IMPORTANT NOTICE

FOR DISTRIBUTION ONLY OUTSIDE THE UNITED STATES TO PERSONS OTHER THAN "U.S. PERSONS" (AS DEFINED IN REGULATION S OF THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE SECURITIES ACT)). NOT FOR RELEASE, PUBLICATION OR DISTRIBUTION IN OR INTO, OR TO ANY PERSON LOCATED OR RESIDENT IN, ANY OTHER JURISDICTION WHERE IT IS UNLAWFUL TO RELEASE, PUBLISH OR DISTRIBUTE THIS DOCUMENT.

IMPORTANT: On the date of the Consent Solicitation Memorandum following this page (the **Consent Solicitation Memorandum**), Doosan Infracore Co., Ltd. (the **Issuer**) made available to all holders of the Notes (as defined below) a copy of the Consent Solicitation Memorandum, subject to each such holder providing a confirmation to the Issuer that such holder is not a U.S. person (as defined in Regulation S under the Securities Act), and is not acting for the account or benefit of any U.S. person, and that such holder is not located in the United States. Only holders who have provided such confirmation are authorised to receive or review the Consent Solicitation Memorandum or to participate in the Consent Solicitations made thereby. In the confirmation provided by you, you have agreed to be bound by the following terms and conditions, including any modifications to them from time to time.

NOTHING IN THE CONSENT SOLICITATION MEMORANDUM OR THE ELECTRONIC TRANSMISSION THEREOF CONSTITUTES OR CONTEMPLATES AN OFFER OF, AN OFFER TO PURCHASE OR THE SOLICITATION OF AN OFFER TO SELL, SECURITIES IN THE UNITED STATES OR ANY OTHER JURISDICTION. THE NOTES (AS DEFINED BELOW), AND THE GUARANTEES THEREOF, HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE SECURITIES ACT, OR THE SECURITIES LAWS OF ANY STATE OR OTHER JURISDICTION OF THE UNITED STATES, AND THE NOTES, AND THE GUARANTEES THEREOF, MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS (AS DEFINED IN REGULATION S UNDER THE SECURITIES ACT) EXCEPT PURSUANT TO AN EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND APPLICABLE STATE OR LOCAL SECURITIES LAWS.

THE CONSENT SOLICITATION MEMORANDUM MAY NOT BE FORWARDED OR DISTRIBUTED, IN WHOLE OR IN PART, TO ANY OTHER PERSON AND MAY NOT BE REPRODUCED IN ANY MANNER WHATSOEVER. ANY FORWARDING, DISTRIBUTION OR REPRODUCTION OF THE CONSENT SOLICITATION MEMORANDUM, IN WHOLE OR IN PART, IS UNAUTHORISED. FAILURE TO COMPLY WITH THIS DIRECTIVE MAY RESULT IN A VIOLATION OF THE SECURITIES ACT OR THE APPLICABLE LAWS OF OTHER JURISDICTIONS. IF YOU HAVE NOT PROVIDED THE ISSUER WITH THE CONFIRMATION DESCRIBED ABOVE OR HAVE GAINED ACCESS TO THE CONSENT SOLICITATION MEMORANDUM CONTRARY TO ANY OF THE FOREGOING RESTRICTIONS, YOU ARE NOT AUTHORISED TO PARTICIPATE IN THE CONSENT SOLICITATIONS DESCRIBED IN THE CONSENT SOLICITATION MEMORANDUM.

Confirmation of your Representation: In order to participate in the Consent Solicitation (as defined in the Consent Solicitation Memorandum following this page) relating to your Notes, you must be (1) a person other than a U.S. person (as defined in Regulation S under the Securities Act) located outside the United States and (2) otherwise a person to whom the Consent Solicitation relating to your Notes can be lawfully made. The Consent Solicitation Memorandum was sent at your request and you have represented to the Issuer, The Korea Development Bank (the **Guarantor**), The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank and Standard Chartered Bank (together the **Solicitation Agents**) and Morrow Sodali Limited (the **Information and Tabulation Agent)** that:

(i) you are a holder or a beneficial owner of the Notes issued by the Issuer and guaranteed by the Guarantor, as more fully described on the following page (collectively the **Notes**):

(ii) you are not a U.S. person (as defined in Regulation S under the Securities Act), and are not acting for the account or benefit of any U.S. person, and that you are not located in the United States, and the electronic mail address that you have given to us and to which the Consent Solicitation Memorandum has been delivered is not located in the United States;

(iii) you are otherwise a person to whom it is lawful to send the Consent Solicitation Memorandum;

(iv) you are not a Sanctions Restricted Person (as defined in the Consent Solicitation Memorandum); and

(v) you consent to delivery of the Consent Solicitation Memorandum by electronic transmission to you.

The Consent Solicitation Memorandum has been sent or otherwise made available to you in an electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of electronic transmission and consequently none of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent, or any person who controls, or any director, officer, employee, agent or affiliate of, any such person accepts any liability or responsibility whatsoever in respect of any difference between the Consent Solicitation Memorandum distributed to you in electronic format and the hard copy version available to you on request from the Solicitation Agents and the Information and Tabulation Agent.

You are otherwise reminded that the Consent Solicitation Memorandum has been delivered to you on the basis that you are a person into whose possession the Consent Solicitation Memorandum may be lawfully delivered in accordance with the laws of the jurisdiction in which you are located or resident and you may not, nor are you authorised to, deliver the Consent Solicitation Memorandum to any other person.

The distribution of the Consent Solicitation Memorandum in certain jurisdictions may be restricted by law, and persons into whose possession the Consent Solicitation Memorandum comes are requested to inform themselves about, and to observe, any such restrictions.

CONSENT SOLICITATION MEMORANDUM dated 22 March 2021

THIS DOCUMENT IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION

The distribution of this Consent Solicitation Memorandum in certain jurisdictions may be restricted by law, and persons into whose possession this Consent Solicitation Memorandum comes are required to inform themselves about, and to observe, any such restrictions. The Consent Solicitations are being made only outside the United States to persons other than "U.S. persons" (as defined in Regulation S under the Securities Act). Nothing in this Consent Solicitation Memorandum constitutes or contemplates an offer of, an offer to purchase or the solicitation of an offer to sell any security in the United States or any other jurisdiction.

Invitations by

Doosan Infracore Co., Ltd.

(*a corporation with limited liability incorporated under the laws of The Republic of Korea*)

(the **Issuer**)

to eligible holders of its outstanding

USD 300,000,000 2.25% Guaranteed Senior Unsecured Notes due 2022 (the **2022 Notes**) **unconditionally and irrevocably guaranteed by the Korea Development Bank**

USD 300,000,000 1.000% Guaranteed Senior Unsecured Notes due 2023 (the **2023 Notes**) **unconditionally and irrevocably guaranteed by the Korea Development Bank**

(each a **Series** and together the **Notes**)

to consent to certain amendments and waivers relating to the Notes, including the substitution of Doosan Heavy Industries & Construction Co., Ltd. (**Doosan Heavy**) in place of the Issuer as principal debtor in respect of the Notes, as proposed by the Issuer for approval by an extraordinary resolution of the holders of such Series (an **Extraordinary Resolution**),

all as further described in this Consent Solicitation Memorandum

(each such invitation, a **Consent Solicitation**)

	ISIN / Common Code	Outstanding principal amount	Consent Fee
2022 Notes	XS2078374159 / 207837415	USD 300,000,000	0.15 per cent. of the principal amount of the Notes, subject to delivery of a Consent Instruction in favour of the relevant Extraordinary Resolution, the implementation of the Proposed Amendments and Waivers and as otherwise described herein
2023 Notes	XS2201951477 / 220195147	USD 300,000,000	

The deadline for receipt by the Information and Tabulation Agent of Consent Instructions from Noteholders wishing to vote in respect of the relevant Extraordinary Resolution is 4.00 p.m. (London time) on 12 April 2021 (such time and date with respect to each Series, as the same may be extended, the **Voting Deadline**). **In order for any such Noteholder to also be eligible for the Consent Fee, the relevant Consent Instruction must be in favour of the relevant Extraordinary Resolution and received by the Information and Tabulation Agent by 4.00 p.m. (London time) on 1 April 2021** (such time and date with respect to each Series, as the same may be extended, the **Consent Fee Deadline**). **No Consent Fee will be paid if the Proposed Amendments and Waivers do not become effective. For example, the Proposed Amendments may not become effective if the Supplemental Agency Agreement in respect of both Series is not executed by the parties thereto (including by the Korea Development Bank, the third party guarantor in respect of the Notes) and the Proposed Amendments and Waivers may not become effective if the Issuer does not make the Consent Conditions Subsequent Announcement. The Proposed Amendments and Waivers will become effective only if the Issuer in its sole discretion elects to proceed with the Merger, makes the Consent Conditions Subsequent Announcement, pays the Consent Fee and the Supplemental Agency Agreement and Deed of Confirmation for the relevant Series are executed. In addition, unless otherwise waived by the Issuer, the implementation of the Extraordinary Resolution in respect of a Series of Notes is conditional on the passing and implementation of the Extraordinary Resolution in respect of the other Series of Notes. Accordingly, if the Extraordinary Resolutions in respect of both Series of Notes are not passed and implemented, unless otherwise waived by the Issuer, the Extraordinary Resolutions will not be implemented for either Series, and no Consent Fee shall be payable to any holder of the Notes.**

The deadlines set by any intermediary or Clearing System may be earlier than the deadlines set out in this document.

Noteholders who wish to attend and vote at the relevant Meeting in person or to be represented or to otherwise vote at the relevant Meeting other than by appointment of the Information and Tabulation Agent as its proxy, must make the necessary arrangements by the Voting Deadline. Such Noteholders will not be eligible to receive the Consent Fee.

Solicitation Agents

HSBC **The Korea Development Bank** **Standard Chartered Bank**

This Consent Solicitation Memorandum contains important information which should be read carefully before any decision is made with respect to any Consent Solicitation. If any Noteholder is in any doubt as to the action it should take or is unsure of the impact of the implementation of any Extraordinary Resolution, it is recommended to seek its own financial and legal advice, including in respect of any tax consequences, immediately from its broker, bank manager, solicitor, accountant or other independent financial, tax or legal adviser. Any individual or company whose Notes are held on its behalf by a broker, dealer, bank, custodian, trust company or other nominee or intermediary must contact such entity if it wishes to participate in the relevant Consent Solicitation or otherwise participate at the meeting (including any adjourned meeting) at which the relevant Extraordinary Resolution is to be considered (each such meeting a **Meeting** and together the **Meetings**)**.**

None of the Issuer, The Korea Development Bank (the **Guarantor**), **The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank and Standard Chartered Bank** (together the **Solicitation Agents**), **and Morrow Sodali Limited** (the **Information and Tabulation Agent) expresses any opinion about the terms of any Consent Solicitation or Extraordinary Resolution or makes any recommendation whether Noteholders should participate in the relevant Consent Solicitation(s) or otherwise participate at the Meeting(s) applicable to them.**

CONSENT SOLICITATIONS

The Issuer is inviting the Noteholders to approve, by a separate Extraordinary Resolution of each Series, the relevant amendments to the Conditions and the Supplemental Agency Agreement and Deed of Confirmation in respect of each Series as set out in the Notice.

Pursuant to each Consent Solicitation, the Issuer is also inviting each Noteholder who is (a) outside the United States and not a U.S. person (as defined in Regulation S under the Securities Act) and (b) otherwise a person to whom the relevant Consent Solicitation can be lawfully made and that may lawfully participate in the relevant Consent Solicitation (each an **Eligible Noteholder**), to consent to the approval of the relevant Extraordinary Resolution.

Each Consent Solicitation is made on the terms and subject to the conditions contained in this Consent Solicitation Memorandum. Capitalised terms used in this Consent Solicitation Memorandum have the meaning given in "*Definitions*" and any other definitions of such terms are for ease of reference only and shall not affect their interpretation.

Before making a decision whether to participate in the relevant Consent Solicitation(s) or otherwise participate at the Meeting(s) applicable to them, Noteholders should carefully consider all of the information in this Consent Solicitation Memorandum and, in particular, the considerations described in "Certain Considerations Relating to the Consent Solicitations" on page 25.

Background

The Issuer intends to spin off its non-operating business, including the assets, liabilities and contractual relationships of the non-operating business, which will be merged with and into Doosan Heavy, the controlling shareholder of the Issuer, pursuant to a split and merger agreement dated on 19 March 2021 (the **Merger**). The Issuer is therefore requesting that the Noteholders approve the Proposed Amendments and Waivers as part of the Merger.

Key Terms and Conditions of the Consent Solicitations

Each Consent Solicitation commences on the date of this Consent Solicitation Memorandum.

The deadline for receipt by the Information and Tabulation Agent of Consent Instructions from Noteholders wishing to vote in respect of the relevant Extraordinary Resolution is 4.00 p.m. (London time) on 12 April 2021 (such time and date with respect to each Series, as the same may be extended, the **Voting Deadline**).

Proposed Amendments and Waivers

The purpose of each Consent Solicitation is, by way of certain amendments and waivers in relation to the Note Documents:

(a) to approve the substitution of Doosan Heavy in place of the Issuer as principal debtor in respect of each series of Notes and the release of the Issuer from all obligations and liabilities under each series of Notes together with the other amendments as set out in the relevant Extraordinary Resolutions (the **Proposed Amendments**); and

(b) to approve the irrevocable waiver and authorisation of any breach or alleged breach whatsoever of any obligation under or in respect of the Notes or the Note Documents which may be breached or may be capable of being breached by the threat of the Merger or the Proposed Amendments together with the other waivers as set out in the relevant Extraordinary Resolutions (the **Proposed Waivers,** and, together with the Proposed Amendments, the **Proposed**

Amendments and Waivers).

The Proposed Amendments and Waivers will be effective upon the passing of the relevant Extraordinary Resolution, the satisfaction (or waiver) of the Consent Conditions Subsequent for the relevant Series, the making of the Consent Conditions Subsequent Announcement (in the Issuer's sole discretion), the payment of the Consent Fee (if payable) and the execution of the relevant Supplemental Agency Agreement and Deed of Confirmation.

Consent Fee

Each Eligible Noteholder from whom a valid Consent Instruction in favour of the relevant Extraordinary Resolution is received by the Information and Tabulation Agent by the Consent Fee Deadline will be eligible to receive payment of an amount equal to 0.15 per cent. of the principal amount of the Notes that are the subject of such Consent Instruction (the **Consent Fee**) on the Payment Date as described more fully below, rounded to the nearest cent with half a cent rounded upwards.

Eligible Noteholders may continue to submit Consent Instructions up to the Voting Deadline. However, Noteholders who submit a valid Consent Instruction in favour of the relevant Extraordinary Resolution after the Consent Fee Deadline will not be eligible to receive the Consent Fee. No vote will be cast at the Meeting for the relevant Series as a result of a Consent Instruction received after the Voting Deadline, and accordingly any Noteholder wishing to submit a Consent Solicitation and be represented at the Meeting for the relevant Series should ensure that its Consent Solicitation is submitted by the Voting Deadline.

Payment of the Consent Fee in respect of a Series of Notes is conditional on (i) the satisfaction (or waiver) of the Consent Conditions Subsequent and (ii) the making of the Consent Conditions Subsequent Announcement by the Issuer and otherwise as set out under "– *Consent Fee*" below.

Consent Conditions

The effectiveness of the Extraordinary Resolution of a Series will be conditional on:

(a) the passing of the relevant Extraordinary Resolution; and

(b) the quorum required for, and the requisite majority of votes cast at, the relevant Meeting being satisfied by Eligible Noteholders, irrespective of any participation at the relevant Meeting by Ineligible Noteholders (including the satisfaction of such condition at an adjourned Meeting as described in "*Meetings*" below) (the **Eligibility Condition**),

(together, the **Consent Conditions**).

The Issuer will announce (i) the results of each Meeting and (ii) if any Extraordinary Resolution is passed, the satisfaction of the Eligibility Condition relating to that Extraordinary Resolution, as soon as reasonably practicable after the relevant Meeting and following such satisfaction. See "*Further Information and Terms and Conditions - Announcements*".

Consent Conditions Subsequent

The implementation of the Extraordinary Resolution of a Series will be conditional on:

(a) the satisfaction of the Consent Conditions for that Extraordinary Resolution;

(b) unless otherwise waived by the Issuer, the satisfaction of the Consent Conditions for the Extraordinary Resolution in respect of the other Series of Notes;

(c) the approval of the Merger by the Korea Fair Trade Commission;

(d) the approval of the Merger by the shareholders of the Issuer and Doosan Heavy at the shareholders' meetings currently scheduled for on or around 13 May 2021, followed by the obligatory one-month period for creditors of the Issuer and Doosan Heavy to file objections under the creditor protection procedures set forth in the Korean Commercial Code;

(e) the election by the Issuer, in its sole discretion, to make the Proposed Amendments and Waivers effective; and

(f) the effectiveness of the Merger,

(together, the **Consent Conditions Subsequent**).

The Issuer will announce (i) the satisfaction (or waiver) of the Consent Conditions Subsequent, (ii) whether or not it intends to proceed with the Merger and the implementation of the Extraordinary Resolutions, (iii) the Amendment Effective Date and (iv) the Payment Date as soon as reasonably practicable following satisfaction (or waiver) of the

Consent Conditions Subsequent (the **Consent Conditions Subsequent Announcement**). See "*Further Information and Terms and Conditions - Announcements*".

Further information in relation to the Consent Solicitation, including the Proposed Amendments and Waivers, is set out under "*Further Information and Terms and Conditions*".

Consent Fee

Subject to (i) the satisfaction (or waiver) of the Consent Conditions Subsequent in respect of a Series, (ii) the making of the Consent Conditions Subsequent Announcement by the Issuer and (iii) the relevant Consent Instruction not being revoked (in the limited circumstances in which such revocation is permitted), the Issuer will procure the payment of the Consent Fee to relevant consenting Noteholders on or prior to the Amendment Effective Date as set out in the Consent Conditions Subsequent Announcement (the **Payment Date**). Given that the Consent Conditions Subsequent will depend on external third parties including the approval of the Merger from the Korea Fair Trade Commission and the shareholders of the Issuer and Doosan Heavy, there may be a significant time period between the date of the Meetings and the Payment Date. Based on current expectations, the Issuer does not expect the Payment Date to occur earlier than 1 July 2021 if it were to occur at all.

To be eligible to receive the Consent Fee, each Noteholder who submits a Consent Instruction in favour of the relevant Extraordinary Resolution must not attend, or seek to attend, the relevant Meeting in person or make any other arrangements to be represented at the relevant Meeting (other than by way of its Consent Instructions). Noteholders may choose to attend and vote at the relevant Meeting in person or to make other arrangements to be represented or to vote at the relevant Meeting in accordance with the provisions for meetings of Noteholders set out in the applicable Agency Agreement, and as described in the Notice, (the **Meeting Provisions**) without submitting a Consent Instruction. However, any such Noteholder will not be eligible to receive the Consent Fee, irrespective of whether such Noteholder has delivered a Consent Instruction or such other arrangements are made by the Consent Fee Deadline.

Meetings

Notice (the **Notice**) convening the Meetings to be held at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong on 15 April 2021 has been given to Noteholders in accordance with the Conditions on the date of this Consent Solicitation Memorandum. The form of the Notice is set out in Annex I to this Consent Solicitation Memorandum.

In light of the ongoing developments in relation to Coronavirus (Covid-19), it may become impossible or inadvisable to hold the Meetings at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong. To the extent that the Issuer determines that it will not be possible to hold the Meetings at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong, the Issuer reserves the right to hold any Meeting by conference call or other electronic means (a Virtual Meeting).

In the event that the Issuer determines that a Virtual Meeting is required, the Issuer shall procure that those Noteholders who have indicated that they wish to attend the relevant Meeting in person will be provided with further details about attending the relevant Meeting. By electing to attend any Virtual Meeting, each such Noteholder shall be deemed to have fully understood and consented to any process governing the Virtual Meeting. Noteholders who have instructed the relevant Paying Agent to appoint one or more representatives of the Information and Tabulation Agent as their proxy in respect of the Notes in relation to the relevant Meeting in a Consent Instruction will be unaffected if the relevant Meeting is held as a Virtual Meeting and will not be requested to take any further action.

The Meeting in respect of the 2022 Notes will commence at 9.00 a.m. (London time) / 4.00 p.m. (Hong Kong time) / 5.00 p.m. (Seoul time) on 15 April 2021. The Meeting in respect of the 2023 Notes will commence at 9.30 a.m. (London time) / 4.30 p.m. (Hong Kong time) / 5.30 p.m. (Seoul time) on 15 April 2021.

At each Meeting, Noteholders will be invited to consider and, if thought fit, pass the Extraordinary Resolution relating to the relevant Series, all as more fully described in the Notice. See "*Annex I – Form of Notice of Meetings*".

The quorum required for each Meeting to consider the relevant Extraordinary Resolution is one or more persons present and holding or representing in the aggregate not less than 50% in principal amount of the relevant Series for the time being outstanding. To be passed at the relevant Meeting, an Extraordinary Resolution requires a majority in favour consisting of not less than 75% of the persons voting on the resolution upon a show of hands or, if a poll was duly demanded, by a majority consisting of not less than 75% of the votes given on the poll at such Meeting. If passed, an Extraordinary Resolution shall be binding on all Noteholders of the relevant Series, whether present or not at the relevant Meeting and whether or not voting.

The effectiveness of each Extraordinary Resolution is conditional on satisfaction of the Consent Conditions relating to that Extraordinary Resolution.

Consent Instructions delivered by both Eligible Noteholders and Ineligible Noteholders will be taken into consideration for the purposes of determining whether the relevant quorum has been satisfied at any Meeting (or any adjournment thereof) and/or whether the requisite majority of votes have been cast in favour of the relevant Extraordinary Resolution. In the event an Extraordinary Resolution is passed but the Eligibility Condition not satisfied, it is a term of each Extraordinary Resolution that the relevant Meeting shall be adjourned on the same basis as for a Meeting where the necessary quorum is not obtained. In such event, the relevant Extraordinary Resolution shall be proposed again to Noteholders of the relevant Series at such adjourned Meeting for the purposes of determining whether it could be passed irrespective of participation by Ineligible Noteholders at such adjourned Meeting and, if so, the Eligibility Condition will be satisfied on such subsequent passing of such Extraordinary Resolution. The quorum at any such adjourned Meeting will be one or more persons present holding or representing any amount of the principal amount of the relevant Series for the time being outstanding. To be passed at the relevant Meeting, an Extraordinary Resolution requires a majority in favour consisting of not less than 75% of the persons voting on the resolution upon a show of hands or, if a poll was duly demanded, by a majority consisting of not less than 75% of the votes given on the poll at such Meeting. In the event that an Extraordinary Resolution is passed but the Eligibility Condition is not also satisfied (or waived) at an adjourned Meeting, the Consent Conditions will not be satisfied and the Extraordinary Resolution will not be implemented.

In accordance with the procedures for participating in the Consent Solicitations and at the Meetings (see "*Procedures for Participating in the Consent Solicitations*" and the Notice, as set out in "*Annex I – Form of Notice of Meetings*"), each Noteholder must confirm whether or not it is an Eligible Noteholder in order to participate in the relevant Consent Solicitation or otherwise participate at the relevant Meeting.

A Consent Instruction which does not include a confirmation as to whether or not the relevant Noteholder is an Eligible Noteholder will be treated as not having been validly submitted and will be rejected.

Noteholders should refer to the Notice for full details of the procedures in relation to the Meetings. See "*Annex I – Form of Notice of Meetings*" below.

Adjourned Meetings

In the event any Meeting is required to be adjourned (see "*Further Information and Terms and Conditions - Adjourned Meetings*") the Issuer may, in its sole discretion (but subject to applicable law), extend the Voting Deadline in respect of the relevant Series, and if the relevant Extraordinary Resolution is passed at the relevant adjourned Meeting and the Consent Conditions Subsequent relating to such Extraordinary Resolution are, in each case, satisfied (or waived), the Payment Date and the Amendment Effective Date will be as specified in the Consent Conditions Subsequent Announcement if the Issuer elects to proceed with the Merger and to implement the Extraordinary Resolutions.

Consent Instructions

By submitting a Consent Instruction by the Voting Deadline, a Noteholder will instruct the relevant Paying Agent to appoint one or more representatives of the Information and Tabulation Agent as their proxy to attend the relevant Meeting (and any adjourned such Meeting) and vote in the manner specified or identified in such Consent Instruction in respect of such Extraordinary Resolution.

It will not be possible to submit a Consent Instruction without at the same time giving such instructions to the relevant Paying Agent unless such Noteholder wishes to attend the Meeting in person or appoint one or more representatives other than the Information and Tabulation Agent as its proxy to attend and vote at the Meeting on its behalf, in which case, such Noteholder will not be eligible to receive the Consent Fee. In order for a Noteholder to be eligible to receive the Consent Fee, the relevant Consent Instructions must be validly submitted in favour of the relevant Extraordinary Resolution and received by the Information and Tabulation Agent by the Consent Fee Deadline (and not subsequently revoked, in the limited circumstances in which such revocation is permitted).

A separate instruction must be completed on behalf of each Noteholder wishing to attend the Meeting in person or appoint one or more representatives (other than the Information and Tabulation Agent) as its proxy to attend and vote at the Meeting on its behalf. Each such instruction should also provide the name, email address and passport number of the relevant attendee(s). Such Noteholders will not be eligible to receive the Consent Fee. By submitting such instruction, a Noteholder is deemed to consent to such information being provided to the Paying Agent for creation of the relevant Voting Certificate.

General

It is a term of each Consent Solicitation that Consent Instructions shall be irrevocable (save in certain limited circumstances as provided in "*Amendment and Termination*").

The above provisions relating to Consent Instructions do not affect the rights of Noteholders to attend and vote at the relevant Meeting in person or to make other arrangements to be represented or to otherwise vote at the relevant Meeting in accordance with the relevant Meeting Provisions. However, such Noteholders will not be eligible to receive the Consent Fee.

The Issuer may, at its option and in its sole discretion, extend, or waive any condition of, any Consent Solicitation at any time and may, if the Consent Conditions in respect of a Consent Solicitation, the Consent Conditions Subsequent or the other conditions to a Consent Solicitation (as described under "*Further Information and Terms and Conditions – Conditions of the Consent Solicitations*" below) are not satisfied or waived, amend or terminate such Consent Solicitation (subject in each case to applicable law and the relevant Meeting Provisions and as provided in this Consent Solicitation Memorandum, and provided that no amendment may be made to the terms of the relevant Extraordinary Resolution). Details of any such extension, waiver, amendment or termination will be announced as provided in this Consent Solicitation Memorandum as promptly as practicable after the relevant decision is made. See "*Amendment and Termination*".

In the event the Extraordinary Resolution in respect of a Series is passed, and beginning at the time that the amendments to the Notes of such Series become effective, Noteholders should note that, until the expiry of the period of 40 days after the date on which the Proposed Amendments and Waivers to the Notes of such Series become effective, sales may not be made in the United States or to U.S. persons unless made outside the United States pursuant to Rule 903 and 904 of Regulation S.

Noteholders are advised to check with any bank, securities broker or other intermediary through which they hold their Notes when such intermediary would need to receive instructions from a Noteholder in order for such Noteholder to participate in, or (in the limited circumstances in which revocation is permitted) to validly revoke their instruction to participate in, a Consent Solicitation by the deadlines specified in this Consent Solicitation Memorandum. ***The deadlines set by any such intermediary and each Clearing System for the submission and (where permitted) revocation of Consent Instructions will be earlier than the relevant deadlines specified in this Consent Solicitation Memorandum.*** *See "Procedures for Participating in the Consent Solicitations".*

Questions and requests for assistance in connection with (i) the Consent Solicitations may be directed to the Solicitation Agents and (ii) the delivery of Consent Instructions may be directed to the Information and Tabulation Agent, the contact details for which are on the last page of this Consent Solicitation Memorandum.

The terms of the Consent Solicitations and the Extraordinary Resolutions have not been formulated by the relevant Agents or the Solicitation Agents, and the Agents and the Solicitation Agents do not express any view on any of them, and nothing in this Consent Solicitation Memorandum should be construed as a recommendation to Noteholders from the Agents or the Solicitation Agents to either approve or reject any Consent Solicitation and/or Extraordinary Resolution. By participating in the relevant Consent Solicitation, each Noteholder agrees that the relevant Agents, the Solicitation Agents and the Information and Tabulation Agent are not responsible for the accuracy, completeness, validity or correctness of the statements made and documents referred to in this Consent Solicitation Memorandum or any omissions from this Consent Solicitation Memorandum.

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SOLICITATION AND DISTRIBUTION RESTRICTIONS

This Consent Solicitation Memorandum does not constitute an invitation to participate in any Consent Solicitation in any jurisdiction in which, or to any person to whom, it is unlawful to make such invitation or for there to be such participation under applicable securities laws. The distribution of this Consent Solicitation Memorandum in certain jurisdictions may be restricted by law.

Persons into whose possession this Consent Solicitation Memorandum comes are required by each of the Issuer, the Guarantor, the Solicitation Agents and the Information and Tabulation Agent to inform themselves about, and to observe, any such restrictions.

