as SPTs by FY 2030 as follows: to reduce CO<sub>2</sub> emissions intensity in the supply chain by 20% over FY 2000 and to reduce domestic CO<sub>2</sub> emissions by 40% over FY 2000, both of which are initiatives that directly contribute to "achieving carbon neutral" and "responding to climate change," which are set forth as important issues to be addressed through the Group's businesses. Taking initiatives to promote efforts that contribute to the environment by TAIYO CEMENT is of significance to maintain/expand its businesses in the future, and concurrently the impacts on other industries are also important since cement is essential to maintain social functions hereafter from the standpoint of infrastructure development. Therefore, the financing based on the Framework is likely to efficiently develop the impacts.

(4) Magnification: Levels of utilizing private funds against public funds or donations

GI Fund is utilized to develop the next-generation technological development in and after FY 2030 although there is no public funds directly related to this KPI. Additional public funds are expected to be introduced in

the practical application stage of technology developed with these public funds.

(5) **Additionality:** Are there any additional impacts?

Are SDGs encouraging measures in areas in which targets are not achieved or responses are insufficient?

Is this a major step forward in realizing SDGs?

Of SDGs' 17 goals and 169 targets, additional impacts are expected to bring about multiple goals and targets as follows:



**Goal 7: Affordable and Clean Energy**

**Target 7.3** By 2030, double the global rate of improvement in energy efficiency.



**Goal 9: Industry, Innovation and Infrastructure**

**Target 9.4** By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.



**Objective 13: Climate Action**

**Target 13.1:** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

**Target 13.3:** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

## VI. Consistency with SLLP and so on: Principle 3: Characteristics of Loans (Economic Conditions)

### 6-1. JCR's Key Consideration in this Factor

In this section, the following details are to be confirmed:

- (1) Is it agreed that financial/structural characteristics of a loan change depending upon whether the selected KPI achieves the pre-defined SPTs?
- (2) Are KPI's definitions and SPTs and the variability of financial/structural characteristics of Sustainability-Linked Loan included in a loan agreement or other related documents?
- (3) Will responses in cases where unexpected events that may have significant effects on the measurement method of KPI, the calibration of SPTs, preconditions or the scope of KPI (e.g., important M&A activities, significant changes in systems, such as regulations, or unusual events) be referred in a loan agreement or other related documents?

### 6-2. Current Status of Evaluation Targets and JCR Evaluation

(Evaluation results)

It is agreed that financial/structural characteristics of a loan made based on the Framework change depending upon whether the Corporation achieves the pre-defined SPTs as for the selected KPI? The said variability will be included in a loan agreement or other related documents. The measurement method of KPI, calibration of SPTs and preconditions will also be referred to herein.

JCR has confirmed in the Framework that the SPTs' evaluation period is set as FY 2031, and in cases where respective SPTs are achieved at that time, financial/structural characteristics in the Loan made under the Framework should be changed in the Agreement. The variability concerned according to fulfillment requirements of respective SPTs will be described in the loan agreement or other related documents. Definitions of KPI, calibration of SPTs, preconditions will be described herein as well. In cases where an unforeseeable situation occurs at the time of financing a loan to be made based on the Framework and the measurement method of KPI, calibration of SPTs, preconditions or the KPI's scope need to be changed, TAIHEIYO CEMENT will disclose the changes made in the loan agreement or other related documents in a timely manner.

Accordingly, JCR has confirmed that the agreement was made in line with the conditions to make loans and that disclosure items in the loan agreement or others are also appropriate.



## VII. Consistency with SLLP and so on: Principles 4 and 5, Reporting and Verification

### 7-1. JCR's Key Consideration in this Factor

In this section, JCR confirms whether the following items will be included as reporting details to be made after financing or whether the disclosure method and third-party verification are planned.

#### i. Items to be disclosed

Whether the following items will be disclosed once or more a year.

- ✓ The latest information on the performance of selected KPI (including preconditions of baselines)
- ✓ Useful information for a borrower/fund raiser to gauge a level of SPTs ambition, including the borrower's latest sustainability strategies, information on relevant KPI/ESG governance or data on KPI and SPTs analyses

Disclose the following information to the extent possible:

- ✓ Qualitative and quantitative explanations on the main factors that contributed to improving the performance/KPI, including M&A activities
- ✓ Explanation on how performance improvements affect the borrowers' sustainability
- ✓ Whether KPI is reevaluated, whether SPTs calibrated are revised and whether the baseline's preconditions and a scope of KPI is changed.

#### ii. Verification

Is it planned to disclose detailed verification, such as the achievement of SPTs, impacts on changes in financial/structural characteristics and the timing?

### 7-2. Current Status of Evaluation Targets and JCR Evaluation

(Evaluation results)

The Loan made under the Framework is appropriately planned for detailed disclosure, frequency and methodologies in reporting after the Loan is made and a third party will verify the contents required, in principle, including the progress of SPTs.

TAIHEIYO CEMENT will annually publicize or disclose the progress of CO<sub>2</sub> reduction plans (e.g., CO<sub>2</sub> emission intensity and domestic CO<sub>2</sub> emissions in the supply chain on cement manufacturing) as progress of SPTs that make up KPI on its website or in an integrated report or for lenders. A third party will verify CO<sub>2</sub> emissions intensity and domestic CO<sub>2</sub> emissions. In cases where any significant change is made in SPTs during the period, an external evaluation institution will review the change to determine whether it complies with CTFH and so forth and SLLP and so on and whether ambitions and meaningfulness initially assumed will be continuously maintained. TAIHEIYO CEMENT, the lender and JCR will review the individual Loan made under the Framework in the year when it falls due for repayment, and are to evaluate the achievement of SPTs and impacts developed on the Corporation and society.

**VIII. Conclusions on Conformity with CTFH and so forth and SLLP and so on**

Based on the aforementioned insight, JCR has confirmed that the Framework that is subject to this Third-Party Opinion, is in compliance with CTFH and so forth and SLLP and so on.

(Responsible analysts for this evaluation) Atsuko Kajiwara and Haruna Goto

## Important Explanation on this Third-Party Opinion

### 1. Assumptions, Significance and Limitation of Third-Party Opinion Assigned and Provided by JCR

The third-party opinions assigned and provided by Japan Credit Rating Agency, Ltd. ("JCR") are a comprehensive statement of the JCR's current opinions at this time on conformity with (1) Climate Transition Finance Handbook ("CTFH") formulated by International Institute of Capital Markets ("ICMA"), (2) Sustainability Linked Loan Principles ("SLLP") drew up by Loan Market Association ("LMA"), (3) Basic Guidelines on Climate Transition Finance established by Financial Services Agency, Ministry of Economy, Trade and Industry, and Ministry of Environment in May 2021 and (4) Sustainability Linked Loan Guidelines revised by Ministry of Environment in July 2022, four of which are subject to evaluation and it is not a complete representation of the extent of positive impacts that are brought about by the said evaluation.