United States

The Consent Solicitations are only being made outside the United States, to persons other than "U.S. persons" (as defined in Regulation S under the Securities Act). Any purported participation in any Consent Solicitation resulting directly or indirectly from a violation of these restrictions will be invalid and any participation in any Consent Solicitation by a person that is located in the United States or that is a U.S. person or by any agent, fiduciary or other intermediary acting on a non-discretionary basis for a beneficial owner that is giving instructions from within the United States or that is any U.S. person will not be accepted.

This Consent Solicitation Memorandum is not an offer of securities for sale in the United States or to any U.S. person. Securities may not be offered or sold in the United States absent registration or an exemption from registration. The Notes, and the guarantees thereof, have not been, and will not be, registered under the Securities Act, or the securities laws of any state or other jurisdiction of the United States, and may not be offered or sold in the United States or to, or for the account or benefit of, U.S. persons, unless an exemption from the registration requirements of the Securities Act is available.

Each Noteholder participating in any Consent Solicitation will represent that it is not a U.S. person (as defined in Regulation S under the Securities Act), and is not acting for the account or benefit of any U.S. person, and that it is not located in the United States.

For the purpose of this Consent Solicitation Memorandum, **United States** means the United States of America, its territories and possessions, any state of the United States of America and the District of Columbia.

General

Nothing in this Consent Solicitation Memorandum constitutes or contemplates an offer of, an offer to purchase or the solicitation of an offer to sell any security in any jurisdiction and participation in any Consent Solicitation by a Noteholder in any circumstances in which such participation is unlawful will not be accepted.

In addition to the representations referred to above in respect of the United States, each Noteholder participating in any Consent Solicitation will be deemed to represent that it is an Eligible Noteholder as set out in "*Procedures for Participating in the Consent Solicitations*". Any Consent Instructions from a Noteholder that is unable to make these representations will not be accepted. Each of the Issuer, the Guarantor, the Solicitation Agents and the Information and Tabulation Agent reserves the right, in its absolute discretion, to investigate, in relation to any submission of Consent Instructions, whether any such representation given by a Noteholder is correct and, if such investigation is undertaken and as a result the Issuer determines (for any reason) that such representation is not correct, such Consent Instruction may be rejected.

GENERAL

The Issuer accepts responsibility for the information contained in this Consent Solicitation Memorandum. To the best of the knowledge and belief of the Issuer (having taken all reasonable care to ensure that such is the case) the information contained in this Consent Solicitation Memorandum is in accordance with the facts and does not omit anything likely to affect the import of such information.

Each Noteholder is solely responsible for making its own independent appraisal of all matters as such Noteholder deems appropriate (including those relating to the relevant Consent Solicitation(s) and the relevant Extraordinary Resolution(s)) and each Noteholder must make its own decision whether to participate in the relevant Consent Solicitation(s) or otherwise participate at the relevant Meeting(s).

The delivery or distribution of this Consent Solicitation Memorandum shall not under any circumstances create any implication that the information contained in this Consent Solicitation Memorandum is correct as of any time subsequent to the date of this Consent Solicitation Memorandum or that there has been no change in the information set out in this Consent Solicitation Memorandum or in the affairs of the Issuer, Doosan Heavy or the Guarantor or that the information in this Consent Solicitation Memorandum has remained accurate and complete. None of the Solicitation Agents, the Information and Tabulation Agent, the Agents or any of their respective agents accepts any responsibility for the information contained in this Consent Solicitation Memorandum.

This Consent Solicitation Memorandum does not constitute a solicitation in any circumstances in which such solicitation is unlawful. No person has been authorised to make any recommendation on behalf of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or the Agents in respect of this Consent Solicitation Memorandum, any Consent Solicitation or any Extraordinary Resolution. No person has been authorised to give any information, or to make any representation in connection with any Consent Solicitation or any Extraordinary Resolution, other than those contained in this Consent Solicitation Memorandum. If made or given, such recommendation or any such information or representation must not be relied upon as having been authorised by the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent, the Agents or any of their respective agents.

None of the Solicitation Agents, the Information and Tabulation Agent, the Agents or any of their directors, officers, employees or affiliates expresses any opinion on the merits of, or makes any representation or recommendation whatsoever regarding, any Consent Solicitation, any Extraordinary Resolution or this Consent Solicitation Memorandum or makes any recommendation whether Noteholders should participate in the relevant Consent Solicitation(s) or otherwise participate at the relevant Meeting(s). None of the Solicitation Agents, the Information and Tabulation Agent, the Agents or any of their directors, officers, employees or affiliates has verified, or assumes any responsibility for the accuracy or completeness of, any of the information concerning the Consent Solicitations, the Extraordinary Resolutions, the Issuer, Doosan Heavy, the Guarantor, the Notes or the factual statements contained in, or the effect or effectiveness of, this Consent Solicitation Memorandum or any other documents referred to in this Consent Solicitation Memorandum or assumes any responsibility for any failure by the Issuer to disclose events that may have occurred and may affect the significance or accuracy of such information or the terms of any amendment (if any) to any Consent Solicitation.

The Information and Tabulation Agent and the Agents are the agents of the Issuer and the Guarantor and owe no duty to any Noteholder.

This Consent Solicitation Memorandum is only issued to and directed at Noteholders for the purposes of the Consent Solicitations. No other person may rely upon its contents, and it should not be relied upon by any Noteholder for any other purpose.

The applicable provisions of the Financial Services and Markets Act 2000 must be complied with in respect of anything done in relation to the Consent Solicitations or the Meetings in, from or otherwise involving the United Kingdom.

Unless the context otherwise requires, all references in this Consent Solicitation Memorandum to a **Noteholder** or **holder of Notes** includes:

(a) each person who is shown in the records of Euroclear Bank SA/NV (**Euroclear**) or Clearstream Banking, S.A. (**Clearstream, Luxembourg** and, together with Euroclear, the **Clearing Systems** and each a **Clearing System**) as a holder of the Notes (also referred to as **Direct Participants** and each a **Direct Participant**); and

(b) each beneficial owner of the Notes holding such Notes, directly or indirectly, in an account in the name of a Direct Participant acting on such beneficial owner's behalf,

except that for the purposes of the payment (where applicable) of the Consent Fee to a Noteholder, to the extent that the beneficial owner of the relevant Notes is not a Direct Participant, that Consent Fee will only be paid to the relevant Direct Participant and the payment of the Consent Fee to such Direct Participant will satisfy the obligations of the Issuer in respect of that Consent Fee.

In this Consent Solicitation Memorandum, references to **US dollars** and **USD** are to the lawful currency of the United States.

INDICATIVE TIMETABLE

Set out below is an indicative timetable showing one possible outcome for the timing of the Consent Solicitations, which will depend, among other things, on timely receipt (and non-revocation where permitted) of instructions, the rights of the Issuer (where applicable) to extend, waive any condition of, amend and/or terminate any Consent Solicitation (other than the terms of the relevant Extraordinary Resolution) as described in this Consent Solicitation Memorandum and the passing of each Extraordinary Resolution at the Meeting for the relevant Series. Accordingly, the actual timetable may differ significantly from the timetable below.

Event	
Announcement of Consent Solicitations	
Announcement of Consent Solicitations.	22 March 2021
Notice of Meetings and launch announcement published on the website of the SGX-ST and the Consent Website, and delivered to the Clearing Systems for communication to Direct Participants.	
Documents referred to under "General" in the Notice available from the Information and Tabulation Agent and from the specified office of the relevant Agent.	
Consent Fee Deadline	4.00 p.m. (London time) on 1 April 2021
Deadline for receipt by the Information and Tabulation Agent of valid Consent Instructions from Noteholders for such Noteholders to be eligible for the Consent Fee. Such Consent Instructions must be in favour of the relevant Extraordinary Resolution in order for the relevant Noteholder to be eligible for the Consent Fee.	
Ineligible Holder Instruction Deadline	4.00 p.m. (London time) on 1 April 2021
Deadline for receipt by the Information and Tabulation Agent of Ineligible Holder Instructions (as defined in the Notice) from Ineligible Holders for such Ineligible Holders to be eligible for the Ineligible Holder Payment (as defined in the Notice). Such Ineligible Holder Instructions must be in favour of the relevant Extraordinary Resolution in order for the relevant Ineligible Holder to be eligible for the Ineligible Holder Payment.	
Voting Deadline	
Deadline for receipt by the Information and Tabulation Agent of valid Consent Instructions from Noteholders for such Noteholders to be represented at the Meetings. However, Noteholders who submit a valid Consent Instruction in favour of the relevant Extraordinary Resolution by the Voting Deadline but after the Consent Fee Deadline will not be eligible to receive the Consent Fee.	4.00 p.m. (London time) on 12 April 2021
An Ineligible Holder who submits (and does not revoke) a valid Ineligible Holder Instruction in favour of the relevant Extraordinary Resolution after the Ineligible Holder Instruction Deadline but on or before the Voting Deadline will not be eligible to receive the Ineligible Holder Payment.	
This will also be the deadline for making any other arrangements to attend or be represented or to vote at any Meeting. However, Noteholders making such other arrangements will not be eligible to receive the Consent Fee.	
Meetings	
Meetings to be held at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong (or by conference call if the Issuer elects to hold a Virtual Meeting).	From 9.00 a.m. (London time) / 4.00 p.m. (Hong Kong time) / 5.00 p.m. (Seoul time) on 15 April 2021

Announcement of results of Meetings and satisfaction of Eligibility Condition	
Announcement of the results of the Meetings and, if the Extraordinary Resolutions are passed, satisfaction or waiver of the Eligibility Condition. If the Extraordinary Resolutions are passed at the Meetings and the Eligibility Condition is satisfied, the Extraordinary Resolutions will become effective immediately.	As soon as reasonably practicable after the Meetings
Consent Conditions Subsequent Announcement	
Announcement that (i) the Consent Conditions Subsequent have been satisfied (or waived), (ii) the Issuer intends to proceed with the Merger and the implementation of the Extraordinary Resolutions, (iii) the Supplemental Agency Agreement and Deed of Confirmation in respect of each Series will be entered into and the Proposed Amendments and Waivers will become effective on the Amendment Effective Date and (iv) the Issuer will procure the payment of any Consent Fee on the Payment Date.	As soon as reasonably practicable after the Consent Conditions Subsequent have been satisfied (or waived) and the Issuer elects to proceed with the Merger and the implementation of the Extraordinary Resolutions
Payment Date	
Payment of any Consent Fee.	On or prior to the Amendment Effective Date as set out in the Consent Conditions Subsequent Announcement. Given that the Consent Conditions Subsequent will depend on external third parties including the approval of the Merger from the Korea Fair Trade Commission and the shareholders of the Issuer and Doosan Heavy, there may be a significant time period between the date of the Meetings and the Payment Date. Based on the current expectations, the Issuer does not expect the Payment Date to occur earlier than 1 July 2021 if it were to occur at all.
Amendment Effective Date On the Amendment Effective Date, the Supplemental Agency Agreement and Deed of Confirmation in respect of the relevant Series will be entered into and the Proposed Amendments and Waivers shall become effective immediately. Announcement that the Proposed Amendments and Waivers are effective published on the website of the SGX-ST and the Consent Website.	As set out in the Consent Conditions Subsequent Announcement

If a quorum is not achieved at a Meeting or the quorum is achieved and the relevant Extraordinary Resolution is passed but the Eligibility Condition is not satisfied, such Meeting shall be adjourned and the adjourned Meeting of Noteholders for that Series will be held at a date as will be notified to the Noteholders in the relevant notice of the adjourned Meeting.

Noteholders are advised to check with any bank, securities broker or other intermediary through which they hold their Notes when such intermediary would need to receive instructions from a Noteholder in order for such Noteholder to participate in, or (in the limited circumstances in which revocation is permitted) to validly revoke their instruction to participate in, the relevant Consent Solicitation(s) and/or the relevant Meeting(s) by the deadlines specified above. The deadlines set by any such intermediary and each Clearing System for the submission and (where permitted) revocation of Consent Instructions will be earlier than the relevant deadlines above.

DEFINITIONS

Capitalised terms used but not defined in this Consent Solicitation Memorandum shall, unless the context otherwise requires, have the meanings set out in the Conditions.

2022 Notes	USD 300,000,000 Guaranteed Senior Unsecured Notes due 2022 (ISIN: XS2078374159) of the Issuer unconditionally and irrevocably guaranteed by the Korea Development Bank
2023 Notes	USD 300,000,000 Guaranteed Senior Unsecured Notes due 2023 (ISIN: XS2201951477) of the Issuer unconditionally and irrevocably guaranteed by the Korea Development Bank
Agents	In respect of: (i) the 2022 Notes, the Fiscal Agent, the Paying Agent and the Transfer Agent; and (ii) the 2023 Notes, the Fiscal Agent, the Paying Agent and the Transfer Agent.
Agency Agreement	In respect of: (i) the 2022 Notes, the agency agreement dated 18 November 2019 among the Issuer, the Guarantor, the Paying Agent, the Fiscal Agent and the Bank of New York Mellon SA/NV, Luxembourg Branch as registrar and Transfer Agent, as amended, restated, modified and/or supplemented from time to time (the **2022 Notes Agency Agreement**); and (ii) the 2023 Notes, the agency agreement dated 21 July 2020 among the Issuer, the Guarantor, the Fiscal Agent, the Paying Agent and Citibank N.A., London Branch as registrar and Transfer Agent, as amended, restated, modified and/or supplemented from time to time (the **2023 Notes Agency Agreement**)
Amendment Effective Date	The date the Supplement Agency Agreement and Deed of Confirmation in respect of each Series will be entered into and the Proposed Amendments and Waivers become effective
Business Day	A day, other than a Saturday or a Sunday, on which commercial banks are open for business in London, New York City and Seoul.
Clearing System Notice	In relation to each Clearing System, the notice to be sent to Direct Participants by such Clearing System on or about the date of this Consent Solicitation Memorandum informing Direct Participants of the procedures to be followed in order to participate in the relevant Consent Solicitation or otherwise participate at the relevant Meeting
Clearing Systems	Euroclear and Clearstream, Luxembourg
Clearstream, Luxembourg	Clearstream Banking, S.A.
Conditions	In respect of each Series, the terms and conditions set out in Part 2 of Schedule 2 to the applicable Agency Agreement
Consent Conditions	In respect of each Series, the conditions to the effectiveness of the relevant Extraordinary Resolution, being: (i) the passing of the relevant Extraordinary Resolution; and (ii) the satisfaction of the Eligibility Condition.
Consent Conditions Subsequent	The conditions to the implementation of the Extraordinary Resolution of a

	Series, being: (i) the satisfaction of the Consent Conditions for that Extraordinary Resolution; (ii) unless otherwise waived by the Issuer, the satisfaction of the Consent Conditions for the Extraordinary Resolution in respect of the other Series of Notes; (iii) the approval of the Merger by the Korea Fair Trade Commission; (iv) the approval of the Merger by the shareholders of the Issuer and Doosan Heavy at the shareholders' meetings currently scheduled for 13 May 2021, followed by the obligatory one-month period for creditors of the Issuer and Doosan Heavy to file objections under the creditor protection procedures set forth in the Korean Commercial Code; (v) the election by the Issuer, in its sole discretion, to make the Proposed Amendments and Waivers effective; and (vi) the effectiveness of the Merger.
Consent Fee	The payment, rounded to the nearest cent with half a cent rounded upwards, that relevant consenting Noteholders will be eligible to receive, being an amount equal to 0.15 per cent. of the principal amount of the Notes that are the subject of the relevant Consent Instruction, which will be payable in the circumstances described in "*Consent Solicitations – Consent Fee*"
Consent Fee Deadline	In respect of each Series, 4.00 p.m. (London time) on 1 April 2021 (subject to the right of the Issuer to extend, re-open and/or terminate the relevant Consent Solicitation)
Consent Solicitation	In respect of each Series, the invitation by the Issuer to Eligible Noteholders to consent to the approval of the relevant Extraordinary Resolution as described in this Consent Solicitation Memorandum
Consent Website	https://bonds.morrowsodali.com/doosan, the website operated by the Information and Tabulation Agent for the purpose of the Consent Solicitation
Deed of Guarantee	In respect of: (i) the 2022 Notes, the deed of guarantee given on 18 November 2019 by the Korea Development Bank as the Guarantor (the **2022 Notes Deed of Guarantee**); and (ii) the 2023 Notes, the deed of guarantee given on 21 July 2020 by the Korea Development Bank as the Guarantor (the **2023 Notes Deed of Guarantee**).
Deed of Confirmation	In respect of each of the 2022 Notes Deed of Guarantee and the 2023 Notes Deed of Guarantee, the deed of confirmation the Guarantor intends to execute if the relevant Extraordinary Resolution is passed, the Consent Conditions Subsequent relating to such Extraordinary Resolution are satisfied (or waived) and, if the Issuer decides in its absolute discretion to proceed with the Merger and to implement the Extraordinary Resolutions, the Consent Conditions Subsequent Announcement is made, confirming for the benefit of the Noteholders that the relevant Deed of Guarantee shall remain in full force and effect with respect to the payment of principal and interest by Doosan Heavy in place of the Issuer as principal debtor in respect of the relevant Series of Notes.
Direct Participant	Each person who is shown in the records of the Clearing Systems as a holder of the Notes

Doosan Heavy	Doosan Heavy Industries & Construct Co., Ltd., a corporation with limited liability incorporated under the laws of The Republic of Korea
Eligibility Condition	In respect of each Series, the condition to the effectiveness of the relevant Extraordinary Resolution, if passed, that the quorum required for, and the requisite majority of votes cast at, the relevant Meeting are satisfied by Eligible Noteholders irrespective of any participation at the relevant Meeting by Ineligible Noteholders (including the satisfaction of such condition at an adjourned Meeting as described in "*Consent Solicitations – Meetings*")
Eligible Noteholder	Each Noteholder who is (a) outside the United States and not a U.S. person (as defined in Regulation S under the Securities Act) and (b) otherwise a person to whom the relevant Consent Solicitation can be lawfully made and that may lawfully participate in the relevant Consent Solicitation
Euroclear	Euroclear Bank SA/NV
Euroclear/Clearstream	Euroclear or Clearstream, Luxembourg, as the case may be
Euroclear/Clearstream Participant	A Direct Participant in Euroclear/Clearstream
Euroclear/Clearstream Instruction	The electronic instruction to be submitted by a Euroclear/Clearstream Participant to the Information and Tabulation Agent through Euroclear/Clearstream in the form described in the relevant Clearing System Notice in order for Eligible Noteholders holding through Euroclear/Clearsteam to participate in the relevant Consent Solicitation
Extraordinary Resolution	In respect of each Series, the Extraordinary Resolution relating to such Series set out in the Notice
Fiscal Agent	In respect of: (i) the 2022 Notes, The Bank of New York Mellon, London Branch; and (ii) the 2023 Notes, Citicorp International Limited
Guarantor	The Korea Development Bank
Ineligible Noteholder	A Noteholder who is not a person to whom the relevant Consent Solicitation is being made, on the basis that such Noteholder is either (i) a U.S. person and/or located in the United States and/or (ii) a person to whom the relevant Consent Solicitation cannot otherwise be lawfully made
Issuer	Doosan Infracore Co., Ltd., a corporation with limited liability incorporated under the laws of The Republic of Korea
Meeting	In respect of each Series, the meeting of Noteholders of the relevant Series convened by the Notice, to be held at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong on 15 April 2021 (unless the Issuer elects to hold a Virtual Meeting) at the time specified in the Notice, and to consider and, if thought fit, pass the Extraordinary Resolution in respect of such Series. See "*Annex I – Form of Notice of Meetings*"
Meeting Provisions	In respect of each Series, the provisions for meetings of Noteholders of the relevant Series set out in Schedule 4 of the applicable Agency Agreement
Merger	The proposed spin-off of the Issuer's non-operating business, including the assets, liabilities and contractual relationships of the non-operating business, which will be merged with and into Doosan Heavy, the controlling shareholder

	of the Issuer, pursuant to a split and merger agreement dated on 19 March 2021
Noteholder	A holder of the Notes of any Series (including as further defined in "General" above)
Notes	The 2022 Notes and 2023 Notes
Note Documents	In respect of: (i) the 2022 Notes, the 2022 Notes Agency Agreement and the 2022 Notes Deed of Guarantee, and (ii) the 2023 Notes, the 2023 Notes Agency Agreement and the 2023 Notes Deed of Guarantee
Notice	The notice dated 22 March 2021 convening the Meetings, as set out in "*Annex I – Form of Notice of Meetings*"
Paying Agents	In respect of: (i) the 2022 Notes, The Bank of New York Mellon, London Branch; and (ii) the 2023 Notes, Citibank, N.A., London Branch
Payment Date	In respect of each Series, if the relevant Extraordinary Resolution is passed, the Consent Conditions Subsequent are satisfied (or waived) and, if the Issuer decides in its absolute discretion to proceed with the Merger and the implementation of the Extraordinary Resolutions, the Consent Conditions Subsequent Announcement is made, the date for payment of the Consent Fee as specified in the Consent Conditions Subsequent Announcement, which will be on or prior to the Amendment Effective Date
Proposed Amendments	In respect of each Series, the substitution of Doosan Heavy in place of the Issuer as principal debtor in respect of the Notes together with the other amendments as set out in the relevant Extraordinary Resolutions
Proposed Amendments and Waivers	The Proposed Amendments and the Proposed Waivers
Proposed Waivers	In respect of each Series, the irrevocable waiver and authorisation of any breach or alleged breach whatsoever of any obligation under or in respect of the Notes or the Note Documents which may be breached or may be capable of being breached by the threat of the Merger or the Proposed Amendments together with the other waivers as set out in the relevant Extraordinary Resolutions
Securities Act	The United States Securities Act of 1933, as amended
Series	Each of the 2022 Notes and 2023 Notes, as applicable

Sanctions Restricted Person	A person or entity (a **Person**): (a) that is, or is directly or indirectly owned or controlled by a Person that is, described or designated in: (i) the most current "Specially Designated Nationals and Blocked Persons" list (which as of the date hereof can be found at: https://www.treasury.gov/ofac/downloads/sdnlist.pdf); (ii) the Foreign Sanctions Evaders List (which as of the date hereof can be found at: http://www.treasury.gov/ofac/downloads/fse/fselist.pdf); or (iii) the most current "Consolidated list of persons, groups and entities subject to EU financial sanctions" (which as of the date hereof can be found at: https://eeas.europa.eu/headquarters/headquarters-homepage_en/8442/Consolidated%20list%20of%20sanctions); or (b) that is otherwise the subject of any sanctions administered or enforced by any Sanctions Authority, other than solely by virtue of their inclusion in: (i) the most current "Sectoral Sanctions Identifications" list (which as of the date hereof can be found at: https://www.treasury.gov/ofac/downloads/ssi/ssilist.pdf) (the SSI List); (ii) Annexes 3, 4, 5 and 6 of Council Regulation No. 833/2014, as amended by Council Regulation No. 960/2014 and Council Regulation (EU) No 1290/2014 and Council Regulation (EU) No 2015/1797 (the EU Annexes); or (iii) any other list maintained by a Sanctions Authority, with similar effect to the SSI List or the EU Annexes
Solicitation Agents	HSBC, The Korea Development Bank and Standard Chartered Bank
Supplemental Agency Agreement	In respect of each Series, the supplemental Agency Agreement that the Issuer, Doosan Heavy and the Guarantor intend to execute if the relevant Extraordinary Resolution is passed, the Consent Conditions Subsequent relating to such Extraordinary Resolution are satisfied (or waived) and, if the Issuer decides in its absolute discretion to proceed with the Merger and to implement the Extraordinary Resolutions, the Consent Conditions Subsequent Announcement is made and the Consent Fee is paid, in order to implement the Proposed Amendments to the Conditions of that Series
Transfer Agents	In respect of: (i) the 2022 Notes, The Bank of New York Mellon SA/NV, Luxembourg Branch; and (ii) the 2023 Notes, Citibank, N.A., London Branch
Voting Deadline	In respect of each Series, 4.00 p.m. (London time) on 12 April 2021 (subject to the right of the Issuer to extend, re-open and/or terminate the relevant Consent Solicitation)

DOOSAN HEAVY

Doosan Heavy is Korea's largest and a leading international manufacturer of advanced power generation solutions with the proprietary technologies to manufacture key power generation equipment across a wide range of energy sources. Operating since 1962, Doosan Heavy provides a variety of thermal and nuclear power generation equipment, including boilers, turbines and generators, as well as engaging in engineering, procurement and construction (**EPC**) projects for thermal power plants. Recently, Doosan Heavy has placed greater emphasis on renewable energy and recurring services, including development and marketing of high-capacity and fuel-efficient gas turbines and related maintenance and repair services, high-capacity offshore wind turbine equipment, software solutions and related services for energy storage systems, and storage solutions for spent nuclear fuel, as well as de-commissioning services for nuclear power plants. Doosan Heavy is also a leading provider of seawater desalination and water treatment solutions, including EPC of water infrastructure projects. In addition, Doosan Heavy has the capability to provide turnkey solutions for desalination plants using multi-stage flash distillation, multiple-effect distillation and reverse osmosis technologies.

Doosan Heavy's operations consist mainly of the following five core businesses and its subsidiary Doosan Engineering & Construction Co., Ltd. (**Doosan E&C**):

- **Power plants** – The power plants business designs, manufactures and sells thermal, nuclear and wind turbine power generation equipment, as well as engaging in EPC projects for thermal power plants;
- **Water plants** – The water plants business provides seawater desalination and water treatment solutions, including EPC projects for desalination plants;
- **Industrial plants** – The industrial plants business designs, manufactures and sells material handling equipment installed in industrial plants;
- **Casting and forging** – The casting and forging business produces a wide range of casting and forging components for the shipbuilding, steel and other manufacturing industries; and
- **Construction** – The construction business engages in a wide range of construction activities, including construction of industrial plants, architectural works and civil works.

In addition, through Doosan E&C, Doosan Heavy's consolidated subsidiary, Doosan Heavy engages in a wide range of construction activities, including the construction of architectural works and civil works.

Doosan Heavy operates an extensive global network of production facilities located in key strategic locations. For its core operations, the main domestic production facilities are located in Changwon, a complex developed by the Government in the 1970's as Korea's first heavy industrial complex, where Doosan Heavy is able to take advantage of a high-quality labour force and extensive infrastructure for its operations. Doosan Heavy also operates production facilities overseas for its core operations, including in the United States, the United Kingdom, India, the Czech Republic and Vietnam.

The audited consolidated financial statements of Doosan Heavy as of and for the years ended 31 December 2018 and 31 December 2019 are available as set out in "*Annex II – Financial Statements of Doosan Heavy*".

Doosan Heavy is a member company of the Doosan Group, which was founded in 1896 and was ranked as the 15th largest business group in Korea in terms of combined assets as of 30 September 2020, according to the Korea Fair Trade Commission. Doosan Heavy's registered office is at 22, Doosan volvo-ro, Seongsan-gu, Chang-won-si, Gyeongsangnam-do 51711, Korea.

FURTHER INFORMATION AND TERMS AND CONDITIONS

Amendment of the Agency Agreement relating to each Series and execution of the Deed of Confirmation relating to each Deed of Guarantee

The Notes of each Series were issued by the Issuer and guaranteed as to payment of principal and interest by the Guarantor. If the Extraordinary Resolution relating to any Series is passed, the Consent Conditions Subsequent relating to such Extraordinary Resolution are satisfied (or waived) and the Issuer elects to proceed with the Merger and implement the Extraordinary Resolutions, the Issuer and the Guarantor intend to execute a supplemental Agency Agreement (the **Supplemental Agency Agreement**) in respect of such Series in order to implement the Proposed Amendments to the Conditions of the relevant Series and the Guarantor intends to execute a deed of confirmation (the **Deed of Confirmation**) in respect of each Series confirming for the benefit of the Noteholders that the relevant Deed of Guarantee shall remain in full force and effect with respect to the payment of principal and interest by Doosan Heavy in place of the Issuer as principal debtor in respect of the Notes.

Payment of Consent Fee

If the conditions to payment of the Consent Fee are satisfied, the aggregate amounts of the Consent Fee for the relevant Notes in each Clearing System will be paid, in immediately available funds, on or prior to the Amendment Effective Date to such Clearing System for payment to the cash accounts of the relevant Noteholders in the Clearing System (see "*Procedures for Participating in the Consent Solicitations*"). The payment of such aggregate amounts to the Clearing Systems will discharge the obligation of the Issuer to all such Noteholders in respect of procuring the payment of the Consent Fee.

Provided the Issuer procures full payment of the Consent Fee for all relevant Notes directly to the Clearing Systems on or before the Payment Date, under no circumstances will any additional interest be payable to a Noteholder because of any delay in the transmission of funds from the relevant Clearing System or any other intermediary with respect to the relevant Notes of that Noteholder. The Paying Agents will not be responsible for the payment of the Consent Fee.

Where payable, the Consent Fee will be transmitted to the Direct Participant who submitted the relevant Consent Instruction by the Consent Fee Deadline.

Adjourned Meetings

In the event that (i) the necessary quorum for any Extraordinary Resolution for any reason (see "*Consent Solicitations - Meetings*") is not obtained or (ii) the necessary quorum is satisfied at a Meeting and the Extraordinary Resolution is passed but the Eligibility Condition is not satisfied in respect of such Meeting, the relevant Meeting will be adjourned for not less than 14 clear days nor more than 42 clear days. At any adjourned Meeting, one or more persons present and holding or representing any amount of the principal amount of the relevant Series for the time being outstanding will form a quorum. Consent Instructions which are submitted in accordance with the procedures set out in this Consent Solicitation Memorandum and which have not been subsequently revoked (in the limited circumstances in which such revocation is permitted) shall remain valid for such adjourned Meeting. To be passed at the relevant adjourned Meeting, an Extraordinary Resolution requires a majority in favour consisting of not less than 75% of the persons voting on the resolution upon a show of hands or, if a poll was duly demanded, by a majority consisting of not less than 75% of the votes given on the poll at such adjourned Meeting.

The holding of any adjourned Meeting will be subject to the Issuer giving at least 10 clear days' notice in accordance with the relevant Conditions and Meeting Provisions that such adjourned Meeting is to be held.

In the event of an adjourned Meeting being necessary, the timetable for the adjourned Meeting will be different from the timetable proposed in the section "*Indicative Timetable*". Any notice of an adjourned Meeting will set out the new Voting Deadline and other dates for such adjourned Meeting.

Conditions of the Consent Solicitations

Notwithstanding any other provision of the Consent Solicitations and in addition to (and not in limitation of) the Issuer's right to extend or amend any Consent Solicitation, and in addition to the requirement that the Consent Conditions Subsequent be satisfied (or waived), the Issuer shall not be required to implement, or procure the payment of any Consent Fee in respect of, any Consent Solicitation, and may delay the implementation of, any Consent Solicitation, and may terminate any Consent Solicitation, if, before such time the relevant Consent Solicitation is implemented, any of the following events or conditions exist or shall occur and remain in effect or shall be determined by the Issuer in its reasonable judgment to exist or have occurred:

- there shall have occurred (i) any general suspension of trading in, or limitation on prices for, securities in the United States, European Union (**EU**), the United Kingdom, Singapore or Korean securities or financial markets, (ii) a material impairment in the trading market for debt, (iii) a declaration of a banking moratorium or any suspension of payments in respect of banks in the United States, any member state of the EU, the United Kingdom or the Republic of Korea (whether or not mandatory), (iv) any limitation (whether or not mandatory) by any governmental authority on, or other event having a reasonable likelihood of affecting, the extension of credit by banks or other lending institutions in the United States, the EU, the United Kingdom or the Republic of Korea, (v) any attack on, outbreak or escalation of hostilities or acts of terrorism involving the United States, the EU, the United Kingdom or the Republic of Korea that would reasonably be expected to have a materially adverse effect on the Issuer or its affiliates' business, operations, properties, condition (financial or otherwise), assets, liabilities or prospects or (vi) any significant adverse change in the United States, EU, the United

Kingdom or Korean securities or financial markets generally or, in the case of any of the foregoing existing on the date of this Consent Solicitation Memorandum, a material acceleration or worsening thereof;

- there exists an order, statute, rule, regulation, executive order, stay, decree, judgment or injunction that shall have been enacted, entered, issued, promulgated, enforced or deemed applicable by any court or governmental, regulatory or administrative agency or instrumentality that, in the Issuer's judgement, would or would be reasonably likely to prohibit, prevent or materially restrict or delay implementation of the Consent Solicitations or that is, or is reasonably likely to be, materially adverse to the Issuer's business, operations, properties, condition (financial or otherwise), assets, liabilities or prospects or those of its affiliates;
- there shall have been instituted or be pending any action or proceeding before or by any court, governmental, regulatory or administrative agency or instrumentality, or by any other person that challenges the making of the Consent Solicitations or, in connection with the Consent Solicitations, that is, or is likely to be, in the Issuer's reasonable judgment, materially adverse to its business, operations, properties, condition (financial or otherwise), assets, liabilities or prospects or those of its affiliates, or which would or might, in the Issuer's reasonable judgment, directly or indirectly prohibit, prevent, restrict or delay implementation of the Consent Solicitations or otherwise adversely affect the Consent Solicitations in any material manner;
- there exists any other actual or threatened legal impediment to any Consent Solicitation or any other circumstances that would materially adversely affect the transactions contemplated by any Consent Solicitation or the contemplated benefits of any Consent Solicitation to the Issuer, Doosan Heavy or any of their affiliates;
- any Agent shall have objected in any respect to or taken any action that would be likely, in the Issuer's reasonable judgment, to materially and adversely affect any Consent Solicitation or shall have taken any action that challenges the validity or effectiveness of the procedures used by the Issuer in making the Consent Solicitations or the implementation of, or procuring the payment of the Consent Fee in respect of, the Consent Solicitations; or
- there shall have occurred any development which would, in the judgement of the Issuer, materially adversely affect its business, operations, properties, condition (financial or otherwise), assets, liabilities or prospects or those of its affiliates.

The conditions described above are solely for the benefit of the Issuer, and may be asserted by the Issuer regardless of the circumstances giving rise to any such condition, and, where possible, may be waived by the Issuer, in whole or in part, at any time and from time to time before the Amendment Effective Date. Any failure by the Issuer at any time to exercise any of its rights will not be deemed a waiver of any other right, and each right will be deemed an ongoing right which may be asserted at any time and from time to time.

General conditions of the Consent Solicitations

The Issuer expressly reserves the right, in its sole discretion, to refuse to accept, or to delay acceptance of, Consent Instructions pursuant to any Consent Solicitation in order to comply with applicable laws. In all cases, a Consent Instruction will only be deemed to have been validly submitted once submitted in accordance with the procedures described in "*Procedures for Participating in the Consent Solicitations*", which (in the case of Consent Instructions in respect of Notes held in Euroclear/Clearstream) include the blocking of the relevant Notes in the relevant account in Euroclear/Clearstream, as described in "*Certain Considerations Relating to the Consent Solicitations – Blocking of Notes and Restrictions on Transfer*" below.

The Issuer may reject Consent Instructions which it considers in its reasonable judgement not to have been validly submitted in the relevant Consent Solicitation. **For example, Consent Instructions may be rejected and not accepted and may be treated as not having been validly submitted if any such instruction does not comply with the requirements of a particular jurisdiction.**

The failure of any eligible person to receive a copy of this Consent Solicitation Memorandum, the Notice or any other notice issued by the Issuer in connection with the Consent Solicitations and/or the Meetings shall not invalidate any aspect of any Consent Solicitation or Meeting. No acknowledgement of receipt of any Consent Instruction and/or any other documents will be given by the Issuer, the Solicitation Agents, the Information and Tabulation Agent or any Agent.

If the Consent Conditions Subsequent are not satisfied (or waived), then no Consent Conditions Subsequent Announcement will be made, no Supplemental Agency Agreement or Deed of Confirmation will be executed and no Consent Fee will be payable.

Announcements

The Proposed Amendments and Waivers will not become effective and no Consent Fee will be payable even if the Extraordinary Resolutions are passed if the Issuer does not elect to implement the Extraordinary Resolutions. If the Issuer elects, in its sole discretion, to proceed with the Merger and to implement the Extraordinary Resolutions after the Consent Conditions Subsequent are satisfied or waived, the Issuer will make a Consent Conditions Subsequent Announcement. Such Consent Conditions Subsequent Announcement will set out (a) the proposed Amendment Effective Date, being the date where the Supplemental Agency Agreement and Deed of Confirmation in respect of each Series will be entered into and the Proposed Amendments and Waivers will become effective, and (b) the proposed Payment Date, which shall occur on or prior to the Amendment Effective Date. For the avoidance of doubt, the Consent Fee will be made to the relevant original consenting Noteholders, not the then holders of the Notes as of the Payment Date.

Unless stated otherwise, all announcements in connection with the Consent Solicitations will be made by the Issuer by publication on the website of the SGX-ST, and the Consent Website and by delivery of a notice to the Clearing Systems for communication to Direct Participants. Copies of all announcements, notices and press releases can also be obtained from the Information and Tabulation Agent, the contact details for each of which appear on the last page of this Consent Solicitation Memorandum. Significant delays may be experienced where notices are delivered to the Clearing Systems and Noteholders are urged to contact the Information and Tabulation Agent for the relevant announcements during the course of the Consent Solicitations. In addition, Noteholders may contact the Solicitation Agents for information using the contact details on the last page of this Consent Solicitation Memorandum.

Governing law

Each Consent Solicitation, each Consent Instruction and any non-contractual obligations or matters arising from or connected with any of the foregoing, shall be governed by, and construed in accordance with, English law.

By submitting a Consent Instruction the relevant Noteholder will unconditionally and irrevocably agree for the benefit of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent and the Agents that the courts of England are to have jurisdiction to settle any disputes that may arise out of or in connection with the relevant Consent Solicitation, the relevant Meeting and such Consent Instruction and that accordingly any suit, action or proceedings arising out of or in connection with the foregoing may be brought in such courts.

CERTAIN CONSIDERATIONS RELATING TO THE CONSENT SOLICITATIONS

Before making a decision with respect to any Consent Solicitation, Noteholders should carefully consider, in addition to the other information contained in this Consent Solicitation Memorandum, the following:

Procedures for participating in the Consent Solicitations

Noteholders are responsible for complying with all of the procedures for participating in the relevant Consent Solicitation. None of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any Agent assumes any responsibility for informing Noteholders of irregularities with respect to compliance with such procedures.

Noteholders are advised to check with any Clearing System, bank, securities broker or other intermediary through which they hold Notes when such Clearing System or intermediary would need to receive instructions from a Noteholder in order for that Noteholder to be able to participate in, or (in the limited circumstances in which revocation is permitted) revoke their instruction to participate in, the relevant Consent Solicitation by the deadlines specified in this Consent Solicitation Memorandum.

In relation to the delivery or revocation (where permitted) of Consent Instructions or obtaining voting certificates or otherwise making arrangements for the giving of voting instructions, in each case through the Clearing Systems, Noteholders should note the particular practice and policy of the relevant Clearing System, including any earlier deadlines set by such Clearing System.

Consent Fee

Noteholders should note that the Consent Fee is payable on the Payment Date only to a Noteholder who has delivered (and not subsequently revoked, in the limited circumstances in which such revocation is permitted) a valid Consent Instruction in favour of the relevant Extraordinary Resolution on or prior to the Consent Fee Deadline in accordance with the terms of this Consent Solicitation Memorandum.

Only Direct Participants may deliver valid Consent Instructions to be eligible to receive the Consent Fee (subject to (i) such Consent Instruction not being revoked (in the limited circumstances in which such revocation is permitted), (ii) the satisfaction (or waiver) of the Consent Conditions and the Consent Conditions Subsequent relating to the relevant Extraordinary Resolution and the making of the Consent Conditions Subsequent Announcement by the Issuer, and (iii) the Issuer not having previously terminated the relevant Consent Solicitation in accordance with the provisions for such termination set out in "*Amendment and Termination*"), and Noteholders who are not Direct Participants should arrange for the Direct Participant through which they hold their Notes to deliver a Consent Instruction on their behalf through the relevant Clearing System.

Noteholders who do not deliver or arrange for the delivery of a Consent Instruction as provided above but who wish to attend and vote at the relevant Meeting in person or to make other arrangements to be represented or to vote at the relevant Meeting may do so in accordance with the voting and quorum procedures set out in the Notice and the relevant Meeting Provisions. However, such Noteholders will not be eligible to receive the Consent Fee. Only Noteholders who deliver, or arrange to have delivered on their behalf, valid Consent Instructions instructing the relevant Paying Agent to appoint one or more representatives of the Information and Tabulation Agent as their proxy to attend the relevant Meeting (and any adjourned Meeting, if applicable) and vote in favour of such Extraordinary Resolution by the relevant deadline will be eligible to receive the Consent Fee.

Irrevocability of Consent Instructions

Each Consent Instruction will be irrevocable except in the limited circumstances described in "*Amendment and Termination*".

Blocking of Notes and Restrictions on Transfer

When considering whether to participate in the relevant Consent Solicitation, Noteholders should take into account that, where applicable, restrictions on the transfer of the Notes will apply from the time of submission of Consent Instructions. A Noteholder will, on submitting a Consent Instruction, agree that its Notes will be blocked in the relevant account in the relevant Clearing System from the date the relevant Consent Instruction is submitted until the earlier of (i) the date on which the relevant Consent Instruction is validly revoked, in the limited circumstances in which such revocation is permitted (including their automatic revocation on the termination of the relevant Consent Solicitation), in accordance with the terms of the relevant Consent Solicitation, and (ii) the Business Day after the relevant Meeting (or, if applicable, the Business Day following the relevant adjourned Meeting).

Amendment of the Consent Solicitations

The Issuer may, at its option and in its sole discretion, extend, or waive any condition of, any Consent Solicitation at any time and may, if the Consent Conditions or the Consent Conditions Subsequent in respect of a Consent Solicitation or the other conditions to a Consent Solicitation (as described under "*Further Information and Terms and Conditions – Conditions of the Consent Solicitations*" above) are not satisfied or waived, amend or terminate such Consent Solicitation (subject in each case to applicable law and the relevant Meeting Provisions and as provided in this Consent Solicitation Memorandum, and provided that no amendment may be made to the terms of the relevant Extraordinary Resolution).

In the case of any such amendment that, in the opinion of the Issuer (in consultation with the Solicitation Agents), is materially prejudicial to the interests of Noteholders that have already submitted Consent Instructions in respect of the relevant Consent Solicitation before the announcement of such amendment (which announcement shall include a statement that, in the opinion of the Issuer, such amendment is materially prejudicial to such Noteholders), then such Consent Instructions may be revoked at any time from the date and time of such announcement until 4.00 p.m. (London time) on the third Business Day immediately following such announcement (subject to the earlier deadlines required by the Clearing Systems and any intermediary through which Noteholders hold their Notes).

See "*Amendment and Termination*".

No assurance that any Extraordinary Resolution will be implemented

Until an Extraordinary Resolution is passed, the Consent Conditions Subsequent relating to such Extraordinary Resolution are satisfied (or waived) and the Consent Conditions Subsequent Announcement is made by the Issuer (in its sole discretion), no assurance can be given that such Extraordinary Resolution will be implemented or the Consent Fee will be payable. In particular, subject to applicable law, the Issuer may extend, amend or terminate any Consent Solicitation in certain circumstances, as described in "*Amendment and Termination*" below. No Consent Fee will be payable if the Issuer does not, in its sole discretion, elect to proceed with the Merger or implement the Extraordinary Resolutions. For example, the Extraordinary Resolutions may not be implemented if the Supplemental Agency Agreement or the Deed of Confirmation in respect of both Series is not executed by the parties thereto (including by the Korea Development Bank, the third party guarantor in respect of the Notes).

All Noteholders of a Series are bound by the relevant Extraordinary Resolution

Noteholders should note that if an Extraordinary Resolution is passed and implemented, the Consent Conditions Subsequent relating to such Extraordinary Resolution are satisfied (or waived), the Consent Fees are paid and the Supplemental Agency Agreement and Deed of Confirmation are executed for that Series, the Proposed Amendments and Waivers set out in such Extraordinary Resolution will be binding on all Noteholders of the relevant Series, whether or not they chose to participate in the relevant Consent Solicitation or otherwise vote at the Meeting.

Sanctions Restricted Persons

A Noteholder who is a Sanctions Restricted Person may not participate in the Consent Solicitations.

Responsibility to consult advisers

Noteholders should consult their own tax, accounting, financial and legal advisers regarding the suitability to themselves of the tax or accounting consequences of participating in the relevant Consent Solicitation(s) and regarding the impact on them of the implementation of the relevant Extraordinary Resolution(s).

None of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent, the Agents or any director, officer, employee, agent or affiliate of any such person is acting for any Noteholder, or will be responsible to any Noteholder for providing any protections which would be afforded to its clients or for providing advice in relation to any Consent Solicitation or Extraordinary Resolution, and accordingly none of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent, the Agents or any director, officer, employee, agent or affiliate of any such person, makes any recommendation as to whether or not or how Noteholders should participate in the relevant Consent Solicitation(s) or otherwise participate at the relevant Meeting(s).

TAX CONSEQUENCES

In view of the number of different jurisdictions where tax laws may apply to a Noteholder, except for the limited statements in this section, this Consent Solicitation Memorandum does not discuss the tax consequences for Noteholders arising from the Consent Solicitations or the Extraordinary Resolutions and their implementation or the receipt (where applicable) of the Consent Fee. Noteholders are urged to consult their own professional advisers regarding the possible tax consequences of these transactions under the laws of the jurisdictions that apply to them, as well as the possible tax consequences of holding the Notes after they are modified pursuant to the Extraordinary Resolutions (which could differ, potentially materially, from the tax consequences of holding the Notes before they are modified). Except as disclosed in this section, Noteholders are liable for their own taxes and have no recourse to the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any Agent with respect to any taxes arising in connection with any Consent Solicitation and/or the implementation of any Extraordinary Resolution.

Unless the terms and conditions of a double taxation agreement between The Republic of Korea and the resident country of the Noteholder provide otherwise, the Consent Fee will be subject to a withholding tax at the rate of 22%. Doosan Heavy has a duty to withhold tax at such rate on payment of the Consent Fee and remit the withheld amount to the Korea National Tax Service and Doosan Heavy shall make the payment of such additional amounts as will result in receipt by the Noteholder after such withholding of the amount which would have been received by the Noteholder had no such withholding been required. This summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to an investment decision with respect to the Consent Solicitation and is based upon the tax laws of The Republic of Korea in effect on the date of this Consent Solicitation Memorandum

PROCEDURES FOR PARTICIPATING IN THE CONSENT SOLICITATIONS

Noteholders who need assistance with respect to the procedures for participating in the Consent Solicitation should contact the Information and Tabulation Agent, the contact details for which are on the last page of this Consent Solicitation Memorandum.

Summary of action to be taken

Noteholders may only participate in the Consent Solicitations in accordance with the procedures set out in this section "*Procedures for Participating in the Consent Solicitations*".

Noteholders are advised to check with any bank, securities broker or other intermediary through which they hold their Notes when such intermediary would need to receive instructions from a Noteholder in order for such Noteholder to participate in, or (in the limited circumstances in which revocation is permitted) to validly revoke their instruction to participate in, the relevant Consent Solicitation(s) by the deadlines specified in this Consent Solicitation Memorandum. ***The deadlines set by any such intermediary and each Clearing System for the submission and (where permitted) revocation of Consent Instructions will be earlier than the relevant deadlines in this Consent Solicitation Memorandum.***

Consent Instructions

Where a Noteholder wishes to vote, by way of a Consent Instruction, in respect of the relevant Extraordinary Resolution at the Meeting in respect of the relevant Series, the Noteholder must deliver, or arrange to have delivered on its behalf, through the relevant Clearing System and in accordance with the requirements of such Clearing System, a valid Consent Instruction that is received by the Information and Tabulation Agent by the Voting Deadline.

To be eligible for the Consent Fee, which will be payable in the circumstances described in "*Consent Solicitations – Consent Fee*", a Noteholder must deliver, or arrange to have delivered on its behalf, through the relevant Clearing System and in accordance with the requirements of such Clearing System, a valid Consent Instruction in favour of the relevant Extraordinary Resolution that is received by the Information and Tabulation Agent (and not validly revoked, in the limited circumstances in which such revocation is permitted) by the Consent Fee Deadline.

Only Direct Participants may submit Consent Instructions. Each Noteholder that is not a Direct Participant must arrange for the Direct Participant through which such Noteholder holds its Notes to submit a Consent Instruction on its behalf to the relevant Clearing System before the deadlines specified by the relevant Clearing System.

Attending or being represented and voting at a Meeting other than pursuant to Consent Instructions

Noteholders who hold their Notes through Euroclear or Clearstream, Luxembourg and who do not wish to participate in the relevant Consent Solicitation and be eligible to receive the Consent Fee can appoint a proxy (other than a representative of the Information and Tabulation Agent) or make other arrangements to attend or be represented and vote at the relevant Meeting by following the procedures outlined in the Notice.

Consent Instructions

Notes held through Euroclear/Clearstream

The submission of Euroclear/Clearstream Instructions will be deemed to have occurred upon receipt by the Information and Tabulation Agent from Euroclear/Clearstream of a valid Euroclear/Clearstream Instruction submitted in accordance with the requirements of Euroclear/Clearstream. Each Euroclear/Clearstream Instruction must specify, among other things, the aggregate principal amount of the Notes of the relevant Series which are subject to the Euroclear/Clearstream Instruction, the securities account number at Euroclear/Clearstream in which the relevant Notes are held and whether the Noteholder wishes to instruct the Paying Agent to appoint one or more representatives of the Information and Tabulation Agent to attend the relevant Meeting (or any relevant adjourned Meeting only) and vote in favour of or against the relevant Extraordinary Resolution. A separate instruction must be completed on behalf of each Noteholder wishing to attend the Meeting in person or appoint one or more representatives (other than the Information and Tabulation Agent) as its proxy to attend and vote at the Meeting on its behalf, in which case no Consent Fee will be payable to such Noteholders. Each such Euroclear/Clearstream Instruction should also provide the name, email address and passport number of the relevant attendee(s). By submitting such instruction, a Noteholder is deemed to consent to such information being provided to the Paying Agent for creation of the relevant Voting Certificate. The receipt of such Euroclear/Clearstream Instruction by Euroclear/Clearstream will be acknowledged in accordance with the standard practices of Euroclear/Clearstream and will result in the blocking of the relevant Notes in the relevant Noteholder's account with Euroclear/Clearstream so that no transfers may be effected in relation to such Notes.

Noteholders must take the appropriate steps through Euroclear/Clearstream so that no transfers may be effected in relation to such blocked Notes at any time after the date of submission of such Euroclear/Clearstream Instruction, in accordance with the requirements of Euroclear/Clearstream and the deadlines required by Euroclear/Clearstream. By blocking such Notes in Euroclear/Clearstream, each Euroclear/Clearstream Participant will be deemed to consent to have Euroclear/Clearstream provide details concerning such Euroclear/Clearstream Participant's identity to the Information and Tabulation Agent (and for the Information and Tabulation Agent to provide such details to the Issuer, the Guarantor, the Solicitation Agents and their respective legal advisers).

It is a term of the Consent Solicitation that each Consent Instruction is irrevocable except in the limited circumstances described in "*Amendment and Termination*". In the limited circumstances in which revocation is permitted, Euroclear/Clearstream Instructions may be revoked by a Noteholder, or the relevant Euroclear/Clearstream Participant on its behalf, by submitting a valid electronic revocation instruction to Euroclear/Clearstream. To be valid, such instruction must specify the Notes to which the original Euroclear/Clearstream Instruction related, the securities account to which such Notes are credited and any other information required by Euroclear/Clearstream.

Agreements, acknowledgements, representations, warranties and undertakings

By submitting a Consent Instruction to the relevant Clearing System in accordance with the procedures of such Clearing System, a Noteholder and any Direct Participant submitting such Consent Instruction on such Noteholder’s behalf shall be deemed to agree, and acknowledge, represent, warrant and undertake, to the Issuer, Doosan Heavy, the Guarantor, the Information and Tabulation Agent and the Solicitation Agents the following at (i) the time of submission of such Consent Instruction, (ii) the Consent Fee Deadline (if applicable), (iii) the Voting Deadline (iv) the time of the relevant Meeting (v) the Payment Date and (vi) the Amendment Effective Date (and if a Noteholder or Direct Participant is unable to make any such agreement or acknowledgement or give any such representation, warranty or undertaking, such Noteholder or Direct Participant should contact the Information and Tabulation Agent immediately):

(a) it has received this Consent Solicitation Memorandum, and has reviewed, agrees to be bound by and accepts the terms, conditions and other considerations of the relevant Consent Solicitation, all as described in this Consent Solicitation Memorandum;

(b) in the case of Euroclear/Clearstream Instructions, by blocking the relevant Notes in its account at Euroclear/Clearstream, it will be deemed to consent, in the case of a Euroclear/Clearstream Participant, to have Euroclear/Clearstream provide details concerning its identity to the Information and Tabulation Agent (and for the Information and Tabulation Agent to provide such details to the Issuer, the Solicitation Agents and their respective legal advisers);

(c) all authority conferred or agreed to be conferred pursuant to its acknowledgements, agreements, representations, warranties and undertakings, and all of its obligations, shall be binding upon its successors, assigns, heirs, executors, trustees in bankruptcy and legal representatives, and shall not be affected by, and shall survive, its death or incapacity;

(d) none of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents and the Information and Tabulation Agent has given it any information with respect to any Consent Solicitation or Extraordinary Resolution save as expressly set out in this Consent Solicitation Memorandum and the Notice nor has any of them expressed any opinion about the terms of any Consent Solicitation or Extraordinary Resolution or made any recommendation to it as to whether it should participate in the relevant Consent Solicitation(s) or otherwise participate at the relevant Meeting(s) and it has made its own decision with regard to participating in the relevant Consent Solicitation(s) based on financial, tax or legal advice it has deemed necessary to seek;

(e) no information has been provided to it by the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents or the Information and Tabulation Agent, or any of their respective directors or employees, with regard to the tax consequences for Noteholders arising from the participation in any Consent Solicitation, the implementation of any Extraordinary Resolution or the receipt by it of the Consent Fee (if applicable), and it acknowledges that, except as disclosed in "*Tax Consequences*", it is solely liable for any taxes and similar or related payments imposed on it under the laws of any applicable jurisdiction as a result of its participation in any Consent Solicitation, and agrees that it will not and does not have any right of recourse (whether by way of reimbursement, indemnity or otherwise) against the Issuer, the Guarantor, the Solicitation Agents or the Information and Tabulation Agent, or either of their respective directors or employees, or any other person in respect of such taxes and payments;

(f) it has observed the laws of all relevant jurisdictions, obtained all requisite governmental, exchange control or other required consents, complied with all requisite formalities and paid any issue, transfer or other taxes or requisite payments due from it in each respect in connection with any vote in relation to the relevant Extraordinary Resolution, in any jurisdiction and that it has not taken or omitted to take any action in breach of the representations or which will or may result in the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any other person acting in breach of the legal or regulatory requirements of any such jurisdiction in connection with any votes in relation to the relevant Extraordinary Resolution;

(g) it agrees to ratify and confirm each and every act or thing that may be done or effected by the Issuer, Doosan Heavy, the Guarantor, the Information and Tabulation Agent, the Solicitation Agents, the Agents or any of their respective directors, officers, employees, agents, representatives or affiliates or any person nominated by the Issuer in the proper exercise of his or her powers and/or authority hereunder;

(h) it agrees to do all such acts and things as shall be necessary and execute any additional documents deemed by the Issuer, Doosan Heavy, the Guarantor, the Agents, the Information and Tabulation Agent and the Solicitation Agents to be desirable, in each case to perfect any of the authorities expressed to be given hereunder;

(i) it will, upon request, execute and deliver any additional documents and/or do such other things deemed by the Issuer, Doosan Heavy, the Guarantor, the Agents, the Information and Tabulation Agent and the Solicitation Agents to be necessary or desirable to effect delivery of the consents related to such Notes or to evidence such power and authority;

(j) the Notes, and the guarantees thereof, have not been and will not be registered under the Securities Act, or the securities laws of any state or other jurisdiction of the United States, and may not be offered or sold in the United States or to, or for the account or benefit of, U.S. persons, unless an exemption from the registration requirements of the Securities Act is available (terms used in this and the following paragraph that are, unless otherwise specified, defined in Regulation S are used as defined in Regulation S);

(k) (in the case of a Consent Instruction) it is not a U.S. person (as defined in Regulation S under the Securities Act), and is not acting for the account or benefit of any U.S. person, and it is not located in the United States or (in the case of an Ineligible Holder Instruction (as defined in the Notice)) it is an Ineligible Holder;

(l) it is not a Sanctions Restricted Person. The representation set out in this paragraph (l) shall not apply to the extent that it would result in a violation of (i) any provision of Council Regulation (EC) No 2271/96 of 22 November 1996 (or any law or regulation implementing such Regulation in any member state of the European Union or (ii) Council Regulation (EC) No 2271/96 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018;

(m) it is otherwise a person to whom the Consent Solicitation can be lawfully made and that may lawfully participate in the Consent Solicitation;

(n) in the case of Euroclear/Clearstream Instructions, it holds and will hold, until the earlier of (i) the date on which its Euroclear/Clearstream Instruction is validly revoked, in the limited circumstances in which such revocation is permitted (including the automatic revocation of such Euroclear/Clearstream Instruction on the termination of the relevant Consent Solicitation), in accordance with the terms of the relevant Consent Solicitation and (ii) a date not later than one Business Day following the Meeting (or, if applicable, following the relevant adjourned Meeting), the relevant Notes blocked in Euroclear/Clearstream and, in accordance with the requirements of, and by the deadline required by, Euroclear/Clearstream, it has submitted, or has caused to be submitted, a Euroclear/Clearstream Instruction to Euroclear/Clearstream to authorise the blocking of such Notes with effect on and from the date of such submission so that no transfers of such Notes may be effected until the occurrence of any of the events listed in (i) or (ii) above; and

(o) it agrees, and acknowledges, represents, warrants and undertakes, that, in the event the relevant Extraordinary Resolution is passed and beginning at the time that the Proposed Amendments and Waivers to the Notes of such Series become effective, until the expiry of the period of 40 days after the date on which the Proposed Amendments and Waivers to the relevant Series of Notes become effective, sales may not be made in the United States or to U.S. persons unless made outside the United States pursuant to Rule 903 and 904 of Regulation S.