This Third-Party Opinion evaluates current plans or circumstances based on information provided by the client and information independently collected by JCR and does not guarantee evaluation on the situation in the future. This Third-Party Opinion does not quantitatively demonstrate positive effects from a sustainability-linked loan, and JCR assumes no responsibility for its effects. JCR confirms that financing made by this business is quantitatively and qualitatively measured by the borrower or a third party requested by the borrower; however, in principle, this is not measured directly.

### 2. International Initiatives, Principles or Others Referenced in Implementing This Evaluation

JCR is referenced to the following principles and guidance developed by ICMA, LMA, UNEP FI and respective ministries in conducting this evaluation.

- Climate Transition Finance Handbook
- Basic Guidelines on Climate Transition Finance provided by Financial Services Agency, Ministry of Economy, Trade and Industry, and Ministry of the Environment
- Sustainability Linked Loan Principles
- Green Loan and Sustainability Linked Loan Guidelines provided by Ministry of the Environment
- Positive Impact Financial Principles
- Positive Impact Finance Model Framework that does not limit use of proceeds

### 3. Relation with Acts on Credit Rating Business

This Third-Party Opinion is provided by JCR as its related business and differs from any act of credit rating business.

### 4. Relation with Credit Ratings

This evaluation differs from credit rating and is not committed to providing a predetermined credit rating or make it available for inspection.

### 5. Independency of JCR

There is neither capital nor personal relationships that cause conflicts of interest between this evaluation targets and JCR.

### Points to Consider

The information contained in this document was obtained by JCR from the borrower and accurate and reliable sources. However, there may be errors due to artificial, mechanical, or other reasons in the said information. Accordingly, JCR makes no representation, express or implied, as to the accuracy, results, eligibility, timeliness, completeness, marketability or fitness for any particular purpose of such information, and JCR shall not be liable for any errors, omissions or consequences of using such information. Under no circumstances shall JCR be liable for any special, indirect, incidental or consequential damages of any kind, including loss of chance or monetary loss, arising from any use of such information, regardless of contractual liability, tort liability, unlawful liability or other liability, whether or not such damages are foreseeable or unforeseeable. This Third-Party Opinion does not express any opinion on the various risks (credit risk, price volatility risk, market liquidity risk or others) associated with positive impact finance that is subject to the evaluation. This Third-Party Opinion is an overall opinion of JCR at this time and is not a representation of facts. It does not constitute a recommendation of any kind regarding risk assessments or decisions to purchase, sell or hold individual bonds, commercial papers or other instruments. This Third-Party Opinion may be changed, suspended or withdrawn due to changes in information, lack of information or other reasons. All rights to this document are reserved by JCR. It is prohibited to duplicate, translate or alter this Third-Party Opinion, whether in whole or in part, without permission from JCR.

### Terminology

**Third Party Opinion:** This report presents, at the request of the client, a third party opinion on Climate Transition Finance Handbook prepared by International Capital Market Association and the conformity of the Sustainability Linked Loan Principles with respect to the transition linked loan made by the borrower from an independent, neutral and equitable viewpoint.

### Status of Registration as an External Evaluator of Sustainable Finance

- United Nations Environment Programme, Financial Initiative, Positive Impact Working Group Members
- Registered as an external reviewer of Green Bonds by the Ministry of the Environment
- Climate Bonds Initiative Approved Verifier
- ICMA (registered as an observer to the International Capital Markets Association), Social Bond Principles, Climate Transition Finance Working Group Members

### Status of registration as a credit rating agency, etc.

- Credit Rating Agency: the Commissioner of the Financial Services Agency (Rating) No.1
- EU Certified Credit Rating Agency
- NRSRO: JCR registered with the following four of the five credit rating classes of Nationally Recognized Statistical Rating Organization ("NRSRO") as defined by the U.S. Securities and Exchange Commission: (1) financial institutions, broker/dealers, (2) insurance companies, (3) general business corporations and (4) government and local governments. In cases where disclosure is required based on Section 17g-7(a) of the Securities and Exchange Commission rules, such disclosure is attached to a news release posted on the JCR's website (<https://www.jcr.co.jp/en/>).

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Check Sheet for Consistency with Basic Guidelines on Climate Transition Finance

March 8, 2023

Japan Credit Rating Agency, Ltd.

Company to be evaluated: TAIHEIYO CEMENT CORPORATION (TAIHEIYO CEMENT)

The following are the check results of the consistency of the Finance with respect to the items recommended in the Basic Guidelines on Climate Transition Finance (the "Guidelines") published by the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment.

The Guidelines use three expressions: "should," "recommended," and "be considered/possible." These expressions are used in the following context:

- Items described with the word "should" are basic elements that financial instruments labeled as transition finance are expected to have.
- Items described with the word "recommended" are elements that financial instruments labeled as transition finance are optimally recommended to have under the Guidelines although instruments which do not have these items can also be labeled as transition finance.
- Items described with the word "be considered" or "possible" are elements that they are not considered problematic even if financial instruments labeled as transition finance do not have them.

#### **Element 1: Fundraiser's Climate Transition Strategy and Governance**

a) Financing through transition finance **should** aim to implement or incentivize the achievement of transition strategies. Such strategies **should** incorporate a long-term target to align with the goals of the Paris Agreement, relevant interim targets on the trajectory towards the long-term goal, disclosure on the levers towards decarbonization, and fundraiser's strategic planning.

Consistency: ✓

The Corporation announced its efforts toward the achievement of carbon neutral as Carbon Neutral Strategy 2050 in the 23 Medium-Term Management Plan in May 2021. TAIHEIYO CEMENT also formulated and announced a technological development roadmap and 2030 medium-term target in "Carbon Neutral Strategy 2050" in March, 2022, with which the targets on CO<sub>2</sub> emissions announced by the Group along with CRS Target 2050 are shown in the table below.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000

The SPTs are the very CO<sub>2</sub> emission reduction targets in the TAIHEIYO CEMENT Group's roadmap toward virtually zero CO<sub>2</sub> emissions by 2050. Its strategy and targets are consistent with international targets, such as GCCA's roadmap, and Transition Finance Technology Roadmap in METI.

b) A transition strategy **should** serve to explicitly communicate the implementation of an issuer's strategy to transform the business model in a way which effectively addresses climate-related risks and contributes to achieving the goals of the Paris Agreement. Transformation of a business model is not limited to initiatives as an extension of existing businesses but **can** also be transformation based on various other perspectives. It includes fuel conversion that achieves significant carbon and GHG reduction benefits, introduction of innovative technologies, improvement of / changes in manufacturing processes and products, and development and provision of products and services in new fields.

Consistency: ✓

TAIHEIYO CEMENT Group identifies climate-change related risks, such as carbon pricing and declining coal-fired power generation, and seeks to address them effectively through established transition strategies. The transition strategy is based on risk scenario analyses in line with the guidance of TCFD (Climate-Related Financial Disclosure Task Force), as well as analyses based on IEA's SDS scenarios and IPCC's report.