General

Separate instructions for attending the Meeting

A separate instruction must be completed on behalf of each beneficial owner of the Notes wishing to attend the Meeting in person or appoint one or more representatives (other than the Information and Tabulation Agent) as its proxy to attend and vote at the Meeting on its behalf, in which case no Consent Fee will be payable to such Noteholders. Each such instruction should also provide the name, email address and passport number of the relevant attendee(s). By submitting such instruction, a Noteholder is deemed to consent to such information being provided to the Paying Agent for creation of the relevant Voting Certificate.

Denominations of Consent Instructions

Consent Instructions may only be submitted in the Specified Denominations of the Notes, being in respect of both Series, USD 200,000 and integral multiples of USD 1,000 in excess thereof.

Consent Instructions other than in accordance with the procedures set out in this section will not be accepted

Noteholders may only participate in the Consent Solicitations by way of the submission of valid Consent Instructions in accordance with the procedures set out in this section "*Procedures for Participating in the Consent Solicitations*". Noteholders should not send Consent Instructions to the Issuer, the Guarantor or the Solicitation Agent.

A Noteholder should not make any direct arrangements with or give any form of instructions directly to the relevant Paying Agent in connection with any Consent Solicitation and/or any Meeting unless the relevant Noteholder wishes to attend or be represented at the relevant Meeting other than pursuant to Consent Instructions.

Irrevocability

The submission, in accordance with the procedures set out in this section "*Procedures for Participating in the Consent Solicitations*", of a Consent Instruction will be irrevocable (except in the limited circumstances described in "*Amendment and Termination*").

In the limited circumstances in which their revocation is permitted, Consent Instructions may be revoked by, or on behalf of, the relevant Noteholder, by submitting a valid electronic revocation instruction that is received by the Information and Tabulation Agent by the relevant deadline in accordance with the procedures of the relevant Clearing System.

Irregularities

All questions as to the validity, form, eligibility and (in the limited circumstances in which revocation is permitted) valid revocation (including times of receipt) of any Consent Instruction will be determined by the Issuer in its sole discretion, which determination shall be final and binding.

The Issuer reserves the absolute right to reject any and all Consent Instructions or revocation instructions not in proper form or the acceptance of which would, in the opinion of the Issuer and its legal advisers, be unlawful. The Issuer also reserves the absolute right to waive any defects, irregularities or delay in the submission of any or all Consent Instructions or revocation instructions. The Issuer also reserves the absolute right to waive any such defect, irregularity or delay in respect of a particular Consent Instruction whether or not the Issuer elects to waive similar defects, irregularities or any delay in respect of other Notes.

Any defect, irregularity or delay must be cured within such time as the Issuer determines, unless waived by it. Consent Instructions will be deemed not to have been made until such defects, irregularities or delays have been cured or waived. None of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent and the Agents shall be under any duty to give notice to a Noteholder of any defects, irregularities or delays in any Consent Instruction or revocation instruction, nor shall any of them incur any liability for failure to give such notice.

AMENDMENT AND TERMINATION

Amendment and Termination

Notwithstanding any other provision of any Consent Solicitation, the Issuer may, subject to applicable laws and the relevant Meeting Provisions, at its option and in its sole discretion:

(a) extend the Consent Fee Deadline or Voting Deadline in respect of any Consent Solicitation for any purpose, including to permit the satisfaction or, where possible, waiver of the conditions to the relevant Consent Solicitation (in which case all references to the Consent Fee Deadline or Voting Deadline in this Consent Solicitation Memorandum are, in respect of such Consent Solicitation, to the Consent Fee Deadline or Voting Deadline, respectively, for such Consent Solicitation as each may be extended), which the Issuer reserves the right to do whether or not the Consent Fee Deadline or Voting Deadline for any other Consent Solicitation is similarly extended;

(b) if the Consent Conditions, any other conditions to a Consent Solicitation or the Consent Conditions Subsequent are not satisfied or waived, terminate such Consent Solicitation at any time (including with respect to Consent Instructions submitted in respect of such Consent Solicitation before the time of such termination) and not implement the Proposed Amendments and Waivers in respect of the relevant Series pursuant to the Consent Solicitation; and

(c) if the Consent Conditions, any other conditions to a Consent Solicitation or the Consent Conditions Subsequent are not satisfied or waived, otherwise amend or modify at any time the terms of such Consent Solicitation (other than the terms of the relevant Extraordinary Resolution) in any respect (including, but not limited to, any amendment in relation to the Consent Fee or by waiving, where possible, any conditions to completion of such Consent Solicitation).

The Issuer will promptly give oral or written notice (with any oral notice to be promptly confirmed in writing) of any extension, amendment, termination or waiver to the Information and Tabulation Agent, followed by an announcement thereof as promptly as practicable, to the extent required by this Consent Solicitation Memorandum or by law. See "*Further Information and Terms and Conditions - Announcements*".

In the event any Consent Solicitation is terminated, if not already held, the relevant Meeting will still be held and, as specified in the paragraph below, the relevant Extraordinary Resolution will still be considered and voted on at the relevant Meeting. However, notwithstanding the irrevocability of all Consent Instructions, on such termination of a Consent Solicitation, all such Consent Instructions relating to that Consent Solicitation will be deemed to be revoked automatically.

If, following the termination of any Consent Solicitation, the relevant Extraordinary Resolution is subsequently passed at the relevant Meeting (or any adjourned such Meeting), it will nevertheless be ineffective (as implementation of the relevant Extraordinary Resolution is conditional on the relevant Consent Solicitation not having been terminated) and the Issuer will not procure the payment of any Consent Fee in respect of any relevant Notes.

In the event any Consent Solicitation is terminated, all Notes in respect of which Consent Instructions had been submitted prior to the time of such termination will be unblocked promptly in the relevant account in Euroclear or Clearstream, Luxembourg.

Revocation Rights

If the Issuer:

(i) amends any Consent Solicitation (other than the terms of the relevant Extraordinary Resolution, which may not be amended) in any way that, in the opinion of the Issuer (in consultation with the Solicitation Agents), is materially prejudicial to the interests of Noteholders that have already submitted Consent Instructions in respect of the relevant Consent Solicitation before the announcement of such amendment (which announcement shall include a statement that, in the opinion of the Issuer, such amendment is materially prejudicial to such Noteholders), then such Consent Instructions may be revoked at any time from the date and time of such announcement until 4.00 p.m. (London time) on the third Business Day immediately following such announcement (subject to the earlier deadlines required by the Clearing Systems and any intermediary through which Noteholders hold their Notes).

For the avoidance of doubt, any increase in the Consent Fee or (without prejudice to paragraph (ii) below) any extension or re-opening of any Consent Solicitation (or any deadline thereof) in accordance with the terms of the Consent Solicitation as described in this section "*Amendment and Termination*" shall not be considered to be so materially prejudicial; or

(ii) extends the Voting Deadline in respect of any Consent Solicitation, Consent Instructions submitted in respect of such Consent Solicitation before the announcement of such extension may be revoked at any time from the date and time of such announcement until 5.00 p.m. (London time) on the third Business Day immediately following such announcement (subject to the earlier deadlines required by the Clearing Systems and any intermediary through which Noteholders hold their Notes).

Noteholders wishing to exercise any such rights of revocation should do so in accordance with the procedures set out in "*Procedures for Participating in the Consent Solicitations*". Beneficial owners of Notes that are held through an intermediary are advised to check with such entity when it would require to receive instructions to revoke a Consent Instruction in order to meet the above deadlines. For the avoidance of doubt, any Noteholder who does not exercise any such right of revocation in the circumstances and in the manner specified above shall be deemed to have waived such right of revocation and its original Consent Instruction will remain effective.

The exercise of any such right of revocation in respect of a Consent Instruction will be effective for the purposes of revoking the instruction given by the relevant Noteholder for the appointment of one or more representatives of the Information and Tabulation Agent by the Paying Agent as the relevant Noteholder's proxy to vote at the relevant Meeting on such Noteholder's behalf only if a valid revocation instruction is received by the Information and Tabulation Agent no later than the Voting Deadline or (if applicable) 48 hours before any adjourned Meeting.

SOLICITATION AGENTS AND INFORMATION AND TABULATION AGENT

Solicitation Agents

HSBC, The Korea Development Bank and Standard Chartered Bank are acting as Solicitation Agents for the Consent Solicitations. The Solicitation Agents, the Issuer, the Guarantor and Doosan Heavy have entered into a Solicitation Agency Agreement, which contains certain provisions regarding the payment of fees, reimbursement of expenses and indemnity arrangements. The Solicitation Agents and their respective affiliates have provided and may continue to provide certain commercial and investment banking services to the Issuer, the Guarantor and/or Doosan Heavy for which they have received and will receive compensation that is customary for services of such nature.

The Solicitation Agents may (i) submit Consent Instructions for their own account and (ii) submit Consent Instructions or attend and vote at the relevant Meeting(s) in person or make other arrangements to be represented or to vote at the relevant Meeting(s) on behalf of other Noteholders.

Information and Tabulation Agent

The Issuer has retained Morrow Sodali Limited to act as Information and Tabulation Agent for the Consent Solicitations relating to the Notes. The Information and Tabulation Agent will assist Noteholders that require assistance in connection with the Consent Solicitations. The Issuer has agreed to pay the Information and Tabulation Agent a customary fee for its services in connection with the Consent Solicitations, and has also agreed to reimburse the Information and Tabulation Agent for certain expenses relating to the Consent Solicitations.

The Information and Tabulation Agent is the agent of the Issuer and owes no duty to any Noteholder.

General

The Solicitation Agents and the Information and Tabulation Agent, and their respective affiliates, may contact Noteholders regarding the Consent Solicitation and may request brokerage houses, custodians, nominees, fiduciaries and others to forward this Consent Solicitation Memorandum, the Notice and related materials to beneficial owners of the Notes.

None of the Solicitation Agents, the Information and Tabulation Agent or any of their respective directors, employees and affiliates assumes any responsibility for the accuracy or completeness of the information concerning the Consent Solicitations, the Extraordinary Resolutions, the Issuer, the Guarantor or the Notes in this Consent Solicitation Memorandum or for any failure by the Issuer to disclose events that may have occurred and may affect the significance or accuracy of such information and the terms of any amendment to any Consent Solicitation.

None of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any director, officer, employee, agent or affiliate of any such person is acting for any Noteholder, or will be responsible to any Noteholder for providing any protections which would be afforded to its clients or for providing advice in relation to any Consent Solicitation or any Extraordinary Resolution, and accordingly none of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any director, officer, employee, agent or affiliate of any such person, makes any recommendation whether Noteholders should participate in the relevant Consent Solicitation(s) or otherwise participate at the relevant Meeting(s).

The Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent and the Agents are entitled to have or hold positions in the Notes either for their own account or for the account, directly or indirectly, of third parties and, subject to applicable law, may make or continue to make a market in, or subject to the provisions of the relevant Agency Agreement, vote in respect of, or act as principal in any transactions in, or relating to, or otherwise act in relation to, the Notes and may or may not, subject to the provisions of the relevant Agency Agreement, submit or deliver valid Consent Instructions or Ineligible Holder Instructions in respect of the Notes. The Solicitation Agents, the Information and Tabulation Agent and the Agents are entitled to continue to hold or dispose of, in any manner it may elect, the Notes that it may hold as at the date of this Consent Solicitation Memorandum or, from such date, to acquire further Notes, subject to applicable law and may or may not, subject to the provisions of the relevant Agency Agreement, submit or deliver valid Consent Instructions or Ineligible Holder Instructions in respect of such Notes for its own account or for the account of third parties. For the avoidance of doubt, any Notes held by any person (including but not limited to the Issuer, the Guarantor or any of their respective subsidiaries) for the benefit of the Issuer, the Guarantor or any of their respective subsidiaries shall be deemed not to be outstanding. No such submission or non submission by the Solicitation Agents, the Information and Tabulation Agent or the Agents should be taken by any holder of Notes or any other person as any recommendation or otherwise by any of the Issuer, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent and the Agents, as the case may be, as to the merits of participating or not participating in the Consent Solicitation.

ANNEX I

FORM OF NOTICE OF MEETINGS

THIS NOTICE IS IMPORTANT AND REQUIRES THE IMMEDIATE ATTENTION OF NOTEHOLDERS. IF NOTEHOLDERS ARE IN ANY DOUBT AS TO THE ACTION THEY SHOULD TAKE, THEY SHOULD SEEK THEIR OWN FINANCIAL AND LEGAL ADVICE, INCLUDING IN RESPECT OF ANY TAX CONSEQUENCES, IMMEDIATELY FROM THEIR BROKER, BANK MANAGER, SOLICITOR, ACCOUNTANT OR OTHER INDEPENDENT FINANCIAL, TAX OR LEGAL ADVISER.

FURTHER INFORMATION REGARDING THE MATTERS REFERRED TO IN THIS ANNOUNCEMENT IS AVAILABLE IN THE CONSENT SOLICITATION MEMORANDUM (AS DEFINED BELOW) ISSUED BY THE ISSUER TODAY, AND ELIGIBLE NOTEHOLDERS (AS DEFINED BELOW) ARE ENCOURAGED TO READ THIS ANNOUNCEMENT IN CONJUNCTION WITH THE SAME.

DOOSAN

Doosan Infracore Co., Ltd.

(*a corporation with limited liability incorporated under the laws of the Republic of Korea*)

(the **Issuer**)

NOTICE OF SEPARATE MEETINGS

of the holders of its outstanding

	ISIN / Common Code	Outstanding principal amount
USD 300,000,000 2.25% Guaranteed Senior Unsecured Notes due 2022 (the 2022 Notes**) unconditionally and irrevocably guaranteed by the Korea Development Bank**	XS2078374159 / 207837415	USD 300,000,000
USD 300,000,000 1.000% Guaranteed Senior Unsecured Notes due 2023 (the 2023 Notes**) unconditionally and irrevocably guaranteed by the Korea Development Bank**	XS2201951477 / 220195147	USD 300,000,000

(each a **Series** and together the **Notes**)

NOTICE IS HEREBY GIVEN that separate meetings (each a **Meeting** and together the **Meetings**) of the holders of each Series (the **Noteholders**) convened by the Issuer will be held at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong on 15 April 2021 for the purpose of considering and, if thought fit, passing the applicable resolution set out below, which will be proposed as an Extraordinary Resolution at the relevant Meeting in accordance with the provisions of (i) in respect of the 2022 Notes, the agency agreement dated 18 November 2019, as amended, restated, modified and/or supplemented from time to time made among the Issuer, The Korea Development Bank as Guarantor, The Bank of New York Mellon, London Branch as Fiscal Agent and Paying Agent and The Bank of New York Mellon SA/NV, Luxembourg Branch as Registrar and Transfer Agent (the **2022 Agency Agreement**), and (ii) in respect of the 2023 Notes, the agency agreement dated 21 July 2020 made among the Issuer, The Korea Development Bank as Guarantor, Citicorp International Limited as Fiscal Agent and Citibank, N.A., London Branch as Paying Agent, Registrar and Transfer Agent (the **2023 Agency Agreement**, and together with the 2022 Agency Agreement, the **Agency Agreements**).

In light of the ongoing developments in relation to Coronavirus (Covid-19), it may become impossible or inadvisable to hold the Meeting at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong. To the extent that the Issuer determines that it will not be possible to hold the Meetings at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong, the Issuer reserves the right to hold any Meeting by conference call or other electronic means (a Virtual Meeting).

In the event that the Issuer determines that a Virtual Meeting is required, the Issuer shall procure that those Noteholders who have indicated that they wish to attend the relevant Meeting in person will be provided with further details about attending the relevant Meeting. By electing to attend any Virtual Meeting, each such Noteholder shall be deemed to have fully understood and consented to any process governing the Virtual Meeting. Noteholders who have instructed the relevant Paying Agent to appoint one or more representatives of the Information and Tabulation Agent as their proxy in respect of the Notes in relation to the relevant Meeting in a Consent Instruction will be unaffected if the relevant Meeting is held as a Virtual Meeting and will not be requested to take any further action.

The Meeting in respect of the 2022 Notes will commence at 9.00 a.m. (London time) / 4.00 p.m. (Hong Kong time) / 5.00 p.m. (Seoul time) on 15 April 2021. The Meeting in respect of the 2023 Notes will commence at 9.30 a.m. (London time) / 4.30 p.m. (Hong Kong time) / 5.30 p.m. (Seoul time) on 15 April 2021.

Unless the context otherwise requires, capitalised terms used but not defined in this Notice shall have the meaning given in the relevant Agency Agreement or the relevant Extraordinary Resolution, as applicable.

EXTRAORDINARY RESOLUTION
IN RESPECT OF THE USD 300,000,000 2.25% GUARANTEED SENIOR UNSECURED NOTES DUE 2022 UNCONDITIONALLY AND IRREVOCABLY GUARANTEED BY THE KOREA DEVELOPMENT BANK

"THAT this Meeting of the holders (together, the **2022 Noteholders**) of the presently outstanding USD 300,000,000 2.25% Guaranteed Senior Unsecured Notes due 2022 (the **2022 Notes**) of Doosan Infracore Co., Ltd. (the **Issuer**) unconditionally and irrevocably guaranteed by the Korea Development Bank issued pursuant to the 2022 Notes Agency Agreement:

1. (subject to paragraph 4 of this Extraordinary Resolution) assents to:

   (a) the substitution of Doosan Heavy Industries & Construction Co., Ltd. (**Doosan Heavy**) in place of the Issuer as principal debtor in respect of the 2022 Notes and the release of the Issuer from all obligations and liabilities under the 2022 Notes; and

   (b) the irrevocable waiver and authorisation of any breach or alleged breach whatsoever of any obligation under or in respect of the 2022 Notes, the 2022 Conditions, the 2022 Notes Deed of Guarantee or the 2022 Notes Agency Agreement which may be breached or may be capable of being breached by the threat of, in anticipation of, in connection with, or as a result of the amendment referred to in sub-paragraph (a) of this paragraph 1 of this Extraordinary Resolution, and the irrevocable waiver of the right of the Noteholders, in connection with the spin off of the Issuer's non-operating business which will be merged with and into Doosan Heavy, to file objections under the creditor protection procedures set forth in the Korean Commercial Code (the **Proposed Waivers**);

2. (subject to paragraphs 4 and 5 of this Extraordinary Resolution) authorises, directs, requests and empowers:

   (a) the Issuer, Doosan Heavy, the Guarantor and the Agents to execute a supplemental Agency Agreement, in each case to effect the modifications referred to in paragraph 1 of this Extraordinary Resolution, in the form or substantially in the form of the drafts produced to this Meeting; and

   (b) the Issuer, the Guarantor and the Agents to execute and to do all such other deeds, instruments, acts and things as may be necessary, desirable or expedient in its sole opinion to carry out and to give effect to this Extraordinary Resolution and the implementation of the modifications referred to in paragraph 1 of this Extraordinary Resolution;

3. (subject to paragraph 4 of this Extraordinary Resolution) sanctions and assents to every abrogation, modification,

compromise or arrangement in respect of the rights of the 2022 Noteholders appertaining to the 2022 Notes against the Issuer or the Guarantor, whether or not such rights arise under the terms and conditions of the 2022 Notes (the **2022 Conditions**), involved in, resulting from or to be effected by the amendments referred to in paragraph 1 of this Extraordinary Resolution and their implementation;

4. declares that the effectiveness of this Extraordinary Resolution shall be conditional on:

   (a) the passing of this Extraordinary Resolution; and

   (b) the quorum required for, and the requisite majority of votes cast at, the Meeting being satisfied by Eligible 2022 Noteholders, irrespective of any participation at the Meeting by Ineligible 2022 Noteholders and that, in the event the Extraordinary Resolution is passed at the Meeting but this condition is not satisfied, the chairman of the Meeting is hereby authorised, directed, requested and empowered to adjourn this Meeting on the same basis (including quorum) as for an adjournment of the Meeting where the necessary quorum is not obtained for such period being not less than 14 clear days nor more than 42 clear days and at a place appointed by the chairman and approved by the Agent, for the purpose of reconsidering resolutions 1 to 5 of this Extraordinary Resolution at the adjourned Meeting, in which case this condition will be satisfied if the quorum required for, and the requisite majority of votes cast at, the adjourned Meeting are satisfied by Eligible 2022 Noteholders irrespective of any participation at the adjourned Meeting by Ineligible 2022 Noteholders,

   (together, the **Consent Conditions**);

5. further declares that the implementation of this Extraordinary Resolution and the effectiveness of the Proposed Amendments and Waivers shall be conditional on:

   (a) the satisfaction of the Consent Conditions for this Extraordinary Resolution;
   (b) unless otherwise waived by the Issuer, the satisfaction of the Consent Conditions for the Extraordinary Resolution in respect of the 2023 Notes;
   (c) the approval of the Merger by the Korea Fair Trade Commission;
   (d) the approval of the Merger by the shareholders of the Issuer and Doosan Heavy at the shareholders' meetings currently scheduled for 13 May 2021, followed by the obligatory one-month period for creditors of the Issuer and Doosan Heavy to file objections under the creditor protection procedures set forth in the Korean Commercial Code;
   (e) the election by the Issuer, in its sole discretion, to make the Proposed Amendments and Waivers effective;
   (f) the effectiveness of the Merger; and
   (g) the payment of the Consent Fee and the Ineligible Holder Payment, in each case, in accordance with, and in the circumstances set out in, the Notice or, as the case may be, the Consent Solicitation Memorandum on or prior to the Amendment Effective Date; and

6. acknowledges that the following terms, as used in this Extraordinary Resolution, shall have the meanings given below:

   2022 Notes Agency Agreement means in respect of the 2022 Notes, the agency agreement dated November 18, 2019 among the Issuer, The Korea Development Bank as Guarantor, The Bank of New York Mellon, London Branch as Fiscal Agent and Paying Agent (the **Agent**) and The Bank of New York Mellon SA/NV, Luxembourg Branch as Registrar and Transfer Agent, as amended, restated, modified and/or supplemented from time to time;

   2022 Notes Deed of Guarantee means the deed of guarantee given on November 18, 2019 by the Korea Development Bank as the Guarantor;

   2023 Notes means the USD 300,000,000 1.000% guaranteed senior unsecured notes due 2023 of the Issuer unconditionally and irrevocably guaranteed by the Korea Development Bank;

   Amendment Effective Date means the date the deed of confirmation and the supplemental agency agreement giving effect to the Proposed Amendments are entered into and the Proposed Amendments and Waivers become effective;

Consent Fee has the meaning given to it in the Consent Solicitation Memorandum;

Consent Solicitation means the invitation by the Issuer to all Eligible 2022 Noteholders as described in the Consent Solicitation Memorandum and as the same may be amended in accordance with its terms;

Consent Solicitation Memorandum means the consent solicitation memorandum dated 22 March 2021 prepared by the Issuer in relation to the Consent Solicitation;

Eligible 2022 Noteholder means each 2022 Noteholder who is (a) outside the United States and not a U.S. person (as defined in Regulation S under the Securities Act) and (b) otherwise a person to whom the Consent Solicitation can be lawfully made and that may lawfully participate in the Consent Solicitation;

Ineligible 2022 Noteholder means each 2022 Noteholder who is not a person to whom the Consent Solicitation is being made, on the basis that such 2022 Noteholder is either (i) a U.S. person and/or located in the United States and/or (ii) a person to whom the Consent Solicitation cannot otherwise be lawfully made;

Ineligible Holder Payment has the meaning given to it in the Notice;

Notice means the notice convening this Meting dated 22 March 2021 and prepared by the Issuer in relation to the Consent Solicitation;

Proposed Amendments means the substitution of Doosan Heavy in place of the Issuer as principal debtor in respect of the 2022 Notes together with the other amendments as set out in this Extraordinary Resolutions;

Proposed Amendments and Waivers means the Proposed Amendments and the Proposed Waivers; and

Securities Act means the U.S. Securities Act of 1933, as amended."

EXTRAORDINARY RESOLUTION
IN RESPECT OF THE USD 300,000,000 1.000% GUARANTEED SENIOR UNSECURED NOTES DUE 2023 UNCONDITIONALLY AND IRREVOCABLY GUARANTEED BY THE KOREA DEVELOPMENT BANK

"THAT this Meeting of the holders (together, the **2023 Noteholders**) of the presently outstanding USD 300,000,000 1.000% Guaranteed Senior Unsecured Notes due 2023 (the **2023 Notes**) of Doosan Infracore Co., Ltd. (the **Issuer**) unconditionally and irrevocably guaranteed by the Korea Development Bank issued pursuant to the 2023 Notes Agency Agreement:

1. (subject to paragraph 4 of this Extraordinary Resolution) assents to:

   (a) the substitution of Doosan Heavy Industries & Construction Co., Ltd. (**Doosan Heavy**) in place of the Issuer as principal debtor in respect of the 2023 Notes and the release of the Issuer from all obligations and liabilities under the 2023 Notes; and

   (b) the irrevocable waiver and authorisation of any breach or alleged breach whatsoever of any obligation under or in respect of the 2023 Notes, the 2023 Conditions, the 2023 Notes Deed of Guarantee or the 2023 Notes Agency Agreement which may be breached or may be capable of being breached by the threat of, in anticipation of, in connection with, or as a result of the amendment referred to in sub-paragraph (a) of this paragraph 1 of this Extraordinary Resolution, and the irrevocable waiver of the right of the Noteholders, in connection with the spin off of the Issuer’s non-operating business which will be merged with and into Doosan Heavy, to file objections under the creditor protection procedures set forth in the Korean Commercial Code (the **Proposed Waivers**);

2. (subject to paragraphs 4 and 5 of this Extraordinary Resolution) authorises, directs, requests and empowers:

   (a) the Issuer, Doosan Heavy, the Guarantor and the Agents to execute a supplemental Agency Agreement, in each case to effect the modifications referred to in paragraph 1 of this Extraordinary Resolution, in the form or substantially in the form of the drafts produced to this Meeting; and

(b) the Issuer, the Guarantor and the Agents to execute and to do all such other deeds, instruments, acts and things as may be necessary, desirable or expedient in its sole opinion to carry out and to give effect to this Extraordinary Resolution and the implementation of the modifications referred to in paragraph 1 of this Extraordinary Resolution;

3. (subject to paragraph 4 of this Extraordinary Resolution) sanctions and assents to every abrogation, modification, compromise or arrangement in respect of the rights of the 2023 Noteholders appertaining to the 2023 Notes against the Issuer or the Guarantor, whether or not such rights arise under the terms and conditions of the 2023 Notes (the **2023 Conditions**), involved in, resulting from or to be effected by the amendments referred to in paragraph 1 of this Extraordinary Resolution and their implementation;

4. declares that the effectiveness of this Extraordinary Resolution shall be conditional on:

   (a) the passing of this Extraordinary Resolution; and

   (b) the quorum required for, and the requisite majority of votes cast at, the Meeting being satisfied by Eligible 2023 Noteholders, irrespective of any participation at the Meeting by Ineligible 2023 Noteholders and that, in the event the Extraordinary Resolution is passed at the Meeting but this condition is not satisfied, the chairman of the Meeting is hereby authorised, directed, requested and empowered to adjourn this Meeting on the same basis (including quorum) as for an adjournment of the Meeting where the necessary quorum is not obtained for such period being not less than 14 clear days nor more than 42 clear days and at a place appointed by the chairman and approved by the Agent, for the purpose of reconsidering resolutions 1 to 5 of this Extraordinary Resolution at the adjourned Meeting, in which case this condition will be satisfied if the quorum required for, and the requisite majority of votes cast at, the adjourned Meeting are satisfied by Eligible 2023 Noteholders irrespective of any participation at the adjourned Meeting by Ineligible 2023 Noteholders,

   (together, the **Consent Conditions**);

5. further declares that the implementation of this Extraordinary Resolution and the effectiveness of the Proposed Amendments and Waivers shall be conditional on:

   (a) the satisfaction of the Consent Conditions for this Extraordinary Resolution;
   (b) unless otherwise waived by the Issuer, the satisfaction of the Consent Conditions for the Extraordinary Resolution in respect of the 2022 Notes;
   (c) the approval of the Merger by the Korea Fair Trade Commission;
   (d) the approval of the Merger by the shareholders of the Issuer and Doosan Heavy at the shareholders' meetings currently scheduled for 13 May 2021, followed by the obligatory one-month period for creditors of the Issuer and Doosan Heavy to file objections under the creditor protection procedures set forth in the Korean Commercial Code;
   (e) the election by the Issuer, in its sole discretion, to make the Proposed Amendments and Waivers effective;
   (f) the effectiveness of the Merger; and
   (g) the payment of the Consent Fee and the Ineligible Holder Payment, in each case, in accordance with, and in the circumstances set out in, the Notice or, as the case may be, the Consent Solicitation Memorandum on or prior to the Amendment Effective Date; and

6. acknowledges that the following terms, as used in this Extraordinary Resolution, shall have the meanings given below:

   2022 Notes means the USD 300,000,000 2.25% guaranteed senior unsecured notes due 2022 of the Issuer unconditionally and irrevocably guaranteed by the Korea Development Bank;

   2023 Notes Agency Agreement means in respect of the 2023 Notes, the agency agreement dated July 21, 2020 made among the Issuer, The Korea Development Bank as Guarantor, Citicorp International Limited as Fiscal Agent (the **Agent**) and Citibank N.A. London Branch as Paying Agent, Registrar and Transfer Agent, as amended, restated, modified and/or supplemented from time to time;

2023 Notes Deed of Guarantee means the deed of guarantee given on July 21, 2020 by the Korea Development Bank as the Guarantor;

Amendment Effective Date means the date the deed of confirmation and the supplemental agency agreement giving effect to the Proposed Amendments are entered into and the Proposed Amendments and Waivers become effective;

Consent Fee has the meaning given to it in the Consent Solicitation Memorandum;

Consent Solicitation means the invitation by the Issuer to all Eligible 2023 Noteholders as described in the Consent Solicitation Memorandum and as the same may be amended in accordance with its terms;

Consent Solicitation Memorandum means the consent solicitation memorandum dated 22 March 2021 prepared by the Issuer in relation to the Consent Solicitation;

Eligible 2023 Noteholder means each 2023 Noteholder who is (a) outside the United States and not a U.S. person (as defined in Regulation S under the Securities Act) and (b) otherwise a person to whom the Consent Solicitation can be lawfully made and that may lawfully participate in the Consent Solicitation;

Ineligible 2023 Noteholder means each 2023 Noteholder who is not a person to whom the Consent Solicitation is being made, on the basis that such 2023 Noteholder is either (i) a U.S. person and/or located in the United States and/or (ii) a person to whom the Consent Solicitation cannot otherwise be lawfully made;

Ineligible Holder Payment has the meaning given to it in the Notice;

Notice means the notice convening this Meting dated 22 March 2021 and prepared by the Issuer in relation to the Consent Solicitation;

Proposed Amendments means the substitution of Doosan Heavy in place of the Issuer as principal debtor in respect of the 2023 Notes together with the other amendments as set out in this Extraordinary Resolutions;

Proposed Amendments and Waivers means the Proposed Amendments and the Proposed Waivers; and

Securities Act means the U.S. Securities Act of 1933, as amended."