Various measures will be taken, including to optimize the existing technology and to develop innovative technology until FY 2030 and to deploy innovative technology sequentially in and after FY 2030 toward the achievement of the aforementioned targets.

c) The implementation of a transition strategy assumes cases where it affects society and environment other than climate change, such as employment or stable provision of products and services, through transformation of a business model. In such cases, it is **recommended** that the fundraiser also takes into consideration the impact of business innovations to society and environment other than climate change.

Consistency: ✓

There is no negative impact on employment or society except for climate change along with the implementation of the transition strategies for TAIHEIYO CEMENT. The Corporation in terms of the environment commits itself to address eco-efficient business activities and complies with environmental laws and regulations in the environmental management policy. JCR has confirmed that TAIHEIYO CEMENT is actively working on not only addressing climate change but also contributing to resource recycling-oriented society by using waste or others generated from any industry and daily life as raw fuels for cement.

d) Climate change-related scenarios **should** be referenced in developing transition strategies. The pathway to transition **should** be planned for respective sector and regions of individual fundraiser, who may generally be placed in a different starting point and pathway to transition.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

e) Transition strategies and plans must be highly credible in terms of their effectiveness. Therefore, it is **recommended** that a transition strategy and plan are linked to management strategy and business plan, including Medium-term Business Plans.

Consistency: ✓

The Group sets forth four items as key strategies in the 23 Medium-Term Management Plan as follows: (I) continuous investment in growth; (II) initiatives to achieve carbon neutral; (III) making plant and equipment resilient and (IV) to strengthen mines.

The Corporation announced its efforts toward the achievement of carbon neutral as Carbon Neutral Strategy 2050 in the 23 Medium-Term Management Plan. Therefore, this transition strategy is linked to the 23 Medium-Term Management Plan.

f) However, because such strategies and plans run for a long period of time, it is **possible** that the content may be modified or adjusted in the event of a major change in the assumed external environment and so on.

Consistency: ✓

The Corporation will continue to revise the content appropriately in the future in response to changes in the external environment.

g) In the initial phase of developing a transition strategy by the fundraiser, it is **considered** as an option for the fundraiser to indicate a plan for future implementation of items described with the words "recommended" and "be considered/possible" in these Guidelines.

Consistency: ✓

All matters that are considered "should" in the Basic Guidelines satisfy their requirements. In addition, almost all items identified as "recommended" and "considered/possible" have met their

requirements or are expected to be implemented in the future.

h) In order to secure the effectiveness of the transition strategy, the fundraiser **should** establish an organizational structure for the board of directors and/or other such committee to oversee the activities addressing climate change and for management to play a role in assessing and managing such climate-related activities.

Consistency: ✓

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities.

i) While a transition strategy shall be basically developed by a company in need of finance, it is **possible** for entities to utilize the strategy of companies that are wholly or partially responsible for the initiatives to establish or explain their own strategy, given that the finance supports GHG emissions reduction initiatives of not just a single company but its supply chain.

Consistency: ✓

The Group's 2050 goal is to achieve carbon neutrality throughout the supply chain. Also, the Group have set the target for FY2030 to Reduce CO2 emissions intensity for Scope1, Scope2 and Scope3.

j) Transition strategies **should** be disclosed in advance in a company's integrated report, sustainability report, statutory documents and other materials for investors (including such disclosures on the website). This also applies to the other three elements.

Consistency: ✓

Transition Strategies are announced in TAIHEIYO CEMENT Report, 23 Medium-Term Management Plan and the Group's website.

k) It is **possible** to disclose transition strategies and elements concerning the governance guaranteeing that the execution of transition strategies is in alignment with the reporting frameworks such as the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD; Final Report).

Consistency: ✓

In June 2019, the Group expressed its endorsement of the recommendations made by the Task Force

on Climate-related Financial Disclosures (TCFD), and disclosed information in line with the TCFD.

l) If the implementation of a transition strategy assumes impacts on society and environment other than climate change, it is **recommended** that the fundraiser explain the view underlying its approaches, etc. to address such impacts and disclose how the strategy on the whole contributes to achieving the Sustainable Development Goals (SDGs) so that the effects can be appropriately evaluated by the financier.

Consistency: ✓

The Group has identified 22 key issues as a business materiality. In addition, the Group has identified the SDGs goals that will contribute to the key strategies in the 23 Medium-term Management Plan and disclosed them in TAIHEIYO CEMENT Report.

m) Considering the length of application and other factors, there may be instances when a transition strategy and plan will need to be modified due to major changes in the external environment and relevant conditions that were assumed at a planning phase. In this case, the contents of the modification **should** be disclosed together with the underlying reason in a timely manner.

Consistency: ✓

The Corporation will continue to revise the content appropriately in the future in response to changes in the external environment.

n) In terms of governance, it is **recommended** that disclosures include an organizational structure for overseeing the implementation of a transition strategy and for assessing and managing related initiatives. It is also **recommended** that disclosures include the specific roles of the constituent organizations and the management and the process by which the content of deliberations is reflected in management.

Consistency: ✓

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities.

o) In cases where the fundraiser determines the need for an objective assessment regarding the transition strategy, it is **recommended** that a review, assurance and verification by an external



organization for its transition strategy.

Consistency: ✓

For the purpose of objective evaluation, TAIHEIYO CEMENT has obtained reviews by Japan Credit Rating Agency, Ltd. (JCR), etc. for this framework.

p) It is **recognized** useful to obtain a review particularly concerning the following in connection with the transition strategy:

- Alignment of short-term, mid-term and long-term targets (for targets, refer to Element 3) with the overall scenario
- Credibility of the fundraiser's strategy to reach the targets
- Appropriateness of the management process and governance for the transition strategy

Consistency: ✓

JCR confirmed the above three items and provided this evaluation report.

## **Element 2: Environmental Materiality (Priority) in Business Models**

a) Initiatives for achieving the transition strategy **should** be such that contribute to transforming core business activities that are environmentally material parts today and in the future.

Consistency: ✓

A considerable amount of CO<sub>2</sub> is generated in the manufacturing processes since cement needs to be burned at a high temperature of 1,450°C and limestone - the raw material is decarbonized with chemical reactions in the burning processes in terms of the environment. CO<sub>2</sub> emissions by manufacturing cement/concrete account for approximately 7% of CO<sub>2</sub> emissions worldwide.

In the meanwhile, cement is essential materials from the viewpoint of investment for public infrastructure improvements etc. Also, the cement industry effectively utilizes waste, including waste tires as heat sources and raw materials and plays an important role from the perspective of social value and the construction of recycling-oriented society through receipts of waste.

Based on this recognition, the Corporation positions to achieve carbon neutral and to respond to climate change as extremely high interests/significance for stakeholders and significant importance for the Group. Mr. Masafumi Fushihara, President and Representative Director of TAIHEIYO CEMENT mentioned, "Carbon neutral is an initiative for our Corporation to survive in the industry and is also the largest management issue in which any barrier should be broken through."

Therefore, it is a critical issue to make efforts to reduce CO<sub>2</sub> emissions.

b) When identifying business activities that are environmentally material parts, it is **recommended** that the fundraiser consider multiple climate change-related scenarios that may possibly impact its judgment on the identification.

Consistency:

Identified possible climate-related risks and opportunities based on multiple scenarios.

c) In terms of considering materiality, it is **possible** to apply existing guidance provided by an organization that creates standard criteria concerning sustainability reporting.

Consistency: ✓

TAIHEIYO CEMENT Group set its materiality after extracting the expectations and requests of stakeholders through IR interviews with shareholders and investors. There is no particular application of existing guidance.

d) The fundraiser **should** indicate that climate change is an environmentally material part of business activities.

Consistency: ✓

A considerable amount of CO<sub>2</sub> is generated in the manufacturing processes since cement needs to be burned at a high temperature of 1,450°C and limestone - the raw material is decarbonized with chemical reactions in the burning processes in terms of the environment. CO<sub>2</sub> emissions by manufacturing cement/concrete account for approximately 7% of CO<sub>2</sub> emissions worldwide.

In the meanwhile, cement is essential materials from the viewpoint of investment for public infrastructure improvements etc. Also, the cement industry effectively utilizes waste, including waste tires as heat sources and raw materials and plays an important role from the perspective of social value and the construction of recycling-oriented society through receipts of waste.

Based on this recognition, the Corporation positions to achieve carbon neutral and to respond to climate change as extremely high interests/significance for stakeholders and significant importance for the Group. Mr. Masafumi Fushihara, President and Representative Director of TAIHEIYO CEMENT mentioned, "Carbon neutral is an initiative for our Corporation to survive in the industry and is also the largest management issue in which any barrier should be broken through."

Therefore, it is a critical issue to make efforts to reduce CO<sub>2</sub> emissions.

e) It is **recommended** that disclosures include the contents of climate change-related scenarios used in identifying business activities that are environmentally material parts along with the underlying reasons (e.g., regional and industrial characteristics) for selecting such scenarios.

Consistency: ✓

TAIHEIYO CEMENT's transition strategy is based on risk scenario analyses in line with the guidance of TCFD (Climate-Related Financial Disclosure Task Force), as well as analyses based on IEA's SDS scenarios and IPCC's AR5. The content of the referenced scenarios is explained in TAIHEIYO CEMENT Report.

**Element 3: Science-based Climate Transition Strategies (Including Targets and Pathways)**

a) The fundraiser **should** reference science-based targets in developing its transition strategies.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

b) This **should** include mid-term targets (short- to mid-term targets) in addition to long-term targets for 2050 and be quantitatively measurable based on a measurement methodology which is consistent over a long period of time.

Consistency: ✓

These targets described below was disclosed.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000
- Reduce 10% or more CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels and self-generation) over FY 2000

c) In addition, it is recommended that GHG reduction targets, which could be formulated either in intensity and absolute terms, **should** consider environmental materiality and cover Scopes 1 through 3 of GHG Protocol, the international standard on supply-chain emissions.

It is **recommended** that targets covering Scope 3 be set using a practical calculation method when it could be subject to significant reduction in the fundraiser's business model.

It is also **possible** to disclose the avoided emissions as necessary.

Consistency: ✓

TAIHEIYO CEMENT is provided limited assurance by a third party based on GCCA for environmental data, including historical data of CO<sub>2</sub> emissions of Scope1, Scope2 and Scope3 (Category 1 and 3), including domestic and overseas Group companies. In addition, the Group has set carbon neutrality for the entire supply chain as a goal for 2050, and has set milestones for CO<sub>2</sub>

emission intensity for Scope 1, 2, and 3 in FY2030.

d) Science-based targets are GHG reduction targets required for achieving the goals of the Paris Agreement and **should** be set while taking into account differences in regional characteristics and industries. In so doing, it is **possible** to refer to the following trajectories.

- Scenarios widely recognized in the international community (Examples include the Sustainable Development Scenario (SDS) outlined by the International Energy Agency (IEA))
- Objectives verified under the Science Based Targets Initiative (SBTi) and such like
- Nationally Determined Contributions (NDC) of countries aligned with the goals of the Paris Agreement, roadmaps by industry sector, industries set out plans that are science-based achieving the Paris Agreement and so on.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

e) Short- to mid-term targets (with a term of three to fifteen years) **should** be set by referencing the aforesaid trajectories or on the pathway toward the long-term targets planned as benchmarks.

Consistency: ✓

These targets described below was disclosed.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000
- Reduce 10% or more CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels and self-generation) over FY 2000

f) In doing so, since short- to mid-term targets will likely be set in consideration of various factors (including the starting point and track records of the issuer, timing of capital investments, economic rationality, cost-benefit analysis, and availability of technology necessary to achieve the targets), it is **possible** that the pathway may not necessarily be linear with the same slope at all times but may be nonlinear.

Consistency: ✓

Targets have been set taking into account a variety of factors in addition to a road map for decarbonization, such as investment plans and the resulting returns. As a result, it is assumed that it is not a linear path of the same slope.

g) The fundraiser **should** disclose the short- to mid-term and long-term targets they have set, including the base years, etc.

Consistency: ✓

The short-and medium-term targets have set the base year as FY2000.

h) In order to show that long-term targets are science-based, disclosures **should** explain the methodology or trajectory used to define target, including the underlying reasons (e.g., characteristics specific to a region or industry). In particular, when reference is made to plans and industry roadmaps established by an industry, etc., the explanation **should** include that they are grounded in scientific basis.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

i) It is **possible** that disclosures explain the pathway toward a long-term target and the alignment between the short- to mid-term targets on the pathway and the transition strategy, based on the investment plan (refer to Element 4) and other plans.

Consistency: ✓

During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

j) Concerning targets and trajectories, obtaining expert reviews on the following is **considered** to be particularly useful:

- Whether the long-term target is aligned with science-based targets

-> Whether the disclosed information explains the alignment with the Paris Agreement

- Whether the short- to mid-term targets are determined using a GHG emissions forecast calculated based on a climate change scenario analysis
- > Whether scenarios, etc. widely recognized in the international community are used or referenced
- Whether the actual values of the indicators used for the targets are quantitatively measured using consistent measurement methods
- > Whether a specific GHG emissions reduction measure has been developed to achieve short- to mid-term targets aligned with long-term goals

Consistency: ✓

JCR has confirmed that all of the above items have been met in this assessment report.

#### Element 4: Transparency of Implementation

- a) In implementing transition strategies, the fundraiser **should** provide transparency of the basic investment plan to the extent practicable.

Consistency: ✓

During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

The investment plan is disclosed by TAIHEIYO CEMENT report.