BACKGROUND

The Issuer has convened the Meetings for the purpose of enabling the holders of the Notes of each Series to consider and resolve, if they think fit, to pass the Extraordinary Resolution proposed in relation to the Notes of the relevant Series.

The Issuer intends to spin off its non-operating business, including its assets, liabilities and contractual relationships, which will be merged with and into Doosan Heavy, the controlling shareholder of the Issuer, pursuant to a split and merger agreement dated on 19 March 2021 (the **Merger**). The Issuer is therefore requesting that the Noteholders approve the Proposed Amendments and Waivers as part of the Merger.

CONSENT SOLICITATIONS

Noteholders are further given notice that the Issuer has invited eligible holders of the Notes of each Series (each such invitation a **Consent Solicitation**) to consent to the approval, by Extraordinary Resolution at the relevant Meeting, of the substitution of the Issuer of the Notes relating to the relevant Series as described in paragraph 1 of the relevant Extraordinary Resolution as set out above, all as further described in the Consent Solicitation Memorandum (as defined in paragraph 6 of the relevant Extraordinary Resolutions set out above).

The Consent Solicitations are only being made, and the Consent Solicitation Memorandum and any other documents or materials relating to the Consent Solicitations are only for distribution or to be made available outside the United States, to persons other than "U.S. persons" (as defined in Regulation S under the Securities Act) (all such persons **Eligible Noteholders**).

Subject to the restrictions described in the previous paragraph, Eligible Noteholders may obtain, from the date of this Notice, a copy of the Consent Solicitation Memorandum from the Information and Tabulation Agent, the contact details for which are set out below. In order to receive a copy of the Consent Solicitation Memorandum, a Noteholder will be required to provide confirmation as to his or her status as an Eligible Noteholder. Eligible Holders are encouraged to read this Notice in conjunction with the Consent Solicitation Memorandum.

Pursuant to each Consent Solicitation, each Eligible Noteholder from whom a valid Consent Instruction (as defined in the Consent Solicitation Memorandum) is received by the Information and Tabulation Agent by the deadline specified in the Consent Solicitation Memorandum will, subject to the conditions set out in the Consent Solicitation Memorandum, be eligible to receive payment of an amount equal to 0.15 per cent. of the principal amount of the Notes that are the subject of such Consent Instruction (the **Consent Fee**), all as more fully described in the Consent Solicitation Memorandum.

Consent Conditions

The effectiveness of the Extraordinary Resolution of a Series will be conditional on:

(a) the passing of the relevant Extraordinary Resolution; and

(b) the quorum required for, and the requisite majority of votes cast at, the relevant Meeting being satisfied by Eligible Noteholders, irrespective of any participation at the relevant Meeting by Ineligible Noteholders (including the satisfaction of such condition at an adjourned Meeting as described in "*Meetings*" below) (the **Eligibility Condition**),

(together, the **Consent Conditions**).

The Issuer will announce (i) the results of each Meeting and (ii) if any Extraordinary Resolution is passed, the satisfaction of the Eligibility Condition relating to that Extraordinary Resolution, as soon as reasonably practicable after the relevant Meeting and following such satisfaction.

Consent Conditions Subsequent

The implementation of the Extraordinary Resolution of a Series will be conditional on:

(a) the satisfaction of the Consent Conditions for that Extraordinary Resolution;

(b) unless otherwise waived by the Issuer, the satisfaction of the Consent Conditions for the Extraordinary Resolution in respect of the other Series of Notes;

(c) the approval of the Merger by the Korea Fair Trade Commission;

(d) the approval of the Merger by the shareholders of the Issuer and Doosan Heavy at the shareholders' meetings currently scheduled for 13 May 2021, followed by the obligatory one-month period for creditors of the Issuer and Doosan Heavy to file objections under the creditor protection procedures set forth in the Korean Commercial Code;

(e) the election by the Issuer, in its sole discretion, to make the Proposed Amendments and Waivers effective; and

(f) the effectiveness of the Merger,

(together, the **Consent Conditions Subsequent**).

The Issuer will announce (i) the satisfaction (or waiver) of the Consent Conditions Subsequent, (ii) whether or not it intends to proceed with the Merger and the implementation of the Extraordinary Resolutions (iii) the Payment Date (if applicable), and (iv) the Amendment Effective Date (if applicable) as soon as reasonably practicable following satisfaction of the Consent Conditions Subsequent (the **Consent Conditions Subsequent Announcement**).

Effectiveness and Implementation of Extraordinary Resolutions

The Proposed Amendments and Waivers will be effective upon the passing of the relevant Extraordinary Resolution, the satisfaction (or waiver) of the Consent Conditions Subsequent for the relevant Series, the payment of the Consent Fee and the Ineligible Holder Payment, the making of the Consent Conditions Subsequent Announcement (in the Issuer's sole discretion) and the execution of the relevant supplemental agency agreement and deed of confirmation.

INELIGIBLE HOLDER PAYMENT

Ineligible Holder Payment

Any Noteholder who is not eligible to participate in the relevant Consent Solicitation, on the basis that such Noteholder is either (i) a U.S. person and/or located in the United States and/or (ii) a person to whom the relevant Consent Solicitation cannot otherwise be lawfully made (each an **Ineligible Noteholder**) **may be eligible, to the extent permitted by applicable laws and regulations, to receive an equivalent amount to any applicable Consent Fee (which is an amount equal to 0.15 per cent. of the principal amount of the Notes that are the subject of the relevant Ineligible Holder Instruction (as defined below)) as if it had been eligible to participate in the relevant Consent Solicitation and participated accordingly** (the **Ineligible Holder Payment**).

To be eligible for the Ineligible Holder Payment, an Ineligible Noteholder must deliver, or arrange to have delivered on its behalf, a valid Ineligible Holder Instruction in favour of the relevant Extraordinary Resolution that is received by the Information and Tabulation Agent by 4.00 p.m. (London time) on 1 April 2021 (the **Ineligible Holder Instruction Deadline**) and is not subsequently revoked. An Ineligible Holder who submits (and does not revoke) a valid Ineligible Holder Instruction after the Ineligible Holder Instruction Deadline but on or before the Voting Deadline will not be eligible to receive the Ineligible Holder Payment.

Only Ineligible Noteholders may submit Ineligible Holder Instructions and be eligible to receive the Ineligible Holder Payment. By delivering, or arranging for the delivery on its behalf, of an Ineligible Holder Instruction in accordance with the procedures described below, a Noteholder shall be deemed to agree, acknowledge and represent to the Issuer, Doosan Heavy, the Guarantor, the Information and Tabulation Agent and the Solicitation Agents that it is an Ineligible Noteholder. Eligibility for the Ineligible Holder Payment is subject in each case to the relevant Extraordinary Resolution being passed at the relevant Meeting (or any adjourned such Meeting) and implemented by the Issuer and the satisfaction (or waiver) of the Consent Conditions Subsequent.

Where payable, Ineligible Holder Payments are expected to be paid by the Issuer to the relevant Ineligible Noteholders in the same manner as the payment of the Consent Fee which will be set out in the Consent Conditions Subsequent Announcement if the Issuer elects to proceed with implementing the Extraordinary Resolutions. Given that the Consent Conditions Subsequent will depend on external third parties including the approval of the Merger from the Korea Fair Trade Commission and the shareholders of the Issuer and Doosan Heavy, there may be a significant time period between the date of the Meetings and the Payment Date. Based on the current expectations, the Issuer does not expect the Payment Date to occur earlier than 1 July 2021 if it were to occur at all.

By submitting an Ineligible Holder Instruction by the Ineligible Holder Instruction Deadline, an Ineligible Noteholder will instruct the Paying Agent to appoint one or more representatives of the Information and Tabulation Agent as their proxy to attend the relevant Meeting (and any adjourned such Meeting) and vote in the manner specified or identified in such Ineligible Holder Instruction in respect of the relevant Extraordinary Resolution. It will not be possible to submit an Ineligible Holder Instruction without at the same time giving such instructions to the relevant Paying Agent unless such Ineligible Noteholder wishes to attend the Meeting in person or appoint one or more representatives other than the Information and Tabulation Agent as its proxy to attend and vote at the Meeting on its behalf, in which case, such Ineligible Noteholder will not be eligible to receive the Ineligible Holder Payment. In order for an Ineligible Noteholder to be eligible to receive the Ineligible Holder Payment, the relevant Ineligible Holder Instructions must be validly submitted in favour of the relevant Extraordinary Resolution and received by the Information and Tabulation Agent by the Ineligible Holder Instruction Deadline (and not subsequently revoked).

A separate instruction must be completed on behalf of each Ineligible Noteholder wishing to attend the Meeting in person or appoint one or more representatives (other than the Information and Tabulation Agent) as its proxy to attend and vote at the Meeting on its behalf. Each such instruction should also provide the name, email address and passport number of the relevant attendee(s). Such Ineligible Noteholders will not be eligible to receive the Ineligible Holder Payment. By submitting such instruction, a Noteholder is deemed to consent to such information being provided to the Paying Agent for creation of the relevant Voting Certificate.

By submitting an Ineligible Holder Instruction by the Ineligible Holder Instruction Deadline or completing alternative arrangements to attend the Meeting or appoint a proxy to attend and vote at the Meeting on its behalf, the relevant Ineligible Noteholder will also be deemed to represent that (a) it is not a Sanctions Restricted Person (as defined below); (b) by blocking the relevant Notes in the relevant clearing system (if applicable), it will be deemed to consent, in the case of a Direct Participant, to have such clearing system provide details concerning its identity to the Information and Tabulation

Agent (and for the Information and Tabulation Agent to provide such details to the Issuer, Doosan Heavy, the Guarantor and the Solicitation Agents, and their respective legal advisers); (c) none of the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Agents and the Information and Tabulation Agent or any of their respective directors, employees, affiliates or agents has given it any information with respect to the relevant Extraordinary Resolution save as expressly set out in this Notice nor has any of them expressed any opinion about the terms of any Extraordinary Resolution or made any recommendation to it as to whether it should participate at the Meeting or whether to vote in favour of or against (or how to vote in respect of) any Extraordinary Resolution and it has made its own decision based on financial, tax or legal advice it has deemed necessary to seek and is assuming all the risks inherent in voting on the relevant Extraordinary Resolution; and (d) no information has been provided to it by the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Agents or the Information and Tabulation Agent, or any of their respective agents, affiliates, directors or employees, with regard to the tax consequences for a Noteholder arising from the implementation of any Extraordinary Resolution or the receipt by it of the Ineligible Holder Payment (if applicable), and it acknowledges, except as disclosed in "*Tax Consequences*" of this Notice, that it is solely liable for any taxes and similar or related payments imposed on it under the laws of any applicable jurisdiction as a result of its receipt of any Ineligible Holder Payment, and agrees that it will not and does not have any right of recourse (whether by way of reimbursement, indemnity or otherwise) against the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Agents or the Information and Tabulation Agent, or any of their respective agents, affiliates, directors or employees, or any other person in respect of such taxes and payments. The representation set out in paragraph (a) above shall not apply to the extent that it would result in a violation of (i) any provision of Council Regulation (EC) No 2271/96 of 22 November 1996 (or any law or regulation implementing such Regulation in any member state of the European Union or (ii) Council Regulation (EC) No 2271/96 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

For the purposes of the representation set out in paragraph (a) above, a **Sanctions Restricted Person** is a person or entity (a **Person**):

(a) that is, or is directly or indirectly owned or controlled by a Person that is, described or designated in:

  (i) the most current "Specially Designated Nationals and Blocked Persons" list (which as of the date hereof can be found at: https://www.treasury.gov/ofac/downloads/sdnlist.pdf);

  (ii) the Foreign Sanctions Evaders List (which as of the date hereof can be found at: http://www.treasury.gov/ofac/downloads/fse/fselist.pdf); or

  (iii) the most current "Consolidated list of persons, groups and entities subject to EU financial sanctions" (which as of the date hereof can be found at: https://eeas.europa.eu/headquarters/headquarters-homepage_en/8442/Consolidated%20list%20of%20sanctions); or

(b) that is otherwise the subject of any sanctions administered or enforced by any Sanctions Authority, other than solely by virtue of their inclusion in:

  (i) the most current "Sectoral Sanctions Identifications" list (which as of the date hereof can be found at: https://www.treasury.gov/ofac/downloads/ssi/ssilist.pdf) (the "SSI List");

  (ii) Annexes 3, 4, 5 and 6 of Council Regulation No. 833/2014, as amended by Council Regulation No. 960/2014 and Council Regulation (EU) No 1290/2014 and Council Regulation (EU) No 2015/1797 (the EU Annexes); or

  (iii) any other list maintained by a Sanctions Authority, with similar effect to the SSI List or the EU Annexes.

Submission of Ineligible Holder Instructions

In respect of any Notes held through Euroclear Bank SA/NV (**Euroclear**) or Clearstream Banking, *société anonyme* (**Clearstream, Luxembourg**), the submission of Ineligible Holder Instructions will be deemed to have occurred upon receipt by the Information and Tabulation Agent from Euroclear or Clearstream, Luxembourg, as applicable, of a valid instruction (an **Ineligible Holder Instruction**) submitted in accordance with the requirements of Euroclear or Clearstream, Luxembourg, as applicable. Each such Ineligible Holder Instruction must specify, among other things, the aggregate principal amount of the Notes of the relevant Series to which such Ineligible Holder Instruction relates, the securities account number at Euroclear or Clearstream, Luxembourg, as applicable, in which the relevant Notes are held and whether the Ineligible Noteholder wishes to instruct the Paying Agent to appoint one or more representatives of the Information and Tabulation Agent to attend the relevant Meeting (and any adjourned such Meeting) and vote in favour of or against the relevant Extraordinary Resolution. The receipt of such Ineligible Holder Instruction by Euroclear or

Clearstream, Luxembourg, as applicable, will be acknowledged in accordance with the standard practices of Euroclear or Clearstream, Luxembourg, as applicable, and will result in the blocking of the relevant Notes in the relevant Ineligible Holder's account with Euroclear or Clearstream, Luxembourg, as applicable, so that no transfers may be effected in relation to such Notes until the earlier of (i) the date on which the relevant Ineligible Holder Instruction is validly revoked (including their automatic revocation on the termination of the related Consent Solicitation) and (ii) the Business Day after the relevant Meeting (or, if applicable, the Business Day following any adjourned such Meeting), where **Business Day** means a day, other than a Saturday or a Sunday, on which banks generally are open for business in London, New York City and Seoul.

General

Only Euroclear/Clearstream Participants (each as defined under "Voting and Quorum" below), as applicable may submit Ineligible Holder Instructions. Each beneficial owner of Notes who is an Ineligible Noteholder and is not a Euroclear/Clearstream Participant, as applicable, must arrange for the Euroclear/Clearstream Participant through which such beneficial owner of Notes who is an Ineligible Noteholder holds its Notes to submit an Ineligible Holder Instruction on its behalf to Euroclear, Clearstream or Luxembourg, as applicable before the deadlines specified by the relevant clearing system.

Noteholders are advised to check with any bank, securities broker or other intermediary through which they hold their Notes when such intermediary would need to receive instructions from a Noteholder in order for such Noteholder to submit an Ineligible Holder Instruction by the deadline specified above. The deadlines set by any such intermediary and each clearing system for the submission and revocation of Ineligible Holder Instructions will be earlier than the deadline specified above.

TAX CONSEQUENCES

In view of the number of different jurisdictions where tax laws may apply to a Noteholder, except for the limited statements in this section, this Notice does not discuss the tax consequences for Noteholders arising from the Consent Solicitations or the Extraordinary Resolutions and their implementation or the receipt (where applicable) of the Consent Fee or the Ineligible Holder Payment. Noteholders are urged to consult their own professional advisers regarding the possible tax consequences of these transactions under the laws of the jurisdictions that apply to them, as well as the possible tax consequences of holding the Notes after they are modified pursuant to the Extraordinary Resolutions (which could differ, potentially materially, from the tax consequences of holding the Notes before they are modified). Except as disclosed in this section, Noteholders are liable for their own taxes and have no recourse to the Issuer, Doosan Heavy, the Guarantor, the Solicitation Agents, the Information and Tabulation Agent or any Agent with respect to any taxes arising in connection with any Consent Solicitation and/or the implementation of any Extraordinary Resolution.

Unless the terms and conditions of a double taxation agreement between The Republic of Korea and the resident country of the Noteholder provide otherwise, the Consent Fee or the Ineligible Holder Payment (as applicable) will be subject to a withholding tax at the rate of 22%. Doosan Heavy has a duty to withhold tax at such rate on payment of the Consent Fee or the Ineligible Holder Payment (as applicable) and remit the withheld amount to the Korea National Tax Service and Doosan Heavy shall make the payment of such additional amounts as will result in receipt by the Noteholder after such withholding of the amount which would have been received by the Noteholder had no such withholding been required. This summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to an investment decision with respect to the Consent Solicitation and is based upon the tax laws of The Republic of Korea in effect on the date of this Notice.

GENERAL

Copies of the Agency Agreements are also available for inspection by Noteholders (a) on and from the date of this Notice up to and including the date of the Meetings, at the specified offices of the Information and Tabulation Agent during normal business hours on any week day (Saturdays, Sundays and public holidays excepted) up to and including the date of the Meetings and (b) at the Meetings and at the offices of Linklaters, 11th floor, Alexandra House, 18 Chater Rd, Central, Hong Kong for 15 minutes before the Meetings.

The attention of Noteholders is particularly drawn to the procedures for voting, quorum and other requirements for the passing of the Extraordinary Resolutions at the Meetings or any meeting held following any adjournment of any Meeting, which are set out in "Voting and Quorum" below. Having regard to such requirements,

Noteholders are strongly urged either to attend the relevant Meeting or to take steps to be represented at the relevant Meeting (including by way of submitting Consent Instructions or Ineligible Holder Instructions) as soon as possible.

VOTING AND QUORUM

Noteholders who have submitted and not revoked (in the limited circumstances in which revocation is permitted) a valid Consent Instruction or Ineligible Holder Instruction in respect of the relevant Extraordinary Resolution by 4.00 p.m. (London time) on 12 April 2021 (the ***Voting Deadline****), by which they will have given instructions for the appointment of one or more representatives of the Information and Tabulation Agent by the Paying Agent as their proxy to vote in favour of or against (as specified in the relevant Consent Instruction or Ineligible Holder Instruction) the relevant Extraordinary Resolution at the relevant Meeting (or any adjourned such Meeting), need take no further action to be represented at the relevant Meeting (or any such adjourned such Meeting).*

Noteholders who have not submitted or have submitted and subsequently revoked (in the limited circumstances in which such revocation is permitted) a Consent Instruction or Ineligible Holder Instruction in respect of the relevant Extraordinary Resolution should take note of the provisions set out below detailing how such Noteholders can attend or take steps to be represented at the relevant Meeting (references to which, for the purpose of such provisions, include, unless the context otherwise requires, any adjourned such Meeting).

1. Subject as set out below, the provisions governing the convening and holding of each Meeting are set out in the schedule 4 of each Agency Agreement, copies of which are available from the date of this Notice to the conclusion of the Meetings (or any adjourned Meetings) as referred to above. For the purposes of the Meetings, a **Noteholder** means a Euroclear/Clearstream Participant, as applicable.

2. The following persons (each an **Eligible Person**) are entitled to attend and vote at a meeting of the holders of the Notes:

    (a) a bearer of any voting certificate in respect of the Notes; and
    (b) a proxy specified in any block voting instruction.

    A Noteholder may require the issue by the Paying Agent of voting certificates and block voting instructions in accordance with the terms below.

3.

    (a) A holder of a Note in definitive form may obtain a voting certificate in respect of that Note from a Paying Agent (unless the Note is the subject of a block voting instruction which has been issued and is outstanding in respect of the meeting specified in the voting certificate or any adjourned meeting) subject to the holder procuring that the Note is blocked in an account with a relevant clearing system upon terms that the Note will not cease to be deposited or held or blocked until the first to occur of:

        (i) the conclusion of the meeting specified in the voting certificate or, if later, of any adjourned meeting; and

        (ii) the surrender of the voting certificate to the Paying Agent who issued it.

    (b) A holder of a Note (not being a Note in respect of which instructions have been given to the Fiscal Agent in accordance with subparagraph 3(d)) represented by the Global Certificate may procure the delivery of a voting certificate in respect of that Note by giving electronic instructions to the relevant clearing system specifying by name a person (an **Identified Person**) (which need not be the holder himself) to collect the voting certificate and attend and vote at the meeting. The voting certificate will be made available at or shortly before the start of the meeting by the Fiscal Agent against presentation by the Identified Person of the form of identification previously notified by the holder to the relevant clearing system. The relevant clearing system may prescribe forms of identification (including, without limitation, passports) which it considers appropriate for these purposes. Subject to receipt by the Fiscal Agent from the relevant clearing system, no later than 24 hours before the time for which the meeting is convened, of notification of the nominal amount of the Notes to be represented by any voting certificate and the form of identification against presentation of which the voting certificate should be released, the Agent shall, without any obligation to make further enquiry, make available voting certificates against presentation of forms of identification corresponding to those notified.

(c) A holder of a Note in definitive form may require a Paying Agent to issue a block voting instruction in respect of that Note (unless the Note is the subject of a voting certificate which has been issued and is outstanding in respect of the meeting specified in the block voting instruction or any adjourned meeting) by:

(i) procuring that, not less than 48 hours before the time fixed for the meeting, the Note is blocked in an account with a relevant clearing system, on terms that the Note will not cease to be so blocked until the first to occur of:

(A) the conclusion of the meeting specified in the block voting instruction or, if later, of any adjourned meeting; and

(B) the Note ceasing with the agreement of the Paying Agent to be blocked and the giving of notice by the Paying Agent to the Issuer in accordance with paragraph 3(d)(ii) of the necessary amendment to the block voting instruction; and

(ii) instructing the Paying Agent that the vote(s) attributable to each Note so blocked should be cast in a particular way in relation to the resolution or resolutions to be put to the meeting or any adjourned meeting and that the instruction is, during the period commencing 48 hours before the time for which the meeting or any adjourned meeting is convened and ending at the conclusion or adjournment of the meeting, neither revocable nor capable of amendment.

(d) A holder of a Note (not being a Note in respect of which a voting certificate has been issued) represented by a Global Certificate may require the Fiscal Agent to issue a block voting instruction in respect of the Note by first instructing the relevant clearing system to procure that the votes attributable to the holder's Note should be cast at the meeting in a particular way in relation to the resolution or resolutions to be put to the meeting (a **Euroclear/Clearstream Instruction**). Any such Euroclear/Clearstream Instruction shall be given in accordance with the rules of the relevant clearing system then in effect. Subject to receipt by the Fiscal Agent, no later than 24 hours before the time for which the meeting is convened, of a certificate from the Information and Tabulation Agent (a) confirming the Euroclear/Clearstream Instruction received from the relevant clearing system, (b) notification of the principal amount of the Notes in respect of which such Euroclear/Clearstream Instruction have been given and (c) whether the Noteholder wishes to instruct the Fiscal Agent to appoint one or more representatives of the Information and Tabulation Agent to attend the relevant Meeting (or any relevant adjourned Meeting, if applicable) and vote in favour of or against the relevant Extraordinary Resolution, the Fiscal Agent shall, without any obligation to make further enquiry, appoint such representatives of the Information and Tabulation Agent to attend the relevant Meeting (or any relevant adjourned Meeting, if applicable) and cast votes in accordance with those instructions.

(i) Each block voting instruction shall be deposited by the relevant Paying Agent at the place specified by the Fiscal Agent for the purpose not less than 24 hours before the time appointed for holding the meeting or adjourned meeting at which the proxies named in the block voting instruction propose to vote, and in default the block voting instruction shall not be treated as valid unless the Chairman of the meeting decides otherwise before the meeting or adjourned meeting proceeds to business. A notarially certified copy of each block voting instruction shall (if so requested by the Issuer) be deposited with the Issuer before the start of the meeting or adjourned meeting but the Issuer shall not as a result be obliged to investigate or be concerned with the validity of or the authority of the proxies named in the block voting instruction.

(ii) Any vote given in accordance with the terms of a block voting instruction shall be valid notwithstanding the previous revocation or amendment of the block voting instruction or of any of the instructions of the relevant Noteholder or the relevant clearing system (as the case may be) pursuant to which it was executed provided that no indication in writing of any revocation or amendment has been received from the relevant Paying Agent by the Issuer at its registered office by the time being 24 hours before the time appointed for holding the meeting or adjourned meeting at which the block voting instruction is to be used.

4. The submission of Euroclear/Clearstream Instructions will be deemed to have occurred upon receipt by the

Information and Tabulation Agent from Euroclear/Clearstream of a valid Euroclear/Clearstream Instruction submitted in accordance with the requirements of Euroclear/Clearstream. Each Euroclear/Clearstream Instruction must specify, among other things, the aggregate principal amount of the Notes of the relevant Series which are subject to the Euroclear/Clearstream Instruction, the securities account number at Euroclear/Clearstream in which the relevant Notes are held and whether the Noteholder wishes to instruct the Paying Agent to appoint one or more representatives of the Information and Tabulation Agent to attend the relevant Meeting (or any relevant adjourned Meeting, if applicable) and vote in favour of or against the relevant Extraordinary Resolution. The receipt of such Euroclear/Clearstream Instruction by Euroclear/Clearstream will be acknowledged in accordance with the standard practices of Euroclear/Clearstream and will result in the blocking of the relevant Notes in the relevant Noteholder's account with Euroclear/Clearstream so that no transfers may be effected in relation to such Notes.

5. Noteholders must take the appropriate steps through Euroclear/Clearstream so that no transfers may be effected in relation to such blocked Notes at any time after the date of submission of such Euroclear/Clearstream Instruction, in accordance with the requirements of Euroclear/Clearstream and the deadlines required by Euroclear/Clearstream. By blocking such Notes in Euroclear/Clearstream, each Euroclear/Clearstream Participant will be deemed to consent to have Euroclear/Clearstream provide details concerning such Euroclear/Clearstream Participant's identity to the Information and Tabulation Agent (and for the Information and Tabulation Agent to provide such details to the Issuer, the Guarantor, the Solicitation Agents and their respective legal advisers).

6. A holder of a Note who submits a Euroclear/Clearstream Instruction, as described above, prior to the Voting Deadline need take no further action in relation to voting at the Meeting (and any adjourned Meeting) in respect of the Extraordinary Resolution.

7. The quorum at any meeting for passing an Extraordinary Resolution shall (subject as provided below) be one or more Eligible Persons present and holding or representing in the aggregate not less than 50% in principal amount of the Notes for the time being outstanding.

8. If within 15 minutes (or such longer period not exceeding 30 minutes as the Chairman may decide) after the time appointed for any meeting a quorum is not present for the transaction of any particular business, then, subject and without prejudice to the transaction of the business (if any) for which a quorum is present, the meeting shall if convened by Noteholders be dissolved. In any other case it shall be adjourned to the same day in the next week (or if that day is a public holiday the next following business day) at the same time and place (except in the case of a meeting at which an Extraordinary Resolution is to be proposed in which case it shall be adjourned for a period being not less than 14 clear days nor more than 42 clear days and at a place appointed by the Chairman and approved by the Agent). In addition, in the event that the quorum required for, and the requisite majority of votes cast at, the relevant Meeting is satisfied but the Eligibility Condition in respect of such Meeting is not satisfied, the chairman of the relevant Meeting will adjourn the relevant Meeting for such period being not less than 14 clear days nor more than 42 clear days, and at a place appointed by the Chairman and approved by the Agent. The relevant Extraordinary Resolution will be considered at an adjourned Meeting (notice of which will be given to the Noteholders of the relevant Series of Notes). At any adjourned Meeting, one or more Eligible Persons present (whatever the principal amount of the Notes so held or represented by them) shall form a quorum and shall have power to pass any Extraordinary Resolution or other resolution and to decide upon all matters which could properly have been dealt with at the meeting from which the adjournment took place. If within 15 minutes (or a longer period not exceeding 30 minutes as the Chairman may decide) after the time appointed for any adjourned meeting a quorum is not present for the transaction of any particular business, then, subject and without prejudice to the transaction of the business (if any) for which a quorum is present, the Chairman may either dissolve the meeting or adjourn it for a period, being not less than 14 clear days (but without any maximum number of clear days) and to a place as may be appointed by the Chairman (either at or after the adjourned meeting), and the provisions of this sentence shall apply to all further adjourned meetings.

9. Every question submitted to a meeting shall be decided in the first instance by a show of hands and in the case of an equality of votes the Chairman shall both on a show of hands and on a poll have a casting vote in addition to the vote or votes (if any) to which he may be entitled as an Eligible Person.

10. At any meeting, unless a poll is (before or on the declaration of the result of the show of hands) demanded by the Chairman or the Issuer, the Guarantor or by any Eligible Person present (whatever the principal amount of

the Notes held by him), a declaration by the Chairman that a resolution has been carried or carried by a particular majority or lost or not carried by a particular majority shall be conclusive evidence of the fact without proof of the number or proportion of the votes recorded in favour of or against the resolution.

11. Subject to paragraph 13, if at any meeting a poll is demanded it shall be taken in the manner and, subject as provided below, either at once or after an adjournment as the Chairman may direct and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded as at the date of the taking of the poll. The demand for a poll shall not prevent the continuance of the meeting for the transaction of any business other than the motion on which the poll has been demanded.

12. The Chairman may, with the consent of (and shall if directed by) any meeting, adjourn the meeting from time to time and from place to place. No business shall be transacted at any adjourned meeting except business which might lawfully (but for lack of required quorum) have been transacted at the meeting from which the adjournment took place.

13. Any poll demanded at any meeting on the election of a Chairman or on any question of adjournment shall be taken at the meeting without adjournment.

14. At any meeting:

    (a) on a show of hands every Eligible Person present shall have one vote; and

    (b) on a poll every Eligible Person present shall have one vote in respect of each U.S.$1,000 or such other amount as the Fiscal Agent shall in its absolute discretion specify in principal amount of Notes in respect of which he is an Eligible Person.

    Without prejudice to the obligations of the proxies named in any block voting instruction, any person entitled to more than one vote need not use all his votes or cast all the votes to which he is entitled in the same way.

15. The expression **Extraordinary Resolution** means (a) a resolution passed at a meeting of the Noteholders duly convened and held in accordance with the provisions of this Schedule by a majority consisting of not less than 75% of the persons voting on the resolution upon a show of hands or, if a poll was duly demanded, by a majority consisting of not less than 75% of the votes given on the poll or (b) a resolution in writing signed by or on behalf of all the Noteholders, which resolution in writing may be contained in one document or in several documents in similar form each signed by or on behalf of one or more of the Noteholders.

This Notice is given by Doosan Infracore Co., Ltd.

Noteholders should contact the following for further information:

The Solicitation Agents

HSBC, Level 17, HSBC Main Building, 1 Queen's Road Central, Hong Kong (Attention: Liability Management Group , Telephone: +852 3941 0223 (Hong Kong) / +44 20 7992 6237 (London), Email: liability.management@hsbcib.com)

The Korea Development Bank, 14, Eunhaeng-ro, Yeongdeungpo-gu, Seoul, 07242, Korea (Attention: Debt Capital Markets Department, Telephone: +82-2-787-6641/ +82-2-787-6621, Email: hschun@kdb.co.kr/ byunggkim@kdb.co.kr / ines@kdb.co.kr / gdy0418@kdb.co.kr / kdbdcm@kdb.co.kr)

Standard Chartered Bank, One Basinghall Avenue, London EC2V 5DD, United Kingdom (Attention: Liability Management, Telephone: +44 20 7885 5739 / + 852 3983 8658 / +65 6557 8286, Email: liability_management@sc.com)

The Information and Tabulation Agent

Morrow Sodali Limited, (Telephone: in Hong Kong +852 2319 4130; in London +44 20 8089 3287, Email: doosan@investor.morrowsodali.com)

Dated: 22 March 2021

ANNEX II

FINANCIAL STATEMENTS OF DOOSAN HEAVY

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Financial Statements

December 31, 2019 and 2018

(With Independent Auditors' Report Thereon)

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Independent Auditors' Report

Based on a report originally issued in Korean

To the Shareholders and Board of Directors of
Doosan Heavy Industries & Construction Co., Ltd.:

Opinion

We have audited the consolidated financial statements of Doosan Heavy Industries & Construction Co., Ltd. and its subsidiaries ("the Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, the consolidated statements of loss and other comprehensive loss, changes in equity and cash flows for the years then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019 and 2018, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRS").

Basis for Opinion

We conducted our audits in accordance with Korean Standards on Auditing ("KSAs"). Our responsibilities under those standards are further described in the *Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report*. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Material Uncertainty on the Ability to Continue as a Going Concern

We draw attention to Note 38 of the consolidated financial statements. As discussed in Note 38 to the consolidated financial statements, the Group has incurred a net loss of ₩104,367 million for the year ended December 31, 2019 and, as of that date, the Group's total current borrowings were ₩7,414,329 million and total current liabilities exceeded its total current assets by ₩4,421,614 million. These conditions, along with other matters as set forth in Note 38 to the consolidated financial statements indicate the existence of a material uncertainty which may cast significant doubt on the Group's ability to continue as a going concern. Our opinion is not modified in respect of this matter.

Key Audit Matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements as of and for the year ended December 31, 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

1) Recognition of revenue including the input method

As described in the Note 2 to the separate financial statements, the Group recognizes its revenue when the control of products and services is transferred to the customers. Therefore, the Group estimates percentage-of completion of performance obligation satisfied over time by using the input method and recognizes revenue over time depending on progress. For performance obligations satisfied at a point of time, the Group recognizes revenue when the product is delivered to and accepted by the customer.

As the amount of revenue recognized over time using the input method depends on the measured percentage-of-completion, management's judgment is involved in determining the method of measuring progress, estimating total contract cost and changes in construction. In addition, there is an inherent risk in revenue such as overstatement of unit sales price and manipulation of revenue through fictitious customers as revenue is one of the major performance indicators of the Group. Therefore, as there is a risk of overstatement of revenue due to an error in judgment or intent, we have identified the recognition of revenue as a key audit matter.

The following audit procedures were performed regarding the revenue recognized using the input method.

- Evaluation and tests of internal controls related to the determination and modification of estimated total contract cost, changes in contract terms
- For major projects completed during the current year, retrospective review by comparing the actual cost incurred during the current year and construction cost estimated at the end of the prior year
- Inquiries and inspection of documents for projects with significant changes in estimated total contract cost
- Comparison between estimated total contract cost used in revenue recognition and that of site department for major projects
- Comparison of estimated total contract cost with those of other similar projects
- Inquiries and analytical review of changes in the percentage-of-completion for each reporting period
- For major projects, inquiries and inspection of documents if there were significant differences between the progress rate in the respective monthly progress reports received from customers and the percentage-of-completion calculated based on cost
- For selected samples, inspection of documents to test the existence of cost of goods manufactured (including material costs, outsourced construction costs and other expenses) incurred during the current year
- For selected samples, inspecting related documents whether cost of goods manufactured (including material costs, outsourced construction costs and other expenses) are attributed to appropriate project
- Testing journal entries of cost transferred between projects to understand the reason of transfer and whether appropriate approval was obtained
- Site visits for selected on-going construction sites and sites have equipment under construction
- Recalculation of the percentage-of-completion independently for each project
- For selected samples, inspection of documents (change order, official letter and others) to test changes in contract price
- Examined the contractual delivery date with the expected delivery date as of year-end. For those which the contractual delivery date has passed, inquired of the basis, performed analytical review and agreed to underlying documents
- Retrospective review for liquidated damages estimated at the end of the prior period
- Assessing the appropriateness of the estimation of penalty for delay at the end of current period
- Evaluation and tests of internal controls adequacy related to product sales
- Inspection of purchase order, invoice, bill of lading for selected sales transactions in current period to agree with the substance of recorded sales transactions

- Assessing whether revenue is recognized in appropriate period by inspecting delivery acceptance notes signed by customers and bill of lading documents for selected sales transactions

2) Recoverability of due from customers for contract work

As described in the Note 2 to the separate financial statements, the Group calculates expected credit losses ("ECLs") based on the expected life of the ECLs and evaluates the recoverability of due from customers for contract work.

In calculating ECLs, management's judgment is involved due to uncertainty over the collection of due from customers for contract work from delayed payment of the owner, changes in conditions or claims incurred. Therefore, we identified the assessment of the recoverability of due from customers for contract work as a key audit matter, given there are risks of overstatement of due from customers for contract work due to error or bias in judgment.

The following audit procedures were performed regarding assessment of the recoverability of due from customers for contract work.

- Evaluation and testing of internal controls related to the assessment of recoverability of due from customers for contract work
- Inquiries and inspection of documents to assess payment terms, penalty for delay, delivery time, and other obligations of contracts for the due from customer for contract work increased significantly
- Inquiries of long-term due from customers for contract work and inspection of documents to evaluate the reasonableness of the cause
- Considering current status of billing and collection of due from customers for contract work for each major projects
- For the projects with bad debt allowance reserved over trade receivables assessed whether an allowance is reserved for unbilled accounts receivable and inspected documents
- Retrieving external confirmation letters from major customers and reviewing legal opinion provided by external counsels

3) Impairment of goodwill

As described in the Note 2 to the consolidated financial statements, the Group conducts an annual impairment test for goodwill and compares the carrying amount of each cash-generating unit containing goodwill with the recoverable amount calculated as the value-in-use which is the present value of estimated future cash flows, to determine whether it is impaired or not.

In estimating the discounted cash flows, significant judgment of management is involved including long-term sales growth rate and discount rates applied to cash flow projections. Therefore, we identified the impairment for goodwill as a key audit matter as certain key assumptions on which management has based cash flow projections such as growth rate and discount rates are included, are subject to management bias.

The following audit procedures were performed regarding impairment of goodwill.

- Evaluating and testing of internal controls related to impairment test for goodwill
- Inquiries and assessment of valuation model used by the Group
- Understanding future cash flows and testing whether the estimated future cash flows corresponds to business plan approved by the Group's management

- Testing the appropriateness of major assumptions (discount rate, growth rate and others) of the valuation model by comparing to benchmark of peer industry and past financial information of cash generating unit (by using our internal valuation specialists)
- Evaluation of the sensitivity analysis results of the discount rate and permanent growth rate presented by the Group to assess the impact of changes in major assumptions on the impairment assessment (by using our internal valuation specialists)

4) Assessment of provision for warranty

As described in the Note 2 to the consolidated financial statements, Doosan Infracore Co., Ltd. and its subsidiaries ("DI") segment of the Group provides customers with free warranty for a certain period of time after the sale of the product, and reserves a provision for warranty by estimating the expected warranty expenses.

The performance obligation of the warranty is determined by the nature and scope of the free warranty provided by DI and various assumptions, including the warranty period and estimated warranty expense to incur in the future. Therefore, we identified the assessment of provision for warranty as a key audit matter as certain key assumptions on which management has based on involves significant judgment of management.

The following audit procedures were performed regarding assessment of provision for warranty.

- Understanding accounting policy of recognition of provision for warranty and testing of internal controls
- Testing the accuracy of underlying data of major accounting estimates used by management
- Comparison and analysis of the basis of key assumptions used by management in measuring provision for warranty with past actual performance
- Performing independent recalculation of current balance of provision for warranty at the end of the current year

5) Assessment of realization of the deferred tax assets

As described in the Note 2 to the consolidated financial statements, Doosan Engineering & Construction and its subsidiaries ("DEC") segment of the Group reviews the carrying amount of deferred tax assets at the end of each reporting period. The carrying amount of deferred tax assets is reduced if it is no longer probable that sufficient taxable income will be generated to allow the recovery of all or part of the deferred tax assets.

Realization of deferred tax assets implies complexity as it requires management's judgment on the estimation of expected taxable income. Therefore, we identified the realization of deferred tax assets for DEC as a key audit matter given that the estimation of expected taxable income includes inherent uncertainty and involvement of significant judgment of key variables such as sales and operating profit.

The following audit procedures were performed regarding assessment of realization of the deferred tax assets.

- Evaluation of major inputs such as sales revenue and operating expenses used to determine expected taxable income through comparison of recent business plans considering updated past performance and industrial reports after the approval by the Board of Directors
- Assessment of estimated taxable income based on management's mid- and long-term business plan (by using our internal valuation specialists)
- Assessment of tax adjustments for individual temporary differences and the realization schedule (by using our internal tax specialists)

Other Matter

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with K-IFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.

- Evaluate the appropriateness of accounting policies used in the preparation of the consolidated financial statements and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditors' report is Se Bong Hur.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 20, 2020

This report is effective as of March 20, 2020, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position

As of December 31, 2019 and 2018

(In won)	Note		2019	2018
Assets				
Cash and cash equivalents	4,5,10	₩	1,441,280,687,215	2,075,328,693,318
Short-term financial instruments	4,5,10		268,320,160,761	392,294,778,458
Short-term investments in securities	4,6,10		79,279,692,390	35,673,839,601
Trade receivables, net	4,7,10,25,34		2,092,822,360,607	2,112,062,463,001
Due from customers for contract work, net	7,25		1,761,026,139,486	1,917,549,497,427
Other receivables, net	4,7,10,34		470,874,496,975	305,858,455,081
Prepayments, net	7,25		466,574,020,089	446,105,194,520
Prepaid expenses			121,764,332,600	152,773,582,677
Short-term loans, net	4,7,10,34		85,498,883,370	115,051,807,262
Derivative financial assets	4,9,10		35,066,050,494	21,477,357,030
Firm commitment assets	9		25,785,207,028	9,022,592,449
Inventories, net	8,25,33		2,201,708,429,106	1,891,576,145,991
Other current assets, net	4,7,10,14		301,607,276,508	307,469,689,616
Total current assets			9,351,607,736,629	9,782,244,096,431
Long-term financial instruments	4,5,10		2,548,786,446	5,201,067,000
Long-term investments in securities	4,6,10,33		201,487,575,568	197,745,438,521
Investments in associates and joint ventures	11,33		155,757,265,633	100,927,082,338
Due from customers for contract work, net	7,25		102,739,503,644	-
Long-term loans, net	4,7,10,34		706,816,256,036	717,958,268,334
Property, plant and equipment, net	2,12,14,33		5,921,531,734,148	6,414,487,023,034
Intangible assets, net	13		7,031,885,767,946	6,683,116,364,942
Investment properties, net	15		498,211,016,067	26,484,941,678
Derivative financial assets	4,9,10		17,011,219,245	21,777,431,040
Firm commitment assets	9		18,149,165,186	14,695,425,682
Guarantee deposits, net	4,5,7,10		348,345,632,651	326,955,808,824
Deferred tax assets	30		401,285,168,759	459,502,962,385
Other non-current assets, net	4,7,10,14		51,872,353,221	63,815,653,357
Total non-current assets			15,457,641,444,550	15,032,667,467,135
Total assets		₩	24,809,249,181,179	24,814,911,563,566

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Financial Position, Continued

As of December 31, 2019 and 2018

(In won)	Note		2019	2018
Liabilities				
Trade payables	4,10,34	₩	2,532,417,863,903	3,082,932,725,599
Short-term borrowings	4,10,16,32,33,35		3,767,270,248,235	2,840,071,599,658
Asset-backed borrowings	4,10,16,33,35		381,573,986,887	491,371,402,314
Other payables	4,10,34		537,794,374,950	539,550,236,467
Advanced received	25		87,362,541,801	80,537,056,518
Due to customers for contract work	25		1,461,856,470,698	1,236,549,335,742
Withholdings			40,505,367,389	36,879,557,787
Accrued expenses	4,10		664,011,536,281	592,800,027,139
Income tax payable	30		30,974,465,576	29,347,652,878
Current portion of long-term debt	4,10,16,32,33,35		3,265,484,739,353	2,049,828,436,541
Derivative financial liabilities	9,10		73,076,096,327	39,356,944,771
Firm commitment liabilities	9		11,024,583,351	5,026,505,231
Provisions	18,25,32		390,543,375,151	188,331,847,398
Current lease liabilities	2,4,10,14,35		80,788,294,005	-
Other current liabilities	4,10		448,538,017,113	292,028,113,707
Total current liabilities			13,773,221,961,020	11,504,611,441,750
Bonds	4,10,16,32,33,35		846,834,779,773	2,053,032,588,038
Long-term borrowings	4,10,16,32,33,35		1,697,982,898,672	3,043,437,044,686
Long-term asset-backed borrowings	4,10,16,33,35		292,290,321,272	248,788,085,785
Long-term other payables	4,10		14,995,488,666	30,921,614,985
Defined benefit liabilities, net	17		674,264,222,128	611,283,884,965
Deposits received	4,10		270,661,690,028	217,455,797,942
Derivative financial liabilities	9,10		57,061,984,079	48,643,743,663
Firm commitment liabilities	9		13,228,719,317	22,221,330,722
Deferred tax liabilities	30		331,502,786,410	373,209,052,064
Provisions	18,32		322,995,953,619	233,563,821,406
Non-current lease liabilities	2,4,10,14,35		175,749,643,381	-
Other non-current liabilities	4,10		136,465,747,991	209,313,597,120
Total non-current liabilities			4,834,034,235,336	7,091,870,561,376
Total liabilities			18,607,256,196,356	18,596,482,003,126
Equity				
Capital stock	19		1,075,255,425,000	650,255,065,000
Capital surplus	19,20		1,762,628,456,797	1,678,913,750,186
Other components of equity	21		48,935,313,897	(55,947,752,410)
Accumulated other comprehensive income	9,10,12,22		649,530,462,196	680,535,131,925
Accumulated Deficit	23		(974,213,089,079)	(148,908,617,065)
Equity attributable to owners of the controlling company			2,562,136,568,811	2,804,847,577,636
Non-controlling interests	1		3,639,856,416,012	3,413,581,982,804
Total equity			6,201,992,984,823	6,218,429,560,440
Total liabilities and equity		₩	24,809,249,181,179	24,814,911,563,566

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Loss

For the years ended December 31, 2019 and 2018

(In won)	Note		2019	2018
Continuing operations				
Sales	24,25,34	₩	15,659,674,141,321	14,761,064,155,393
Cost of sales	8,26,34		12,983,530,802,944	12,191,489,262,086
Gross profit			2,676,143,338,377	2,569,574,893,307
Selling and administrative expenses	10,26,27,34		1,599,256,528,424	1,566,073,882,428
Operating profit	24		1,076,886,809,953	1,003,501,010,879
Finance income and expenses			(580,363,368,069)	(549,637,007,176)
Finance income	10,28		489,339,227,001	530,540,231,179
Finance expenses	10,28		1,069,702,595,070	1,080,177,238,355
Other non-operating income and expenses			(386,989,678,057)	(527,647,941,799)
Other non-operating income	10,29		48,530,356,091	70,012,313,064
Other non-operating expenses	10,29		435,520,034,148	597,660,254,863
Share of loss of equity method investees	11		(14,344,113,107)	(29,701,600,000)
Profit (loss) before income tax			95,189,650,720	(103,485,538,096)
Income tax expense	30		210,151,845,119	219,871,719,919
Loss from continuing operations			(114,962,194,399)	(323,357,258,015)
Discontinued operations				
Profit (loss) from discontinued operations, net of tax	36		10,595,042,993	(98,367,853,570)
Loss for the period	24	₩	(104,367,151,406)	(421,725,111,585)
Loss attributable to:				
Owners of the Company		₩	(395,296,012,245)	(523,793,621,412)
Non-controlling interests	1		290,928,860,839	102,068,509,827
Earning (loss) per share				
Basic earning (loss) per share	31	₩	(2,620)	(4,807)
Continuing operations			(2,694)	(4,158)
Discontinued operations			74	(649)
Diluted earning (loss) per share	31		(2,620)	(4,807)
Continuing operations			(2,694)	(4,158)
Discontinued operations			74	(649)

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Comprehensive Loss

For the years ended December 31, 2019 and 2018

(In won)	Note		2019	2018
Loss for the period		₩	(104,367,151,406)	(421,725,111,585)
Other comprehensive income			87,280,095,231	158,588,349,921
Items that will not be reclassified to profit or loss			(21,357,608,196)	2,111,687,567
Remeasurement of the defined benefit liability	17,30		(57,124,825,627)	31,510,948,024
Gain (loss) on change in fair value of fair value through other comprehensive income ("FVOCI") financial assets	6,10,30		(9,130,535,326)	812,350,242
Gain (loss) on revaluation of assets	12,30		44,897,752,757	(30,211,610,699)
Items that are or may be reclassified subsequently to profit or loss			108,637,703,427	156,476,662,354
Effective portion of changes in fair value of cash flow hedges	9,10,30		8,436,040,037	22,300,154,503
Equity adjustments in equity method investees	11		(10,320,598)	(3,570,846,250)
Gain on translation of foreign operations			100,211,983,988	137,747,354,101
Total comprehensive loss for the period		₩	(17,087,056,175)	(263,136,761,664)
Total comprehensive loss attributable to:				
Owners of the Company		₩	(392,325,987,389)	(510,487,299,900)
Non-controlling interests			375,238,931,214	247,350,538,236

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Changes in Equity

For the years ended December 31, 2019 and 2018

(In won)		Capital stock	Capital surplus	Other components of equity	Accumulated other comprehensive income	Accumulated deficit	Non-controlling interests	Total
Balance at January 1, 2018	₩	596,836,515,000	1,703,499,795,417	(44,828,871,791)	728,803,238,711	402,497,651,557	3,179,139,731,158	6,565,948,060,052
Adjustment on initial application of K-IFRS No. 1109 and 1115		-	-	-	(18,235,068,737)	(54,579,385,933)	(17,756,498,132)	(90,570,952,802)
Adjusted balance at January 1, 2018		596,836,515,000	1,703,499,795,417	(44,828,871,791)	710,568,169,974	347,918,265,624	3,161,383,233,026	6,475,377,107,250
Total comprehensive income (loss):								
Profit (loss) for the period		-	-	-	-	(523,793,621,412)	102,068,509,827	(421,725,111,585)
Remeasurement of the defined benefit liabilities		-	-	-	-	(456,744,844)	31,967,692,868	31,510,948,024
Gain on change in fair value of FVOCI financial assets		-	-	-	289,110,073	5,575,159	517,665,010	812,350,242
Effective portion of changes in fair value of cash flow hedges		-	-	-	20,302,961,575	-	1,997,192,928	22,300,154,503
Equity adjustments in equity method investees		-	-	-	(3,235,402,591)	-	(335,443,659)	(3,570,846,250)
Gain on translation of foreign operations		-	-	-	28,554,338,311	-	109,193,015,790	137,747,354,101
Gain (loss) on revaluation of assets		-	-	-	(74,626,284,636)	42,472,768,465	1,941,905,472	(30,211,610,699)
Subtotal		-	-	-	(28,715,277,268)	(481,772,022,632)	247,350,538,236	(263,136,761,664)
Dividends		-	-	-	-	(14,904,860,057)	-	(14,904,860,057)
Stock option		-	3,415,208,689	(3,415,208,689)	-	-	-	-
Exercise of stock warrants		29,075,000	67,802,734	-	-	-	-	96,877,734
Divided combination		53,389,475,000	75,078,684,375	(135,234,686)	-	-	(146,605,694,270)	(18,272,769,581)
Partial disposal of investments in subsidiaries		-	(10,366,230,493)	(7,159,271,062)	-	-	518,786,653,265	501,261,151,710
Issuance of shares of subsidiaries		-	(9,009,211)	-	-	-	9,009,211	-
Reduction of capital stocks of subsidiaries		-	-	-	-	-	(35,796,000,000)	(35,796,000,000)
Dividends of subsidiaries		-	-	-	-	-	(50,580,761,821)	(50,580,761,821)
Stock option of subsidiaries		-	409,166,182	(409,166,182)	-	-	-	-
Issuance of bonds with stock warrants of subsidiaries		-	997,276,585	-	-	-	300,907,352	1,298,183,937
Exercise of stock warrants of subsidiaries		-	(94,178,944,092)	-	-	-	133,446,438,610	39,267,494,518
Repayments of hybrid securities of subsidiaries		-	-	-	-	-	(333,286,268,697)	(333,286,268,697)
Changes in scope of consolidation		-	-	-	(1,317,760,781)	-	(82,308,496,940)	(83,626,257,721)
Others		-	-	-	-	(150,000,000)	882,424,832	732,424,832
Balance at December 31, 2018	₩	650,255,065,000	1,678,913,750,186	(55,947,752,410)	680,535,131,925	(148,908,617,065)	3,413,581,982,804	6,218,429,560,440

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Changes in Equity, Continued

For the years ended December 31, 2019 and 2018

(In won)		Capital stock	Capital surplus	Other components of equity	Accumulated other comprehensive income	Accumulated deficit	Non-controlling interests	Total
Balance at January 1, 2019	₩	650,255,065,000	1,678,913,750,186	(55,947,752,410)	680,535,131,925	(148,908,617,065)	3,413,581,982,804	6,218,429,560,440
Adjustment on initial application of K-IFRS No. 1116 and 1028 (See Note2)		-	-	-	-	(31,805,902,802)	(7,629,208,953)	(39,435,111,755)
Adjusted balance at January 1, 2019		650,255,065,000	1,678,913,750,186	(55,947,752,410)	680,535,131,925	(180,714,519,867)	3,405,952,773,851	6,178,994,448,685
Total comprehensive income (loss):								
Profit (loss) for the period		-	-	-	-	(395,296,012,245)	290,928,860,839	(104,367,151,406)
Remeasurement of the defined benefit liabilities		-	-	-	-	(26,332,690,322)	(30,792,135,305)	(57,124,825,627)
Loss on change in fair value of FVOCI financial assets		-	-	-	(9,130,535,326)	-	-	(9,130,535,326)
Effective portion of changes in fair value of cash flow hedges		-	-	-	8,655,939,374	-	(219,899,337)	8,436,040,037
Equity adjustments in equity method investees		-	-	-	(9,945,893)	(105,401)	(269,304)	(10,320,598)
Gain on translation of foreign operations		-	-	-	11,059,408,887	-	89,152,575,101	100,211,983,988
Gain (loss) on revaluation of assets		-	-	-	(41,579,536,771)	60,307,490,308	26,169,799,220	44,897,752,757
Subtotal		-	-	-	(31,004,669,729)	(361,321,317,660)	375,238,931,214	(17,087,056,175)
Issuance of shares		425,000,000,000	37,362,955,728	-	-	-	-	462,362,955,728
Repayment of redeemable convertible preferred stock		-	11,859,342,286	85,639,596,240	-	(415,843,156,678)	-	(318,344,218,152)
Dividends		-	-	-	-	(14,390,062,723)	-	(14,390,062,723)
Stock option		-	1,990,828,335	(1,990,828,335)	-	-	-	-
Exercise of stock warrants		360,000	965,042	-	-	-	-	1,325,042
Issuance of shares of subsidiaries		-	56,890,926,817	-	-	-	(42,697,290,543)	14,193,636,274
Dividends of subsidiaries		-	-	-	-	-	(61,866,047,310)	(61,866,047,310)
Stock option of subsidiaries		-	133,193,412	(133,193,412)	-	-	-	-
Exercise of stock warrants of subsidiaries		-	(3,019,734)	-	-	-	22,351,237	19,331,503
Changes in scope of consolidation		-	-	-	-	-	(38,349,841,679)	(38,349,841,679)
Others		-	(24,520,485,275)	21,367,491,814	-	(1,944,032,151)	1,555,539,242	(3,541,486,370)
Balance at December 31, 2019	₩	1,075,255,425,000	1,762,628,456,797	48,935,313,897	649,530,462,196	(974,213,089,079)	3,639,856,416,012	6,201,992,984,823

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Cash Flows

For the years ended December 31, 2019 and 2018

(In won)	Note		2019	2018
Cash flows from operating activities				
Cash generated from operations:	35	₩	1,031,213,931,567	1,479,138,134,144
Loss for the period			(104,367,151,406)	(421,725,111,585)
Adjustments			1,941,459,055,749	1,977,140,965,216
Changes in operating assets and liabilities			(805,877,972,776)	(76,277,719,487)
Interest received			41,306,217,133	44,527,025,788
Interest paid			(446,725,761,394)	(441,769,661,692)
Dividends received			1,325,542,753	2,527,971,414
Income tax paid			(193,440,221,009)	(94,863,370,711)
Net cash from operating activities			433,679,709,050	989,560,098,943
Cash flows from investing activities				
Cash inflows from investing activities:				
Decrease in short-term financial instruments			208,736,213,869	28,514,477,910
Proceeds from disposal of short-term investments in securities			19,462,935,481	171,575,839,650
Collection of short-term loans			31,716,806,560	61,191,764,632
Decrease in long-term financial instruments			18,138,956,195	26,541,592,648
Proceeds from disposal of long-term investments in securities			23,993,375,220	13,933,825,504
Collection of long-term loans			289,314,179,416	137,885,071,022
Proceeds from disposal of investments in associates			1,583,765,000	4,400,000,000
Proceeds from disposal of investments in subsidiaries			24,052,573,921	18,190,238,952
Proceeds from disposal of property, plant and equipment			158,421,189,421	30,945,823,222
Proceeds from disposal of intangible assets			4,171,598,941	2,123,427,853
Collection of lease receivables			3,964,205,660	-
Subtotal			783,555,799,684	495,302,061,393
Cash outflows for investing activities:				
Increase of short-term financial instruments			(84,111,790,349)	(192,467,598,730)
Acquisition of short-term investments in securities			(65,715,048,943)	(50,672,900,940)
Increase in short-term loans			(50,176,628,577)	(20,760,428,199)
Increase in long-term financial instruments			(15,317,962,712)	(73,854,397,933)
Acquisition of long-term investments in securities			(39,060,956,934)	(39,283,294,056)
Increase in long-term loans			(321,767,263,984)	(284,003,894,212)
Acquisition of investments in associates and joint ventures			(12,912,750,000)	(74,122,234,188)
Acquisition of property, plant and equipment			(377,389,228,462)	(231,413,553,611)
Acquisition of intangible assets			(385,396,995,198)	(309,784,390,949)
Acquisition of investment property			(992,815,000)	-
Others			(10,386,782,752)	(11,907,323,457)
Subtotal			(1,363,228,222,911)	(1,288,270,016,275)
Net cash used in investing activities		₩	(579,672,423,227)	(792,967,954,882)

See accompanying notes to the consolidated financial statements.