- b) The investment plan includes not only capital expenditure (Capex) but also capital and operational expenditure (Opex). Therefore, costs related to research and development, M&A, and dismantling and removal of facilities are also subject to the investment plan. In other words, it is **recommended** that the investment plan incorporate, to the extent possible, expenditure and investment necessary for implementing the transition strategy.

Consistency: ✓

The investment plan incorporates costs and investments related to the implementation of the transition strategy.

- c) It is **recommended** that the investment plan outline the assumed climate-related outcomes and impacts in a quantitative fashion where possible, along with the calculation methods and prerequisites. If quantification is difficult, the use of external certification systems **can** be considered as a substitute for qualitative assessment.

Consistency: ✓

TAIHEIYO CEMENT will annually publicize or disclose the progress of CO2 reduction plans (e.g., CO2 emission intensity and domestic CO2 emissions in the supply chain on cement manufacturing) as progress of SPTs that make up KPI on its website or in an integrated report or for lenders. A third party will verify CO2 emissions intensity and domestic CO2 emissions.

d) In particular, when outlining the assumed climate-related outcomes and impacts, it is **recommended** that the disclosure include not only GHG emission reduction and other initiatives to ease climate change but also report how consideration of a "just transition" is incorporated into the transition strategy.

Consistency: Not applicable  
TAIHEIYO CEMENT's implementation of the Transition Strategy does not require any just transition considerations.

e) If implementing the transition strategy has the potential of having a negative impact on employment or the environment and communities other than climate change, it is **recommended** that any expenditures to mitigate such negative impacts be added to the plan.

Consistency: ✓  
There is no negative impact on employment or society except for climate change along with the implementation of the transition strategies for TAIHEIYO CEMENT. The Corporation in terms of the environment commits itself to address eco-efficient business activities and complies with environmental laws and regulations in the environmental management policy. JCR has confirmed that TAIHEIYO CEMENT is actively working on not only addressing climate change but also contributing to resource recycling-oriented society by using waste or others generated from any industry and daily life as raw fuels for cement.

f) Moreover, the outcomes arising from investments included in the investment plan **should** align with the targets.

Consistency: ✓  
During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

g) Transition finance is a means to financially support the implementation of a transition strategy, and it is **recommended** that financing be provided for new initiatives. However, in the case of transition finance in the format of Use of Proceeds instruments, refinancing for a reasonably

<p>set lookback period (the period during which refinancing is to be applied for projects that have already started) is <b>considered</b> to be eligible.</p>
<p>Consistency: Not Applicable</p> <p>General corporate purpose instruments.</p>

<p>h) It is <b>recommended</b> that investment plans be disclosed by linking the outcomes and impacts with the expenditures to the extent practicable.</p>
<p>Consistency:</p> <p>For the entire transition strategy, each investment target and the total investment amount are disclosed, but it is difficult at present to link the results and impact individually, and they are not disclosed. In the future, it is assumed that specific individual plans will be disclosed as soon as they are finalized.</p>

<p>i) It is <b>recommended</b> that the fundraiser, after securing financing, reports any deviations between the initial plan and the actual expenditure, outcomes and impacts. For any deviations, it is <b>recommended</b> that the underlying reasons be explained.</p>
<p>Consistency: ✓</p> <p>The differences between the original plan and actual expenditures, results and impacts of this financing will be disclosed in the Impact Reporting, which is scheduled to be implemented on a regular basis after executing loans.</p>

<p>j) In cases where the Use of Proceeds loans include refinancing, the fundraiser <b>should</b> provide an explanation on the lookback period set under the framework or other relevant methods along with the underlying reasons and factors.</p>
<p>Consistency: Not applicable</p> <p>The issuance of loans is planned.</p>

<p>k) While there are differences in business practices, such as the fact that loans are traditionally made based on the bilateral relationship between a borrower and a lender, it is <b>recommended</b> that disclosure on the above be made to the extent possible in order to ensure transparency and credibility of transition finance. However, if it is difficult to disclose such information to the public from the standpoint of confidentiality and competition, it is <b>possible</b> to report such information only to lenders or external evaluation organizations without disclosing it to the public.</p>
<p>Consistency: Not applicable</p> <p>General corporate purpose instruments</p>



l) Similarly, in cases where the fundraiser is a small-to-medium-sized enterprise and it is difficult to disclose to the public the same content as that reported to the financier or an external evaluation institution, it is **possible** for the fundraiser to simplify the content of disclosure, for example, by limiting disclosure to a summary of h) to j) of this section.

Consistency: Not applicable

Although TAIHEIYO CEMENT does not fall under the category of SMEs, it is under consideration to disclose the content of the report to the extent practicable by the project.

<Reference>

Check Sheet for Consistency with Basic Guidelines on Climate Transition Finance

March 8, 2023

Japan Credit Rating Agency, Ltd.

Company to be evaluated: TAIHEIYO CEMENT CORPORATION (TAIHEIYO CEMENT)

The following are the check results of the consistency of the Finance with respect to the items recommended in the Basic Guidelines on Climate Transition Finance (the "Guidelines") published by the Financial Services Agency, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment.

The Guidelines use three expressions: "should," "recommended," and "be considered/possible." These expressions are used in the following context:

- Items described with the word "should" are basic elements that financial instruments labeled as transition finance are expected to have.
- Items described with the word "recommended" are elements that financial instruments labeled as transition finance are optimally recommended to have under the Guidelines although instruments which do not have these items can also be labeled as transition finance.
- Items described with the word "be considered" or "possible" are elements that they are not considered problematic even if financial instruments labeled as transition finance do not have them.

#### **Element 1: Fundraiser's Climate Transition Strategy and Governance**

a) Financing through transition finance **should** aim to implement or incentivize the achievement of transition strategies. Such strategies **should** incorporate a long-term target to align with the goals of the Paris Agreement, relevant interim targets on the trajectory towards the long-term goal, disclosure on the levers towards decarbonization, and fundraiser's strategic planning.

Consistency: ✓

The Corporation announced its efforts toward the achievement of carbon neutral as Carbon Neutral Strategy 2050 in the 23 Medium-Term Management Plan in May 2021. TAIHEIYO CEMENT also formulated and announced a technological development roadmap and 2030 medium-term target in "Carbon Neutral Strategy 2050" in March, 2022, with which the targets on CO<sub>2</sub> emissions announced by the Group along with CRS Target 2050 are shown in the table below.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000

The SPTs are the very CO<sub>2</sub> emission reduction targets in the TAIHEIYO CEMENT Group's roadmap toward virtually zero CO<sub>2</sub> emissions by 2050. Its strategy and targets are consistent with international targets, such as GCCA's roadmap, and Transition Finance Technology Roadmap in METI.

b) A transition strategy **should** serve to explicitly communicate the implementation of an issuer's strategy to transform the business model in a way which effectively addresses climate-related risks and contributes to achieving the goals of the Paris Agreement. Transformation of a business model is not limited to initiatives as an extension of existing businesses but **can** also be transformation based on various other perspectives. It includes fuel conversion that achieves significant carbon and GHG reduction benefits, introduction of innovative technologies, improvement of / changes in manufacturing processes and products, and development and provision of products and services in new fields.

Consistency: ✓

TAIHEIYO CEMENT Group identifies climate-change related risks, such as carbon pricing and declining coal-fired power generation, and seeks to address them effectively through established transition strategies. The transition strategy is based on risk scenario analyses in line with the guidance of TCFD (Climate-Related Financial Disclosure Task Force), as well as analyses based on IEA's SDS scenarios and IPCC's report.

Various measures will be taken, including to optimize the existing technology and to develop innovative technology until FY 2030 and to deploy innovative technology sequentially in and after FY 2030 toward the achievement of the aforementioned targets.

c) The implementation of a transition strategy assumes cases where it affects society and environment other than climate change, such as employment or stable provision of products and services, through transformation of a business model. In such cases, it is **recommended** that the fundraiser also takes into consideration the impact of business innovations to society and environment other than climate change.

Consistency: ✓

There is no negative impact on employment or society except for climate change along with the implementation of the transition strategies for TAIHEIYO CEMENT. The Corporation in terms of the environment commits itself to address eco-efficient business activities and complies with environmental laws and regulations in the environmental management policy. JCR has confirmed that TAIHEIYO CEMENT is actively working on not only addressing climate change but also contributing to resource recycling-oriented society by using waste or others generated from any industry and daily life as raw fuels for cement.

d) Climate change-related scenarios **should** be referenced in developing transition strategies. The pathway to transition **should** be planned for respective sector and regions of individual fundraiser, who may generally be placed in a different starting point and pathway to transition.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

e) Transition strategies and plans must be highly credible in terms of their effectiveness. Therefore, it is **recommended** that a transition strategy and plan are linked to management strategy and business plan, including Medium-term Business Plans.

Consistency: ✓

The Group sets forth four items as key strategies in the 23 Medium-Term Management Plan as follows: (I) continuous investment in growth; (II) initiatives to achieve carbon neutral; (III) making plant and equipment resilient and (IV) to strengthen mines.

The Corporation announced its efforts toward the achievement of carbon neutral as Carbon Neutral Strategy 2050 in the 23 Medium-Term Management Plan. Therefore, this transition strategy is linked to the 23 Medium-Term Management Plan.

f) However, because such strategies and plans run for a long period of time, it is **possible** that the content may be modified or adjusted in the event of a major change in the assumed external environment and so on.

Consistency: ✓

The Corporation will continue to revise the content appropriately in the future in response to changes in the external environment.

g) In the initial phase of developing a transition strategy by the fundraiser, it is **considered** as an option for the fundraiser to indicate a plan for future implementation of items described with the words "recommended" and "be considered/possible" in these Guidelines.

Consistency: ✓

All matters that are considered "should" in the Basic Guidelines satisfy their requirements. In addition, almost all items identified as "recommended" and "considered/possible" have met their

requirements or are expected to be implemented in the future.

h) In order to secure the effectiveness of the transition strategy, the fundraiser **should** establish an organizational structure for the board of directors and/or other such committee to oversee the activities addressing climate change and for management to play a role in assessing and managing such climate-related activities.

Consistency: ✓

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities.

i) While a transition strategy shall be basically developed by a company in need of finance, it is **possible** for entities to utilize the strategy of companies that are wholly or partially responsible for the initiatives to establish or explain their own strategy, given that the finance supports GHG emissions reduction initiatives of not just a single company but its supply chain.

Consistency: ✓

The Group's 2050 goal is to achieve carbon neutrality throughout the supply chain. Also, the Group have set the target for FY2030 to Reduce CO<sub>2</sub> emissions intensity for Scope1, Scope2 and Scope3.

j) Transition strategies **should** be disclosed in advance in a company's integrated report, sustainability report, statutory documents and other materials for investors (including such disclosures on the website). This also applies to the other three elements.

Consistency: ✓

Transition Strategies are announced in TAIHEIYO CEMENT Report, 23 Medium-Term Management Plan and the Group's website.

k) It is **possible** to disclose transition strategies and elements concerning the governance guaranteeing that the execution of transition strategies is in alignment with the reporting frameworks such as the Recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD; Final Report).

Consistency: ✓

In June 2019, the Group expressed its endorsement of the recommendations made by the Task Force

on Climate-related Financial Disclosures (TCFD), and disclosed information in line with the TCFD.

l) If the implementation of a transition strategy assumes impacts on society and environment other than climate change, it is **recommended** that the fundraiser explain the view underlying its approaches, etc. to address such impacts and disclose how the strategy on the whole contributes to achieving the Sustainable Development Goals (SDGs) so that the effects can be appropriately evaluated by the financier.

Consistency: ✓

The Group has identified 22 key issues as a business materiality. In addition, the Group has identified the SDGs goals that will contribute to the key strategies in the 23 Medium-term Management Plan and disclosed them in TAIHEIYO CEMENT Report.

m) Considering the length of application and other factors, there may be instances when a transition strategy and plan will need to be modified due to major changes in the external environment and relevant conditions that were assumed at a planning phase. In this case, the contents of the modification **should** be disclosed together with the underlying reason in a timely manner.

Consistency: ✓

The Corporation will continue to revise the content appropriately in the future in response to changes in the external environment.

n) In terms of governance, it is **recommended** that disclosures include an organizational structure for overseeing the implementation of a transition strategy and for assessing and managing related initiatives. It is also **recommended** that disclosures include the specific roles of the constituent organizations and the management and the process by which the content of deliberations is reflected in management.

Consistency: ✓

TAIHEIYO CEMENT set up a "CSR Management Committee" horizontally across departments with the President as the Chairman and all Directors and Corporate Officer with Title who are under the direct control of the Board of Directors as members and promotes CSR management. CSR Management Committee is held four times a year to deliberate key issues, such as CSR Activity Implementation Plan and to review the implementation of CSR activities. TAIHEIYO CEMENT has established seven task forces under CSR Management Committee in which respective plants, branches and Group companies are involved to be applied to concrete activities.

o) In cases where the fundraiser determines the need for an objective assessment regarding the transition strategy, it is **recommended** that a review, assurance and verification by an external

organization for its transition strategy.

Consistency: ✓

For the purpose of objective evaluation, TAIHEIYO CEMENT has obtained reviews by Japan Credit Rating Agency, Ltd. (JCR), etc. for this framework.

p) It is **recognized** useful to obtain a review particularly concerning the following in connection with the transition strategy:

- Alignment of short-term, mid-term and long-term targets (for targets, refer to Element 3) with the overall scenario
- Credibility of the fundraiser's strategy to reach the targets
- Appropriateness of the management process and governance for the transition strategy

Consistency: ✓

JCR confirmed the above three items and provided this evaluation report.