DOOSAN HEAVY INDUSTRIES & CONSTRUCTION CO., LTD. AND SUBSIDIARIES

Consolidated Statements of Cash Flows, Continued

For the years ended December 31, 2019 and 2018

(In won)	Note		2019	2018
Cash flows from financing activities				
Cash inflows from financing activities				
Increase in short-term borrowings, net		₩	910,964,629,135	-
Proceeds from asset-backed borrowings			1,957,800,000,000	2,047,500,000,000
Proceeds from long term asset-backed borrowings			325,818,311,839	337,112,406,111
Issuance of bonds			899,204,755,526	542,739,813,997
Proceeds from long-term borrowings			848,880,483,945	2,093,874,122,358
Paid in capital			471,750,000,000	-
Exercise of stock warrants			923,157	16,332,469
Increase of issuance of shares of subsidiaries			14,194,322,104	-
Exercise of stock warrants of subsidiaries			4,427,010	31,631,142,591
Proceeds from partial disposals of investments in subsidiaries			-	507,593,227,099
Subtotal			5,428,617,852,716	5,560,467,044,625
Cash outflows for financing activities				
Decrease in short-term borrowings, net			-	(836,548,065,004)
Repayment of current portion of long-term debt			(2,133,369,883,863)	(1,817,226,471,976)
Repayment of asset-backed borrowings			(2,188,655,209,184)	(2,204,081,747,692)
Repayment of long-term borrowings			(1,141,828,603,716)	(357,480,925,681)
Repayment of lease liabilities			(91,304,765,981)	-
Acquisition of treasury stock			-	(135,234,686)
Expense of common stock issuance			(9,387,044,272)	(8,247,908,039)
Reduction of capital stocks of subsidiaries			-	(35,796,000,000)
Payment of dividends			(14,390,062,723)	(14,904,860,057)
Payment of dividends of subsidiaries			(61,866,047,310)	(50,730,761,821)
Repayment of redeemable convertible preference shares			(318,344,218,152)	-
Repayment of hybrid securities			-	(345,431,018,268)
Subtotal			(5,959,145,835,201)	(5,670,582,993,224)
Net cash used in financing activities			(530,527,982,485)	(110,115,948,599)
Effect of movements in exchange rates fluctuations on cash held			42,472,690,559	18,705,493,088
Net increase (decrease) in cash and cash equivalents			(634,048,006,103)	105,181,688,550
Cash and cash equivalents at January 1			2,075,328,693,318	1,970,147,004,768
Cash and cash equivalents at December 31		₩	1,441,280,687,215	2,075,328,693,318

See accompanying notes to the consolidated financial statements.

1. Reporting entity

(1) The controlling company

Doosan Heavy Industries & Construction Co., Ltd. (the "Company") was incorporated on September 20, 1962, with its headquarters in Changwon, Korea. Since its incorporation, the Company has grown to become one of the leading global manufacturers of advanced power generation equipment. The Company engages in manufacturing of a range of thermal and nuclear power generation equipment including boilers, turbines and generators. It also engages in engineering, procurement and construction of thermal power plants. The Company also supplies seawater desalination and water treatment solutions to its clients.

The Company was listed on the Korea Exchange on October 25, 2000 and its major stockholder as of December 31, 2019 is Doosan Corp. (holding 34.36% equity ownership).

(2) Consolidated subsidiaries

Details of consolidated subsidiaries as of December 31, 2019 and 2018 are as follows:

Company	Key operating activities	Location	Ownership(%)(*1) 2019	Ownership(%)(*1) 2018	Closing date(*2)
Doosan Heavy Industries Vietnam Co., Ltd.	Manufacturing of machinery & equipment	Vietnam	100.00	100.00	December 31
Doosan HF Controls Corp.	Manufacturing	USA	100.00	100.00	"
Doosan HF Controls Asia Co., Ltd.	Manufacturing	Korea	100.00	100.00	"
PT. Doosan Heavy Industries Indonesia	Manufacturing	Indonesia	55.00	55.00	"
Doosan Heavy Industries Malaysia Sdn. Bhd.	Dormant	Malaysia	100.00	100.00	"
Doosan Heavy Industries Japan Corp.	Sales	Japan	100.00	100.00	"
S.C. Doosan IMGB S.A.	Manufacturing	Romania	99.92	99.90	"
Doosan Enpure Ltd.	Engineering & Services	UK	100.00	100.00	"
Doosan Power Systems India Private Ltd.	Engineering & Services	India	100.00	100.00	March 31
Doosan Heavy Industries Muscat LLC	Manufacturing	Oman	70.00	70.00	December 31
Doosan Power Systems Arabia Company Limited	Manufacturing & Services	Saudi Arabia	51.00	51.00	"
Azul Torre Construction Corporation(*3)	Manufacturing	Philippines	40.00	40.00	"
Doosan Heavy Industries America Holdings Inc.	Holdings Company	USA	100.00	100.00	"
Doosan Heavy Industries America LLC	Sales	USA	100.00	100.00	"
Doosan ATS America, LLC	Engineering & Services	USA	100.00	100.00	"
Doosan Power Service America, LLC	Engineering & Services	USA	100.00	100.00	"
Doosan Turbomachinery Services Holding, Inc.	Holdings Company	USA	95.90	95.90	"
Doosan Turbomachinery Services Inc.	Manufacturing	USA	100.00	100.00	"
Doosan GridTech Inc.	Software & System engineering	USA	100.00	100.00	"
Doosan GridTech LLC	Software & System engineering	USA	100.00	100.00	"
Doosan GridTech CA LLC	Software & System engineering	USA	100.00	100.00	"
Doosan GridTech EPC LLC	Software & System engineering	USA	100.00	100.00	"
Doosan GridTech C&I LLC(*7)	Software & System engineering	USA	100.00	-	"
Continuity Energy LLC(*7)	Software & System engineering	USA	100.00	-	"
Doosan Skoda Power s.r.o	Manufacturing	Czech	100.00	100.00	"
Skoda Power Private Ltd.	Engineering	India	100.00	100.00	March 31

Company	Key operating activities	Location	Ownership(%)(*1) 2019	2018	Closing date(*2)
Doosan Power Systems Pension Trustee Company Ltd.	Professional services	UK	100.00	100.00	December 31
Doosan Power Systems Overseas Investments Ltd.	Holdings Company	UK	100.00	100.00	"
Doosan Babcock Ltd.	Engineering & Services	UK	100.00	100.00	"
Doosan Power Systems Europe Limited GmbH	Engineering & Services	Germany	100.00	100.00	"
Doosan Power Systems Americas LLC	Engineering & Services, Sales	USA	100.00	100.00	"
Doosan Lentjes UK Limited	Dormant	UK	100.00	100.00	"
Doosan Lentjes GmbH	Engineering & Services	Germany	100.00	100.00	"
Doosan Power Systems S.A.("DPS S.A.")	Holdings Company	Luxem-bourg	100.00	100.00	"
Doosan Babcock Energy Technologies (Shanghai) Ltd.	Engineering & Services	China	100.00	100.00	"
Doosan Babcock Energy Services (Overseas) Ltd.	Engineering & Services	UK	100.00	100.00	"
Doosan Babcock Energy Polska Sp z.o.o.	Engineering & Services	Poland	98.91	98.91	"
Doosan Babcock Energy Germany GmbH	Engineering & Services	Germany	100.00	100.00	"
Doosan Lentjes Czech s.r.o	Professional services	Czech	100.00	100.00	"
AE & E Lentjes Belgie N.V.(*8)	Dormant	Belgium	-	100.00	"
Doosan Power Systems (Scotland) Ltd. Partnership	Real estate	UK	100.00	100.00	"
Doosan Babcock General Maintenance Services LLC(*3)	Professional services	UAE	49.00	49.00	"
Osung Power O&M Co., Ltd.	Engineering & Services	Korea	100.00	100.00	"
KDPP 3rd Co.,Ltd.(*4)	Asset Securitization	Korea	-	-	"
KDPP 4th Co.,Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
KDPP 5th Co.,Ltd.(*4, 7)	Asset Securitization	Korea	-	-	"
U Best 4th Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
U Best 5th Co., Ltd.(*4, 7)	Asset Securitization	Korea	-	-	"
FSS 8th Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
Happy Tomorrow 20th Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
Happy Tomorrow 25th Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
Happy Tomorrow 27th Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
New Star Power 1st Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
New Star Power 2nd Co., Ltd.(*4, 8)	Asset Securitization	Korea	-	-	"
Doosan Cuvex Co., Ltd. ("Cuvex")	Operation of resort and golf club	Korea	64.97	64.97	"
DBC Co., Ltd.("DBC")(*6)	Property development	Korea	49.90	77.20	"
Doosan Infracore Co., Ltd. ("DI") and subsidiaries(*5)	Manufacturing of machinery & equipment	Korea, etc	36.27	36.28	"
Doosan Engineering & Construction Co., Ltd. ("DEC") and subsidiaries	Construction and manufacturing	Korea, etc	89.03	66.39	"

(*1) The ownership percentage represents the equity interest held by the Company (the parent) in each respective subsidiary, except Doosan Heavy Industries Vietnam Co., Ltd. of which 23.67% of equity interest are owned by DEC, Cuvex of which 24.66%, 3.98% of equity interest are owned by DI and Doosan Bobcat Korea Co., Ltd respectively, Doosan Turbomachinery Services Inc. of which 100% of equity interest is owned by Doosan Turbomachinery Services Holding, Inc. Overall, the Company and its subsidiaries (the "Group") has an effective ownership interest of 97.40% of the Doosan Heavy Industries Vietnam Co., Ltd. and 46.02% of Cuvex and 95.90% of Doosan Turbomachinery Services Inc.

(*2) Where the reporting date of subsidiaries is not consistent with that of the Company based on local laws, adjustments have been made to conform to the Company's reporting date for preparation of consolidated financial statements.

(*3) Although the Company's ownership does not exceed 50%, it is classified as a consolidated subsidiary since the Group is considered to have the majority voting rights in the equity's board of directors, and others.
(*4) The Group assessed that it has control over the special purpose entity as the entity's activities are substantively governed by the Group.
(*5) Although the Company's ownership interest in the investee is less than majority, the Company assessed that it has control over the investee based on its holdings relative to the size and dispersion of ownership interests held by other equity holders and the voting patterns in previous shareholders' meetings.
(*6) For the year ended December 31, 2019, the Group lost control and the subsidiary was reclassified as an associate.
(*7) It was established for the year ended December 31, 2019.
(*8) For the year ended December 31, 2019, the Group lost control of the subsidiary due to liquidation or repayment of borrowings.

(3) Summary financial information of major subsidiaries

Summarized financial information of subsidiaries as of and for the year ended December 31, 2019 is as follows:

(In millions of won)

Company		Assets	Liabilities	Sales	Net profit (loss)	Total comprehensive income (loss)
Doosan Heavy Industries Vietnam Co., Ltd.	₩	449,480	328,217	384,782	61,026	61,026
Doosan HF Controls Corp.		28,361	6,508	19,007	5,403	5,403
PT. Doosan Heavy Industries Indonesia		14,303	85,401	-	(4)	(4)
Doosan Heavy Industries Japan Corp.		12,644	9,183	2,072	33	33
S.C. Doosan IMGB S.A.		70,502	29,696	56,451	(77,927)	(77,927)
Doosan Enpure Ltd.		34,760	31,399	89,636	379	379
Doosan Power Systems India Private Ltd.		781,789	688,851	701,513	(44,462)	(39,921)
Doosan Heavy Industries Muscat LLC		41,355	46,136	45,019	(1,292)	(1,292)
Doosan Power Systems Aribia Company Limited		24,571	17,927	9,967	(2,033)	(2,033)
Doosan Heavy Industries America Holdings Inc.		149,594	44,380	-	(1,625)	(1,625)
Doosan Turbomachinery Services Inc.		49,987	31,589	51,597	2,288	2,288
Doosan Heavy Industries America LLC		11,309	4,155	3,261	493	493
Doosan GridTech Inc.		19,329	21,356	131	(12,110)	(12,110)
Doosan GridTech EPC LLC		14,505	12,242	20,322	1,945	1,945
Doosan Skoda Power s.r.o		492,692	85,292	225,045	18,975	20,842
Doosan Power Systems Overseas Investments Ltd.		76,753	98,064	-	(3,370)	(3,370)
Doosan Babcock Ltd.		1,145,394	456,192	473,608	2,486	20,588
Doosan Power Systems Europe Limited GmbH		66,081	183,619	-	(11,363)	(11,363)
Doosan Lentjes GmbH		61,807	57,622	28,570	(14,370)	(19,144)
DPS S.A.		1,294,288	840,673	-	(34,347)	(49,361)
Doosan Babcock Energy Polska Sp z.o.o.		39,838	31,510	32,924	51	51
Doosan Power Systems (Scotland) Ltd. Partnership		33,478	2,247	-	1,445	1,445
Doosan Babcook General Maintenance Services LLC		26,585	69,921	48,916	(10,862)	(10,862)
Cuvex		220,792	103,295	68,412	934	6,358
DI and subsidiaries		11,338,593	7,071,041	8,185,840	395,698	500,698
DEC and subsidiaries		2,329,566	1,763,226	1,781,925	(75,166)	(72,599)

(4) Changes in the scope of consolidation

Changes in the scope of consolidation during the year ended December 31, 2019 are as follows:

Company	Description	Reason
Happy Tomorrow 20th Co., Ltd.	Excluded from consolidation	Liquidation
Happy Tomorrow 25th Co., Ltd.	Excluded from consolidation	Liquidation
Happy Tomorrow 27th Co., Ltd.	Excluded from consolidation	Liquidation
New Star Power 1st Co., Ltd.	Excluded from consolidation	Liquidation
New Star Power 2nd Co., Ltd.	Excluded from consolidation	Liquidation
GMS 1st Co., Ltd.	Excluded from consolidation	Repayment of borrowings
DS Hwado 1st	Newly included in consolidation/Excluded from consolidation	New borrowing/Repayment of borrowings
Doosan International Luxemburg S.a.r.l.	Excluded from consolidation	Liquidation
Doosan Techno Holding Co., Ltd.	Excluded from consolidation	Liquidation
D20 Capital, LLC(*1)	Newly included in consolidation	Establishment of new corporation
Doosan Bobcat Global Collaboration Center, Inc.	Newly included in consolidation	Establishment of new corporation
Doosan GridTech C&I LLC	Newly included in consolidation	Establishment of new corporation
DBC Co.,Ltd.	Excluded from consolidation	Loss of control
Ubest 5th Co., Ltd.	Newly included in consolidation	New borrowing
Great GM 6th., Ltd.	Excluded from consolidation	Repayment of borrowings
Doosan E&C 3rd Co., Ltd.	Excluded from consolidation	Repayment of borrowings
New Start DM 7th Co., Ltd.	Newly included in consolidation	New borrowing
Doosan E&C 4th Co., Ltd.	Newly included in consolidation	New borrowing
Continuty Energy LLC	Newly included in consolidation	Establishment of new corporation
Clue Insight Inc.	Newly included in consolidation	Establishment of new corporation
Doosan Infracore Europe S.A.	Excluded from consolidation	Liquidation
Doosan Benelux SA.	Excluded from consolidation	Liquidation
New Start DM 8th Co., Ltd.	Newly included in consolidation	New borrowing
DEC treasury stock	Excluded from consolidation	Termination of trust
DM best 4th Co., Ltd	Excluded from consolidation	Repayment of borrowings
KDPP 5th Co., Ltd.	Newly included in consolidation	New borrowing
AE & E Lentjes Belgie N.V.	Excluded from consolidation	Liquidation
KDPP 4th Co., Ltd.	Excluded from consolidation	Repayment of borrowings
Ubest 4th Co., Ltd.	Excluded from consolidation	Repayment of borrowings
FWS 8th Co., Ltd	Excluded from consolidation	Repayment of borrowings
Doosan Infracore Czech Republic s.r.o	Newly included in consolidation	Establishment of new corporation
D20 CAPITAL FUND I, L.P.	Newly included in consolidation	Establishment of new corporation

(*1) Doosan Ventures, LLC changed its name to D20 Capital, LLC.

(5) Significant non-controlling interests

Financial information of subsidiaries attributable to significant non-controlling interests as of December 31, 2019 is as follows:

(In millions of won)

Company		Net profit (loss) attributable to non-controlling interests	Cumulative non-controlling interests	Dividends allocated to non-controlling interests
DI and subsidiaries	₩	302,549	3,569,064	(53,980)
DEC and subsidiaries		(11,981)	23,308	(6,200)
Cuvex		1,175	70,967	(1,686)

(6) Cash flow information for subsidiaries with significant non-controlling interests

Cash flow information for subsidiaries with significant non-controlling interests for the year ended December 31, 2019 is as follows:

(In millions of won)

		2019		
		DI and subsidiaries	DEC and subsidiaries	Cuvex
Ⅰ. Net cash flows provided by (used in) operating activities	₩	567,418	(74,316)	4,241
Ⅱ. Net cash flows used in investing activities		(339,375)	(9,200)	(888)
Ⅲ. Net cash flows provided by (used in) financing activities		(549,790)	24,301	(3,430)
Ⅳ. Effect of exchange rate fluctuations on cash held		24,904	202	-
Ⅴ. Net decrease in cash and cash equivalents		(296,843)	(59,013)	(77)
Ⅵ. Cash and cash equivalents as at January 1		1,053,016	99,095	1,068
Ⅶ. Cash and cash equivalents as at December 31	₩	756,173	40,082	991

2. Significant accounting policies and basis of preparation

(1) Basis of consolidated financial statements

The Group has prepared the consolidated financial statements in accordance with the K-IFRS.

The significant accounting principles as applied in the consolidated financial statements correspond to those pertaining to the annual consolidated financial statements for the year ended December 31, 2018, except for the effects associated with the introduction of the Standard or Interpretation as described below.

The accompanying consolidated financial statements have been prepared on the historical cost basis, except for certain properties/non-current assets and financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is based on the fair values of the consideration given in exchange for assets.

The principal accounting policies are set out below.

1) Amendments to K-IFRS and new interpretations that are mandatorily effective for the current year

(a) K-IFRS No. 1116 'Leases' (Enactment)

K-IFRS No. 1116 introduces a single accounting model, and as a result, the Group recognize a right-of-use asset that represents the right to use the underlying asset as a lessee and a lease liability that represents an obligation to pay the lease. The lessor accounting model is similar to the previous accounting policy.

The Group has recognized the cumulative effect of initial application of K-IFRS No. 1116 in retained earnings on January 1, 2019 (the date of initial application). Consequently, comparative financial statements is applied and not restated in K-IFRS No. 1017 Leases and related interpretations as previously reported. The impact of the adoption of K-IFRS No. 1116 on the Group's consolidated financial statements is described below.

- New definition of a lease

Previously, the Group applied K-IFRS No. 2104 'Decisions on whether an arrangement contains a lease' to determine whether the arrangement is a lease or a lease at the date of the contractual arrangement. The Group now assesses whether a contract is or contains a lease based on the new definition of a lease. Under K-IFRS No. 1116, a contract is, or contains, a lease if the contract conveys a right to control the use of an identified asset for a period of time in exchange for consideration.

At the date of initial application of K-IFRS No. 1116, the Group chose to apply a practical expedient that does not reassess whether the contract is a lease. The consolidation entity has applied K-IFRS No. 1116 only to contracts previously identified as leases. It did not reassess whether a lease is a lease that is not identified in accordance with K-IFRS No. 1017 and K-IFRS No. 2104. Therefore, the definition of a lease in accordance with K-IFRS No. 1116 applies only to contracts that have been entered into or changed since January 1, 2019.

At the date of the agreement or the date of reassessment of the contract that includes the lease element, the Group allocate the contract consideration based on the relative stand-alone price of each lease element and non-lease element. However, the Group have chosen a practical expedient that does not separate the non-lease element in the lease agreement for the lessee and will account for the non-lease element as one lease element.

- Impact on lessee accounting

The Group previously classified the lease as an operating lease or finance lease, depending on whether the lease transfers most of the risks and rewards of ownership of the underlying asset. Under K-IFRS No. 1116, the Group recognizes a right-of-use asset and a lease liability for most leases. That is, most leases are displayed in the statement of financial position.

However, the Group have chosen not to recognize right-of-use assets and lease liabilities for some low-value asset leases. The Group recognize the lease as an expense on a fixed basis over the lease term. The Group present the right-of-use asset as tangible assets in the statement of financial position, and the carrying amount of the right-of-use asset is as follows:

(In millions of won)		Fixed asset				
		Land	**Buildings**	**Machinery**	**Others**	**Total**
Balance at January 1, 2019	₩	18,858	178,976	5,275	54,551	257,660
Balance at December 31, 2019		18,503	174,438	4,149	32,479	229,569

The Group present lease liabilities in a separate line item in the statement of financial position.

① Significant accounting policy

The Group assesses whether a contract is or contains a lease, at inception of the contract. The Group recognizes a right-of-use asset and a corresponding lease liability with respect to all lease arrangements in which it is the lessee.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted by using the rate implicit in the lease. If this rate cannot be readily determined, the Group uses its incremental borrowing rate.

The lease liability is subsequently measured by increasing the carrying amount to reflect interest on the lease liability (using the effective interest method) and by reducing the carrying amount to reflect the lease payments made.

The lease term has changed or there is a significant event or change in circumstances resulting in a change in the assessment of exercise of a purchase option, in which case the lease liability is remeasured by discounting the revised lease payments using a revised discount rate.

The Group apply judgment when determining the lease duration for some lease agreements, including extended options. The assessment of whether the Group will exercise the extended option has a significant effect on the amount of the lease liability and the right-of-use asset because it affects the lease term.

② Transitional provision

In accordance with K-IFRS No. 1017, the Group previously classified part of the building and vehicle transport as operating leases. At the time of transition, the lease liability is measured at the present value of the remaining lease payments discounted at the Group's incremental borrowing rate as of January 1, 2019.

The Group has applied K-IFRS No. 1116 using the cumulative catch-up approach, with these practical expedients.

- To elect not to recognise right-of-use asset and lease liability to leases for which the lease term ends within 12 months of the date of initial application
- To exclude initial direct costs from the measurement of the right-of-use asset at the date of initial application
- To use hindsight, such as in determining the lease term if the contract contains options to extend or terminate the lease

- Lessor accounting

The accounting policies that the Group apply as leases are not different from those in K-IFRS No. 1017. However, if the Group is an intermediate lease provider, the entire lease is classified based on the right-of-use assets arising from the higher lease rather than the underlying asset.

Under K-IFRS No. 1116, an intermediate lessor accounts for the head lease and the sub-lease as two separate contracts. The intermediate lessor is required to classify the sub-lease as a finance or operating lease by reference to the right-of-use asset arising from the head lease.

- Impact on financial statements

a) Impact on January 1, 2019

At the time of transition to K-IFRS No. 1116, the Group has recognized additional the right-of-use asset and lease liabilities, and the effect on the transition is as follows:

(In millions of won)

		Amount
Right-of-use asset	₩	257,660
Investment property		27,729
Lease receivables		15,348
Other non-current assets		(27,879)
Total	₩	272,858
Lease liabilities		34,634
Non-lease liabilities		253,992
Total	₩	288,626
Retained earnings		(10,735)
Non-controlling interest		(5,033)
Total	₩	(15,768)

When measuring lease liabilities for leases classified as operating leases, the Group used the incremental borrowing interest rate of January 1, 2019 to discount the lease charges. The incremental borrowing rate applied is 2.15% to 10.43%.

(In millions of won)

		Amount
Operating lease commitments as of December 31, 2018	₩	374,032
(-) : Application of exemption for small value asset leases and short-term leases, etc.		(14,463)
Discounted amount at incremental borrowing interest rate as of January 1, 2019		287,132
(+) : Adjustment due to the difference in accounting for the extended option and the termination options		374
(+) : Lease-related arrangements previously classified as finance leases		1,120
Lease liabilities as of January 1, 2019		288,626

b) Effects of transition period

As a result of the initial application of K-IFRS No. 1116, the Group recognizes right-of-use assets of ₩229,569 million, leases receivables ₩10,205 million and leases liabilities ₩256,538 million for leases previously classified as operating leases as of December 31, 2019, respectively.

In addition, in relation to leases under K-IFRS No. 1116, the Group recognized depreciation and interest expenses instead of operating lease expenses. The Group has recognized depreciation cost of ₩91,126 million and interest expense of ₩16,026 million for the year ended December 31, 2019, respectively (See note 14).

(b) K-IFRS No. 1109 'Financial Instruments' (Amendment)

If some pre-payable financial assets that involve negative compensation are modified to be measured at amortized cost, and financial liabilities measured at amortized cost have been conditioned but not eliminated, the effect of the modification shall be recognized in profit or loss.

(c) K-IFRS No. 1019 'Employee Benefits Plan' (Amendment)

The Group has adopted the amendments of K-IFRS No. 1019 for the first time in the current year. The amendments clarify that the past service cost (or of the gain or loss on settlement) is calculated by measuring the defined benefit liability (asset) using updated assumptions and comparing benefits offered and plan assets before and after the plan amendment (or curtailment or settlement) but ignoring the effect of the asset ceiling (that may arise when the defined benefit plan is in a surplus position). K-IFRS No. 1019 is now clear that the change in the effect of the asset ceiling that may result from the plan amendment (or curtailment or settlement) is determined in a second step and is recognized in the normal manner in income (loss).

(d) K-IFRS No. 1028 'Investments in Associates and Joint Ventures' (Amendment)
It clarified that other financial instruments (those that do not apply the equity method) for associates or joint ventures are subject to K-IFRS No. 1109 and amended to apply K-IFRS No. 1109 first to the accounting for impairment of long-term investments that form part of the net investment in associates or joint ventures.

Under the transitional provisions of this Standard, the Group recognized loss of ₩23,667 million in equity method on long-term loans that can be interpreted as long-term investment interests of related companies at the beginning of the current period, reducing retained earnings and non-controlling interests by ₩21,071 million and ₩2,596 million, respectively.

(e) K-IFRS No. 2123 'Interpretation Uncertainty over Income Tax Treatments' (Enactment)

K-IFRS No. 2123 sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The interpretation requires an entity to determine whether uncertain tax positions are assessed separately or as a group

(f) Annual improvements to K-IFRS Standards 2015–2017 Cycle

The Annual improvements include amendments to four standards such as K-IFRS No. 1012 'Income Taxes', K-IFRS No. 1023 'Borrowing Costs', K-IFRS No. 1103 'Business Combinations', and K-IFRS No. 1111 'Joint Arrangements'.

Except for above effects, there are no significant effects from the new standards and interpretations introduced in the current period.