## Element 2: Environmental Materiality (Priority) in Business Models

a) Initiatives for achieving the transition strategy **should** be such that contribute to transforming core business activities that are environmentally material parts today and in the future.

Consistency: ✓

A considerable amount of CO<sub>2</sub> is generated in the manufacturing processes since cement needs to be burned at a high temperature of 1,450°C and limestone - the raw material is decarbonized with chemical reactions in the burning processes in terms of the environment. CO<sub>2</sub> emissions by manufacturing cement/concrete account for approximately 7% of CO<sub>2</sub> emissions worldwide.

In the meanwhile, cement is essential materials from the viewpoint of investment for public infrastructure improvements etc. Also, the cement industry effectively utilizes waste, including waste tires as heat sources and raw materials and plays an important role from the perspective of social value and the construction of recycling-oriented society through receipts of waste.

Based on this recognition, the Corporation positions to achieve carbon neutral and to respond to climate change as extremely high interests/significance for stakeholders and significant importance for the Group. Mr. Masafumi Fushihara, President and Representative Director of TAIHEIYO CEMENT mentioned, "Carbon neutral is an initiative for our Corporation to survive in the industry and is also the largest management issue in which any barrier should be broken through."

Therefore, it is a critical issue to make efforts to reduce CO<sub>2</sub> emissions.

b) When identifying business activities that are environmentally material parts, it is **recommended** that the fundraiser consider multiple climate change-related scenarios that may possibly impact its judgment on the identification.

Consistency:

Identified possible climate-related risks and opportunities based on multiple scenarios.

c) In terms of considering materiality, it is **possible** to apply existing guidance provided by an organization that creates standard criteria concerning sustainability reporting.

Consistency: ✓

TAIHEIYO CEMENT Group set its materiality after extracting the expectations and requests of stakeholders through IR interviews with shareholders and investors. There is no particular application of existing guidance.

d) The fundraiser **should** indicate that climate change is an environmentally material part of business activities.

Consistency: ✓

A considerable amount of CO<sub>2</sub> is generated in the manufacturing processes since cement needs to be burned at a high temperature of 1,450°C and limestone - the raw material is decarbonized with chemical reactions in the burning processes in terms of the environment. CO<sub>2</sub> emissions by manufacturing cement/concrete account for approximately 7% of CO<sub>2</sub> emissions worldwide.

In the meanwhile, cement is essential materials from the viewpoint of investment for public infrastructure improvements etc. Also, the cement industry effectively utilizes waste, including waste tires as heat sources and raw materials and plays an important role from the perspective of social value and the construction of recycling-oriented society through receipts of waste.

Based on this recognition, the Corporation positions to achieve carbon neutral and to respond to climate change as extremely high interests/significance for stakeholders and significant importance for the Group. Mr. Masafumi Fushihara, President and Representative Director of TAIHEIYO CEMENT mentioned, "Carbon neutral is an initiative for our Corporation to survive in the industry and is also the largest management issue in which any barrier should be broken through."

Therefore, it is a critical issue to make efforts to reduce CO<sub>2</sub> emissions.

e) It is **recommended** that disclosures include the contents of climate change-related scenarios used in identifying business activities that are environmentally material parts along with the underlying reasons (e.g., regional and industrial characteristics) for selecting such scenarios.

Consistency: ✓

TAIHEIYO CEMENT's transition strategy is based on risk scenario analyses in line with the guidance of TCFD (Climate-Related Financial Disclosure Task Force), as well as analyses based on IEA's SDS scenarios and IPCC's AR5. The content of the referenced scenarios is explained in TAIHEIYO CEMENT Report.



**Element 3: Science-based Climate Transition Strategies (Including Targets and Pathways)**

a) The fundraiser **should** reference science-based targets in developing its transition strategies.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

b) This **should** include mid-term targets (short- to mid-term targets) in addition to long-term targets for 2050 and be quantitatively measurable based on a measurement methodology which is consistent over a long period of time.

Consistency: ✓

These targets described below was disclosed.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000
- Reduce 10% or more CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels and self-generation) over FY 2000

c) In addition, it is recommended that GHG reduction targets, which could be formulated either in intensity and absolute terms, **should** consider environmental materiality and cover Scopes 1 through 3 of GHG Protocol, the international standard on supply-chain emissions.

It is **recommended** that targets covering Scope 3 be set using a practical calculation method when it could be subject to significant reduction in the fundraiser's business model.

It is also **possible** to disclose the avoided emissions as necessary.

Consistency: ✓

TAIHEIYO CEMENT is provided limited assurance by a third party based on GCCA for environmental data, including historical data of CO<sub>2</sub> emissions of Scope1, Scope2 and Scope3 (Category 1 and 3), including domestic and overseas Group companies. In addition, the Group has set carbon neutrality for the entire supply chain as a goal for 2050, and has set milestones for CO<sub>2</sub>

emission intensity for Scope 1, 2, and 3 in FY2030.

d) Science-based targets are GHG reduction targets required for achieving the goals of the Paris Agreement and **should** be set while taking into account differences in regional characteristics and industries. In so doing, it is **possible** to refer to the following trajectories.

- Scenarios widely recognized in the international community (Examples include the Sustainable Development Scenario (SDS) outlined by the International Energy Agency (IEA))
- Objectives verified under the Science Based Targets Initiative (SBTi) and such like
- Nationally Determined Contributions (NDC) of countries aligned with the goals of the Paris Agreement, roadmaps by industry sector, industries set out plans that are science-based achieving the Paris Agreement and so on.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

e) Short- to mid-term targets (with a term of three to fifteen years) **should** be set by referencing the aforesaid trajectories or on the pathway toward the long-term targets planned as benchmarks.

Consistency: ✓

These targets described below was disclosed.

- Carbon neutral for Scope1, Scope2 and Scope3 by FY 2050
- Reduce CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels), Scope2 and Scope3 (Categories 1 and 3) by 20% over FY 2000
- Reduce total CO<sub>2</sub> emissions for Scope1 (excluding alternative fossil fuels) and Scope2 both of which are domestic only by 40% over FY 2000
- Reduce 10% or more CO<sub>2</sub> emissions intensity for Scope1 (excluding alternative fossil fuels and self-generation) over FY 2000

f) In doing so, since short- to mid-term targets will likely be set in consideration of various factors (including the starting point and track records of the issuer, timing of capital investments, economic rationality, cost-benefit analysis, and availability of technology necessary to achieve the targets), it is **possible** that the pathway may not necessarily be linear with the same slope at all times but may be nonlinear.

Consistency: ✓

Targets have been set taking into account a variety of factors in addition to a road map for decarbonization, such as investment plans and the resulting returns. As a result, it is assumed that it is not a linear path of the same slope.

g) The fundraiser **should** disclose the short- to mid-term and long-term targets they have set, including the base years, etc.

Consistency: ✓

The short-and medium-term targets have set the base year as FY2000.

h) In order to show that long-term targets are science-based, disclosures **should** explain the methodology or trajectory used to define target, including the underlying reasons (e.g., characteristics specific to a region or industry). In particular, when reference is made to plans and industry roadmaps established by an industry, etc., the explanation **should** include that they are grounded in scientific basis.

Consistency: ✓

Identified possible climate-related risks and opportunities. TAIHEIYO CEMENT Group's strategy and targets are consistent with international targets, such as GCCA's roadmap, IEA's "World Energy Outlook" and "Energy Technology Perspectives" or IPCC's "Fifth Assessment Report". TAIHEIYO CEMENT Group's targets for FY2030 are partially inferior to global benchmarks. However, JCR has evaluated that the measures to achieve the Group's goals are consistent with the METI Roadmap taking the characteristics of Japan into consideration.

i) It is **possible** that disclosures explain the pathway toward a long-term target and the alignment between the short- to mid-term targets on the pathway and the transition strategy, based on the investment plan (refer to Element 4) and other plans.

Consistency: ✓

During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

j) Concerning targets and trajectories, obtaining expert reviews on the following is **considered** to be particularly useful:

- Whether the long-term target is aligned with science-based targets

-> Whether the disclosed information explains the alignment with the Paris Agreement

- Whether the short- to mid-term targets are determined using a GHG emissions forecast calculated based on a climate change scenario analysis
- > Whether scenarios, etc. widely recognized in the international community are used or referenced
- Whether the actual values of the indicators used for the targets are quantitatively measured using consistent measurement methods
- > Whether a specific GHG emissions reduction measure has been developed to achieve short- to mid-term targets aligned with long-term goals

Consistency: ✓

JCR has confirmed that all of the above items have been met in this assessment report.

#### Element 4: Transparency of Implementation

- a) In implementing transition strategies, the fundraiser **should** provide transparency of the basic investment plan to the extent practicable.

Consistency: ✓

During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

The investment plan is disclosed by TAIHEIYO CEMENT report.

- b) The investment plan includes not only capital expenditure (Capex) but also capital and operational expenditure (Opex). Therefore, costs related to research and development, M&A, and dismantling and removal of facilities are also subject to the investment plan. In other words, it is **recommended** that the investment plan incorporate, to the extent possible, expenditure and investment necessary for implementing the transition strategy.

Consistency: ✓

The investment plan incorporates costs and investments related to the implementation of the transition strategy.

- c) It is **recommended** that the investment plan outline the assumed climate-related outcomes and impacts in a quantitative fashion where possible, along with the calculation methods and prerequisites. If quantification is difficult, the use of external certification systems **can** be considered as a substitute for qualitative assessment.

Consistency: ✓

TAIHEIYO CEMENT will annually publicize or disclose the progress of CO<sub>2</sub> reduction plans (e.g., CO<sub>2</sub> emission intensity and domestic CO<sub>2</sub> emissions in the supply chain on cement manufacturing) as progress of SPTs that make up KPI on its website or in an integrated report or for lenders. A third party will verify CO<sub>2</sub> emissions intensity and domestic CO<sub>2</sub> emissions.

d) In particular, when outlining the assumed climate-related outcomes and impacts, it is **recommended** that the disclosure include not only GHG emission reduction and other initiatives to ease climate change but also report how consideration of a "just transition" is incorporated into the transition strategy.

Consistency: Not applicable

TAIHEIYO CEMENT's implementation of the Transition Strategy does not require any just transition considerations.

e) If implementing the transition strategy has the potential of having a negative impact on employment or the environment and communities other than climate change, it is **recommended** that any expenditures to mitigate such negative impacts be added to the plan.

Consistency: ✓

There is no negative impact on employment or society except for climate change along with the implementation of the transition strategies for TAIHEIYO CEMENT. The Corporation in terms of the environment commits itself to address eco-efficient business activities and complies with environmental laws and regulations in the environmental management policy. JCR has confirmed that TAIHEIYO CEMENT is actively working on not only addressing climate change but also contributing to resource recycling-oriented society by using waste or others generated from any industry and daily life as raw fuels for cement.

f) Moreover, the outcomes arising from investments included in the investment plan **should** align with the targets.

Consistency: ✓

During the periods of 23 Medium-Term Management Plan (FY 2021 to FY 2023), JPY 20 billion will be invested in the name of "Research and Development" for innovative technology while investing in plant and equipment for energy efficient. Also, the Corporation will invest in JPY 100 billion in efforts for carbon neutral for a decade through FY 2030.

g) Transition finance is a means to financially support the implementation of a transition strategy, and it is **recommended** that financing be provided for new initiatives. However, in the case of transition finance in the format of Use of Proceeds instruments, refinancing for a reasonably

<p>set lookback period (the period during which refinancing is to be applied for projects that have already started) is <b>considered</b> to be eligible.</p>
<p>Consistency: Not Applicable</p> <p>General corporate purpose instruments.</p>

<p>h) It is <b>recommended</b> that investment plans be disclosed by linking the outcomes and impacts with the expenditures to the extent practicable.</p>
<p>Consistency:</p> <p>For the entire transition strategy, each investment target and the total investment amount are disclosed, but it is difficult at present to link the results and impact individually, and they are not disclosed. In the future, it is assumed that specific individual plans will be disclosed as soon as they are finalized.</p>

<p>i) It is <b>recommended</b> that the fundraiser, after securing financing, reports any deviations between the initial plan and the actual expenditure, outcomes and impacts. For any deviations, it is <b>recommended</b> that the underlying reasons be explained.</p>
<p>Consistency: ✓</p> <p>The differences between the original plan and actual expenditures, results and impacts of this financing will be disclosed in the Impact Reporting, which is scheduled to be implemented on a regular basis after executing loans.</p>

<p>j) In cases where the Use of Proceeds loans include refinancing, the fundraiser <b>should</b> provide an explanation on the lookback period set under the framework or other relevant methods along with the underlying reasons and factors.</p>
<p>Consistency: Not applicable</p> <p>The issuance of loans is planned.</p>

<p>k) While there are differences in business practices, such as the fact that loans are traditionally made based on the bilateral relationship between a borrower and a lender, it is <b>recommended</b> that disclosure on the above be made to the extent possible in order to ensure transparency and credibility of transition finance. However, if it is difficult to disclose such information to the public from the standpoint of confidentiality and competition, it is <b>possible</b> to report such information only to lenders or external evaluation organizations without disclosing it to the public.</p>
<p>Consistency: Not applicable</p> <p>General corporate purpose instruments</p>

l) Similarly, in cases where the fundraiser is a small-to-medium-sized enterprise and it is difficult to disclose to the public the same content as that reported to the financier or an external evaluation institution, it is **possible** for the fundraiser to simplify the content of disclosure, for example, by limiting disclosure to a summary of h) to j) of this section.

Consistency: Not applicable

Although TAIHEIYO CEMENT does not fall under the category of SMEs, it is under consideration to disclose the content of the report to the extent practicable by the project.