2) New and revised K-IFRSs in issue, but not yet effective

The new and revised K-IFRSs in issue include amendments to standards such as K-IFRS No. 1001 'Presentation of Financial Statements', K-IFRS No. 1008 'Accounting Policies, Changes in Accounting Estimates and Errors', K-IFRS No. 1103 'Business Combinations'.

The Group does not anticipate that the application of the enactment and amendments will have a significant impact on the Group's consolidated financial statements.

(2) Basis of consolidation

The consolidated financial statements comprise the financial statements of the Company and its subsidiaries as at December 31, 2019. Control is achieved when the Group is exposed, or has rights, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. Specifically, the Group controls an investee if and only if the Group has:

- Power over the investee (i.e. existing rights that give it the current ability to direct the relevant activities of the investee)
- Exposure or rights to variable returns from its involvement with the investee, and
- The ability to use its power over the investee to affect its returns

When the Group has less than a majority of the voting or similar rights of an investee, the Group considers all relevant facts and circumstances in assessing whether it has power over an investee, including:

- The contractual arrangement with the other vote holders of the investee
- Rights arising from other contractual arrangements
- The Group's voting rights and potential voting rights

The Group re-assesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when the Group obtains control over the subsidiary and ceases when the Group loses control of the subsidiary. Assets, liabilities, income and expenses of a subsidiary acquired or disposed of during the year are included in the statement of profit or loss and the statement of comprehensive income from the date the Group gains control until the date the Group ceases to control the subsidiary.

Profit or loss and each component of other comprehensive income (OCI) or loss are attributed to the equity holders of the parent of the Group and to the non-controlling interests, even if this results in the non-controlling interests having a deficit balance. When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies into line with the Group’s accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated in full on consolidation.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction. If the Group loses control over a subsidiary, the Group:

- Derecognizes the assets (including goodwill) and liabilities of the subsidiary
- Derecognizes the carrying amount of any non-controlling interests
- Derecognizes the cumulative translation differences recorded in equity
- Recognizes the fair value of the consideration received
- Recognizes the fair value of any investment retained
- Recognizes any surplus or deficit in profit or loss
- Reclassifies the parent’s share of components previously recognized in OCI to profit or loss or retained earnings, as appropriate, as would be required if the Group had directly disposed of the related assets or liabilities

(3) Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence and is neither a subsidiary nor an investment in a joint venture. The Group generally holds, directly or indirectly through subsidiaries, between 20% and 50% of the voting power of the entity. A joint venture is a type of joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint venture. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

The Group’s investments in its associate and joint venture accounted for using the equity method. Under the equity method, the investment in an associate or a joint venture is initially recognized at cost. Goodwill relating to the associate or joint venture is included in the carrying amount of the investment and is neither amortized nor individually tested for impairment.

After acquisition, the Group's share of the profit or loss and other comprehensive income or loss of the associates and jointly controlled entities are recognized as profit or loss and other comprehensive income or loss and the Group's share of the changes in retained earnings of the associates and joint ventures are recognized as retained earnings. When the Group's share of losses of an associates and joint ventures exceeds the Group's interest in those entities (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate), the Group discontinues recognizing its share of further losses.

Additional losses are recognized only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associates and joint ventures.

Unrealized gains from transactions between the Group and its associates and joint ventures are eliminated up to the interests in those entities. Unrealized losses are also eliminated unless evidence of impairment in assets transferred is provided.

When necessary, the Group may revise associates' and joint ventures' financial statements, to apply consistent accounting policies as the Group, prior to applying the equity method of accounting for its investments in the associates and joint ventures.

For overseas investees whose financial statements are prepared in foreign currencies, the equity method of accounting is applied after assets and liabilities are translated in accordance with the accounting treatments for the translation of the financial statements of overseas' subsidiaries for consolidated financial statements. The Group's proportionate share of the difference between assets net of liabilities and equity after translating into Korean Won is accounted for as "increase (decrease) in equity adjustments in equity method investments" included in accumulated other comprehensive income (loss).

(4) Foreign currency translation

1) Functional currency and presentation currency

The Group's financial statements are presented in the currency of the primary economic environment in which it operates (its functional currency). The functional currency of the Group and the presentation currency for the consolidated financial statements of the Group are Korean won.

2) Transactions and balances

Transactions in currencies other than the entity's functional currency are recognized at the rates of exchange prevailing at the dates of the transactions. Foreign currency gain (loss) from settlements of foreign currency transactions or translation of monetary items denominated in foreign currencies are recognized in profit or loss whereas the gain (loss) from qualified cash flow hedge and net investment hedge for foreign operations is deferred as an equity item.

3) Group companies

For the purpose of presenting consolidated financial statements, the assets and liabilities of the Group's foreign operations with different functional currencies are translated into presentation currency of the Group using exchange rates prevailing at the end of the reporting period. Income and expense items are translated using the average exchange rates for the period, unless exchange rates fluctuated significantly during that period, in which case the exchange rates at the dates of the transactions are used. Exchange differences, if any, are recognized in other comprehensive income or loss and accumulated in equity (attributed to non-controlling interests as appropriate).

Exchange differences from the net investment in the foreign operation, and borrowings and other foreign currency instruments designated as hedging instrument for the net investment in the foreign operation are recognized in other comprehensive income or loss. On the disposal of a foreign operation resulting in loss of control, all of the accumulated exchange differences in respect of that operation are reclassified to profit or loss.

Goodwill and fair value adjustments arising from the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated at the closing rate.

(5) Cash and cash equivalents

Cash and cash equivalents include cash on hand, demand deposits, short-term, highly liquid investments with maturities (or date of redemption) of three months or less upon acquisition. Bank overdraft is classified as short-term borrowings on the consolidated statements of financial position.

(6) Non-derivative financial assets

1) Initial recognition and measurement

Trade and other receivables, and debt investment are initially recognized when they are originated. Other financial assets and financial liabilities are recognized when the Group becomes a party to the contractual provisions of the instruments.

A financial asset and financial liability (unless it is a trade receivable - trade without a significant financing component that is initially measured at the transaction price) are initially measured at fair value plus, for an item not at fair value through profit or loss ("FVTPL"), transaction costs that are directly attributable to its acquisition.

2) Classification and subsequent measurement

On initial recognition, a financial asset is classified as measured at: amortized cost; FVOCI - debt investment; FVOCI - equity investment; or FVTPL. The classification of financial assets is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. In case of changing its business model, all affected financial asset are reclassified on the first day of the first reporting period after the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:
- it is held within a business model whose objective is to hold assets to collect contractual cash flow; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:
- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in other comprehensive income. This election is made on an investment-by-investment basis and irrevocable election can be made at initial recognition.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets. On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

The Group makes an assessment of the objective of the business model in which, financial assets is held at a portfolio level because this best reflects the way the business is managed, and information is provided to management. The information considered includes:
- the stated policies and objectives for the portfolio and the operation of those policies in practice;
- how the performance of the business model and the financial assets held within that business model are evaluated and reported to the entity's key management personnel;
- the risks that affect the performance of the business model (and the financial assets held within that business model) and, in particular, the way in which those risks are managed;
- how managers of the business are compensated (e.g. whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected); and
- the frequency, volume and timing of sales of financial assets in prior periods, the reason for those sales and expectation about future sales activity for financial asset.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with the Group's continuing recognition of the assets.

For the purposes of this assessment, 'principal' is defined as the fair value of the financial assets on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g. liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Group considers:
- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable-rate features;
- prepayment and extension features; and
- terms that limit the Group's claim to cash flows from specified assets (e.g. non-recourse features).

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract. Additionally, for a financial asset acquired at a discount or premium to its contractual par value, a feature that permits or requires prepayment at an amount that substantially represents the contractual par value plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

The following accounting policies apply to subsequent measurements of financial assets.

Classification	Subsequent measurement
Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective Interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

3) De-recognition

The Group derecognizes a financial asset when the contractual rights to the cash flows from the asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group enters into transactions whereby it transfers assets recognized in its statement of financial position but retain either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

4) Offsetting between financial assets and financial liabilities

Financial assets and financial liabilities are offset and the net amount is presented in the consolidated statement of financial position only when the Group currently has a legally enforceable right to offset the recognized amounts, and there is the intention to settle on a net basis or to realize the asset and settle the liability simultaneously.

(7) Impairment of financial assets

1) Recognition of impairment on financial assets

The Group recognizes loss allowances for expected credit losses ("ECLs") on:
- financial assets measured at amortized costs; and
- debt securities measured at FVOCI
- contract assets.

The Group's impairment losses are likely to be recognized a lifetime ECLs based on the extent of increase in credit risk since inception except for below asset to be recognized loss allowances measured on 12-month.

- credit risk of debt instruments is low at the end of reporting date
- credit risk has not increased significantly since the initial recognition of debt investment (lifetime ECL: ECL that resulted from all possible default events over the expected life of a financial instrument)

The Group adopted an accounting policy to recognize loss allowances at an amount equal to lifetime ECL for trade receivables and contract assets.

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition and estimating expected credit loss. The Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

Lifetime expected credit loss that resulted from all possible default events over the expected life of a financial instrument. And 12-month ECLs that resulted from possible default events within the 12 months (or a shorter period if the expected life of the instrument is less than 12 months) after the reporting date.

The longest period to consider when measuring ECLs is the longest term for which the Group is exposed to credit risk.

2) Measurement of expected credit loss

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of financial instrument.

3) Credit-impaired financial instrument

A debt instrument carried at amortized cost and FVOCI is assessed at the end of each reporting period to determine whether there is objective evidence that it is impaired. A financial asset is impaired if objective evidence indicates that the loss event had a negative effect on the estimated future cash flows of that asset that can be estimated reliably.

Objective evidence that a financial asset is impaired includes:

- significant financial difficulty of the issuer or borrower;
- a breach of contract, such as default or delinquency in interest or principal payments;
- the lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider;
- it becomes probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for that financial asset because of financial difficulties

4) Presentation of credit loss allowance on financial position

For loss allowance on financial assets measured at amortized cost is deducted from the carrying amount of the respective assets, while loss allowance on debt instruments at FVOCI is recognized in OCI.

5) De-recognition

The Group derecognizes a financial asset when it has no reasonable expectations of recovering the contractual cash flows on a financial asset in its entirety or a portion thereof. The Group assess whether there are reasonable expectations of recovering the contractual cash flows from customers and individually assess the timing and amount of write-off. The Group does not expect that such write-off will be recovered but they may be subject to collection activity according to the Group's past due collection process.

(8) Trade receivables

Trade receivables are amounts owed by customer for products and services provided in the ordinary course of business. Receivables expected to be collected within one year are classified as current assets. Otherwise they are classified as non-current assets. Trade receivables are initially measured at fair value except that the they do not contain a significant financing component in accordance with K-IFRS No. 1109 and are presented as net of allowance for doubtful accounts, estimated on an individual basis based on past bad debt experience.

(9) Inventories

Inventories are stated at the lower of cost and net realizable value. Cost of inventories includes fixed and variable manufacturing overhead costs which are systematically allocated to inventories by appropriate methods based on each category of inventory. The cost of inventories is determined by the specific identification method for finished goods, work-in-process, and materials in transit, and gross average method for all other inventories.

The Group periodically reviews changes in net realizable value of inventories (current replacement cost for raw materials) due to damage, obsolescence, decline in selling prices and others and recognizes loss on inventory valuation. Loss on inventory valuation is charged to cost of sales when it is ordinary and to other non-operating expense when it is extraordinary. When the circumstances that previously caused inventories to be written down below cost no longer exist and the new market value of inventories subsequently recovers, the valuation loss is reversed to the extent of the original valuation loss and the reversal is deducted from cost of sales

(10) Property, plant and equipment

Property, plant and equipment is stated at cost less subsequent accumulated depreciation and accumulated impairment losses. When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment. The cost of an item of property, plant and equipment includes expenditure that is directly attributable to the acquisition of the asset including the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs incurred to replace part of previously recognized item of property, plant and equipment are added to the carrying amount of an asset, or recognized as a separate asset, if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. The carrying amount of what was replaced is derecognized. Routine maintenance and repairs are expensed as incurred.

Depreciation of property, plant and equipment is calculated to the cost of each asset less residual value using the straight-line method over the estimated useful lives of the assets as follows:

	Useful lives
Buildings	10~48 years
Structures	5~40 years
Machinery	2~20 years
Right-of-use asset	Lease term
Others	3~15 years

If a part of a property, plant and equipment has significant cost in relation to the total cost property, plant and equipment, it is depreciated separately.

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

When there is indicator for impairment, and the carrying amount of property, plant and equipment is higher than the recoverable amount, the carrying amount is adjusted to the recoverable amount and the difference is recognized as an impairment loss. Meanwhile, when the recoverable amount subsequently exceeds the carrying amount of the impaired asset, the excess is recorded as a reversal of impairment loss to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation, if no impairment loss had been recognized. Upon derecognition of a property, plant and equipment, the difference between the net disposals proceed and carrying amount of the item is recognized in other non-operating income (expense).

A revaluation surplus is recorded in OCI and credited to the asset revaluation reserve in equity. However, to the extent that it reverses a revaluation deficit of the same asset previously recognized in profit or loss, the increase is recognized in profit and loss. A revaluation deficit is recognized in the statement of profit or loss, except to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

(11) Intangible assets

Intangible assets are initially measured at cost and are carried at cost less accumulated amortization and accumulated impairment losses. Subsequent expenditure on an intangible asset is capitalized only when it is probable that the expected future economic benefits that are attributable to the asset will increase.

Intangible assets other than goodwill and intangibles with indefinite useful lives are amortized on a straight-line basis over their estimated useful lives from the date that they are available for use. The estimated useful lives of the intangible assets are as follows:

	Useful lives
Industrial property rights	5~10 years
Development costs	3~12 years(*1)
Others	2~20 years

(*1) In principle, limit of 3 to 12 years is applied, but if objective and reasonable estimated profit generation period exceeds 3 to 12 years, that period can be applied.

Goodwill acquired in business combination is the consideration paid in excess of the fair value of the group's interest in the identifiable net assets of the subsidiary acquired at the acquisition date, and the goodwill resulting from the acquisition of the subsidiary is included in the intangible asset. The goodwill is not amortized, is annually tested for impairment and is the cost less accumulated impairment losses. Reversal of an impairment losses for goodwill would is prohibited. The goodwill is distributed to the cash-generating unit for the purpose of impairment testing, and the distribution is made to the identified cash-generating unit or group of cash-generating units that are expected to benefit from the business combination in which the goodwill occurs, and it is determined by the sales segment.

Expenditures relating to development activities are capitalized when the result of the development is for the development of new products or substantial improvement of functions of existing products; there is technical and commercial feasibility of completing the development; and the Group has the ability to measure reliably the expenditure attributable to the development. Capitalized development cost include expenditure on materials, salaries, wages and other employment-related costs of personnel directly engaged in generating assets and related overhead cost which is systematically allocated. Capitalized development costs are presented at the acquisition cost less accumulated amortization and accumulated impairment losses. Capitalized development costs are amortized using the straight-line method over the estimated useful life and amortization expenses are included in cost of goods manufactured and amortization in selling and administrative expenses. The expenditure on research and development which does not meet conditions noted above is recognized as an expense when it is incurred.

The estimated useful life and amortization method for intangible assets with finite useful lives are reviewed at the end of each reporting period and for the assets which have been assessed as having indefinite useful life, that assessment is revisited each period, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

However, useful lives of certain trademarks and memberships, which are determined to be indefinite since there is no foreseeable limit to the period over which the assets are expected to generate net cash inflows for the Group, are not amortized but tested for impairment once a year.

(12) Investment property

Investment properties are properties held to earn rentals and/or for capital appreciation. Investment properties are measured initially at cost, including transaction costs. Subsequent to initial recognition, the book value of investment property is presented at the cost less accumulated depreciation and accumulated impairment.

While land is not depreciated, building is depreciated using the straight-line method over the useful lives between 20 and 48 years.

The estimated useful lives, residual values and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for as a change in accounting estimate.

(13) Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use.

(14) Impairment of non-financial assets

Assets with indefinite useful lives such as goodwill are not amortized but tested for impairment annually. Assets which are amortized or depreciated are tested for impairment to determine whether events and circumstances indicating those assets have suffered impairment exist. Impairment loss is the excess of the carrying amount over recoverable amount.

Recoverable amount is the higher of fair value less costs to sell and value in use. When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs. When a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual cash-generating units, or otherwise they are allocated to the smallest group of cash-generating units for which a reasonable and consistent allocation basis can be identified. Except for goodwill, all non-financial assets that have incurred impairment are tested for reversal of impairment at the end of each reporting period.

(15) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at FVTPL or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

1) Financial liabilities at FVTPL

Financial liabilities at FVTPL include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at FVTPL are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, any directly attributable transaction costs are recognized in profit or loss as incurred.

2) Financial liabilities at amortized cost

Non-derivative financial liabilities other than financial liabilities at FVTPL are classified as financial liabilities at amortized cost. At the date of initial recognition, financial liabilities at amortized cost are measured at fair value less any directly attributable transaction costs. Subsequent to initial recognition, financial liabilities at amortized cost are measured at amortized cost using the effective interest rate method.

3) Derecognition of financial liability

The Group derecognizes financial liability when its contractual obligations are discharged, cancelled or expired. The Group also derecognizes a financial liability, when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized a fair value. On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred of liabilities assumed) is recognized in profit or loss.

(16) Borrowings

Borrowings are measured initially at fair value, net of transaction costs and subsequently at amortized cost using the EIR, with interest expense being recognized on an effective yield basis. The difference between the amount received and the redemption amount is amortized using the effective interest method and recognized in profit or loss. Borrowings are classified as non-current liabilities when the Group has an unconditional right to defer settlement of the liability for at least twelve months after the end of the reporting period. Otherwise borrowings are classified as current liabilities.

(17) Compound financial instrument

Compound financial instruments issued by the Group are classified as a financial liability or an equity instrument in accordance with the substance of the contractual arrangement. The conversion right of convertible bonds and stock warranties embedded in compound financial instrument issued by the Group which can, at the option of the holder, be converted into a fixed number of equity instruments in the Group, is classified as equity.

The liability component of a convertible bonds and bonds with stock warranties is recognized at the fair value of a similar liability on initial recognition and be measured at amortized cost by applying the EIR until it is extinguished. The equity component is measured by deducting the fair value of the liability component from the fair value of the compound financial instrument as a whole on initial recognition. Any tax effect is also reflected, and such instrument is not subsequently remeasured.

The conversion right that is an embedded derivative is recognized at the market value of a similar derivative or at the fair value derived from an appropriate valuation model. Subsequent changes in fair value of the conversion right are recognized in profit or loss.

(18) Financial guarantee contracts

The Group has financial guarantee contract liabilities, which are obligations to pay specific amounts for indemnifying creditors' loss on insolvency of specific debtors according to initial or revised contract provisions of liabilities on the payment date. Financial guarantee contract liabilities are initially measured at their fair value less the direct transaction cost relating to the issuance. Subsequently, financial guarantee contract liabilities are measured at the higher of the amount of the loss allowance determined in accordance with K-IFRS No. 1109 'financial instruments', and the amount initially recognized less the cumulative amortizations recognized in accordance with the K-IFRS No. 1115 'Revenue from contracts with customers'.

(19) Employee benefits liability

The Group operates various types of benefit plans, and generally makes contributions calculated based on periodic actuarial calculations to separately administered funds such as qualifying insurance companies or trust funds.

A defined contribution plan is a post-employment benefit plan, under which the Group pays fixed contribution to a separately administered fund. The Group does not assume any legal or constructive obligation to pay the additional contribution even if the fund does not hold sufficient assets to pay benefits, relating to employee's service in the current and prior periods, in full. The contribution is recognized as pension benefit at the date of payment.

If the contribution already paid exceeds the contribution due for services rendered prior to the end of the reporting period, the Group recognizes such excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

Defined benefit plans are post-employment benefit plans other than defined contribution plans. Generally, under the defined benefit plan, amounts to be paid as retirement benefits are determined by reference to a formula usually based on employees' earnings, years of service, ages and other considerations. the retirement benefit obligation recognized in the consolidated statements of financial position represents the present value of the defined benefit obligation, less fair value of plan assets and adjustment for unrecognized past service cost.

The defined benefit obligation is calculated by an independent actuary using the projected unit credit method. The present value of the defined benefit obligation is denominated in the same currency in which the benefits are expected to be paid, and calculated at the discount rate which is the yield at the reporting date on high quality corporate bonds that have maturity dates approximating the terms of the Group's obligation.

Actuarial gain or loss from changes in actuarial assumptions or differences between actuarial assumptions and actual results is recognized in other comprehensive income or loss, which is immediately reflected in retained earnings. Past service cost is directly recognized in profit or loss in the period the plan amendment or curtailment occurs.

(20) Provision

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. A provision is measured using the present value of the cash flows estimated to settle the present obligation when the effect of the time value of money is material. At the end of each reporting period, the remaining provision balance is reviewed and assessed to determine if the current best estimate is being recognized. The increase in provision due to passage of time is recognized as interest expense. If the existence of an obligation to transfer economic benefit is no longer probable, the related provision is reversed during the period.

When some or all of the economic benefits required to settle a provision are expected to be recovered from a third party, a receivable is recognized as an asset if it is virtually certain that reimbursement will be received and the amount of the receivable can be measured reliably. In this case, any income arising from the third party reimbursement is netted off against the related expense to be recognized in the consolidated statements of profit or loss from the recognition of provisions.

(21) Leases

The Group determines whether the contract is a lease or includes a lease at the time of the agreement. If the contract requires a transfer of control over the use of the identified asset for a certain period of time in exchange for consideration, the contract will either be a lease or include a lease. When determining whether a contract transfers control of the use of the identified asset, the Group uses the definition of a lease in K-IFRS No. 1116.

1) Lessee

At the commencement or effective date of the contract that includes the lease element, the Group allocates the consideration of the contract to each lease element based on its relative stand-alone price. However, the Group applies a practical expedient that does not separate the non-less component for a real estate lease and accounts for the non-less component related to the lease element as a single lease element.

The Group recognizes right-off-use assets and lease liabilities at the commencement date of the lease. Right-of-use assets are initially measured at cost, and the costs shall comprise the amount of the initial measurement of the lease liability, the initial direct costs incurred by the lessee, any lease payments made at or before the commencement date (less any lease incentives received) and an estimate of costs to be incurred by the lessee in dismantling and removing the underlying asset, or restoring the underlying asset or the site on which it is located.

Right-of-use assets are subsequently depreciated on a straight-line basis from the commencement of the lease to the end of the lease term. However, if the ownership of the license asset is transferred at the end of the lease term or the exercise price of the purchase option is reflected in the cost of the license asset, the right-of-use assets shall be depreciated until the end of the useful life of the underlying asset on the same basis as the depreciation of the property, plant and equipment. Also, right-of-use assets may be adjusted as a result of a reduction in impairment losses or a remeasurement of lease liabilities.

Lease liabilities are initially measured at the present value of the lease payments not paid as of the commencement of the lease. Lease is discounted at the intrinsic interest rate of the lease, but if the intrinsic interest rate is not readily calculated, the lease is discounted at the Group's incremental borrowing rate. Generally, the Group uses the incremental borrowing rate as the discount rate. Lease liabilities are amortized in accordance with the effective interest method. When remeasurement of a lease liability, the relevant right-of-use asset is adjusted and the remeasurement amount is recognized in profit or loss if the carrying amount of the right-of-use asset is reduced to 0.

As practical expedient, the Group does not recognize right-of-use assets and lease liabilities for short-term leases with a lease term of less than 12 months and low-value assets. The Group shall recognize the lease charges relating to these leases as expenses in accordance with the straight-line method over the lease term.

2) Lessor

The accounting policies applied during comparative periods by the Group as a lessor are not different from those in K-IFRS No. 1116. As a lessor, the Group determines whether the lease is a finance lease or an operating lease at the inception of the lease. To classify each lease, the Group generally determines whether the lease transfers most of the risks and rewards of ownership of the underlying asset. If most of the risks and rewards of ownership of the underlying asset are transferred to the lessee, the lease is classified as a finance lease, otherwise the lease is classified as an operating lease.

(22) Derivative financial instruments and hedge accounting

Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is generally recognized as profit or loss when it is incurred.

However, the effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income or loss. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

1) Hedge accounting

The Group operates fair value hedges to avoid the risk of fair value change, which is incurred from specific risk on assets, liabilities and firm contracts, and cash flow hedges to avoid the risk of future cash flow change, which is incurred from specific risk on expecting contracts. At the inception of the hedge relationship, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group assesses whether there is an economic relationship between the hedged item and the hedging instrument.

a) Fair value hedges

Changes in the fair value of derivatives that are designated and qualified as fair value hedges (or gain or loss on foreign currency translation, when a financial instrument, not derivative is designated as the hedging instrument) are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.

b) Cash flow hedges

The effective portion of change in the fair value of derivatives that are designated and qualify as cash flow hedges for decreasing risk incurred from change of future cash flow on forecast transaction is recognized in other comprehensive income or loss. Amounts previously recognized in other comprehensive income or loss and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, or is reflected in the carrying amount of the associated asset or liability when the forecasted transaction occurs. Even when hedge accounting is discontinued due to the expiration, termination or exercise of hedging instrument, subsequent accounting treatment of amounts recognized in other comprehensive income or loss and accumulated in equity is the same. However, when hedge accounting is discontinued due to forecast transaction being no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

2) Separable embedded derivatives

Embedded derivatives are separated from the host contract and accounted for separately only if the following criteria has been met: (a) the economic characteristics and risks of the host contract and the embedded derivatives are not clearly and closely related to a separate instrument with the same terms as the embedded derivative that would meet the definition of a derivative, and (b) the hybrid (combined) securities is not measured at fair value through profit or loss. Changes in the fair value of separable embedded derivatives are recognized immediately in profit or loss.

3) Other derivative financial instruments

Derivative financial instruments other than the effective portion of derivative financial instruments that are designated as the hedging instruments are measured at fair value. Gain or loss arising from changes in fair value is recognized in profit or loss.

(23) Dividend

Dividend payable is recognized as liability when declaration of the dividend is approved in the shareholders' meeting.

(24) Issued capital

Common stocks are classified as equity, and the incremental costs directly arising from capital transactions, net of tax are deducted from equity. Preferred stocks are classified as equity only if the preferred stocks are not redeemable or redeemable solely upon the Group's decision, or the distribution of dividends is solely upon the Group's decision. Once a general meeting of shareholders meeting approves dividends, the Group recognizes the dividend liability accordingly.

Own equity instruments that are reacquired (treasury shares) are recognized at cost and deducted from equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

(25) Share-based payments

The Group measures the cost of share options granted to employees by reference to the estimated fair value at the date at which they are granted. The share-based payment expenses are recognized on a straight-line basis over the vesting period reflecting expected forfeiture rate. The Group determines the fair value of share option using the Black-Scholes option pricing model.

(26) Revenue from contracts with customers

1) Identify performance obligations

The Group is mainly engaged in the businesses of power generation facilities, industrial facilities, manufacturing of casting and forging products and comprehensive construction business. The Group identifies separate performance obligations in the contracts and determines whether each of the performance obligations is satisfied at a point of time or over time under K-IFRS No. 1115.

The Group identified as a separate performance obligation if the customer benefits from the good or service on its own or together with other readily available resources and the entity's promise to transfer the good or service separately is identifiable from other promises in the contract. In addition, the transaction price is allocated to each performance obligation in proportion to its stand-alone selling price and if the stand-alone selling price is not directly observable then the entity estimates the amount by using a suitable method.

2) Variable consideration (Right of return/ refund account & Consideration payable to a customer)

Under K-IFRS No. 1115, the Group estimated an amount of variable consideration depending on 'the expected value' that the Group expects to better predict the amount of consideration to which it will be entitled. Prior to adoption of K-IFRS No. 1115, the Group recognized return provision based on net gross profit pursuant to K-IFRS No. 1037 'Provisions, Contingent Liabilities and Contingent Assets'. Upon adoption of K-IFRS No. 1115, the Group recognized the estimated gross amount of contract liability (refund liability) when customers returned product and recognized contract asset (right of return) when customers exercised return rights.

Also, consideration payable to a customer includes cash amounts that the Group pays, or expects to pay, to the customer (or to other parties that purchase the entity's goods or services from the customer). Consideration payable to the customer also includes credit or other items that can be applied against amounts owed to an entity (or to other parties that purchase the entity's goods or services from the customer).

The Group shall account for consideration payable to a customer as a reduction of the transaction price and, therefore, of revenue unless the payment to the customer is in exchange for a distinct good or service that the customer transfers to the Group.

3) Contract cost capitalization

The Group capitalized costs incurred for obtaining construction contract. These costs for obtaining contract include costs that would not have been incurred if the contract were not entered into. In addition, under K-IFRS No. 1115, expenses which do not qualify for asset recognition are recognized as an expenses when incurred. Accordingly, upon transitioning to K-IFRS No. 1115, the Group has excluded such expenditures when calculating the percentage-of-completion to recognize revenue from construction contracts.

4) Significant financing component

Under K-IFRS No. 1115, in determining the transaction price, if the timing of payments agreed to by the parties to the contract (either explicitly or implicitly) provides the customer or the Group with a significant benefit of financing the transfer of goods or services to the customer, the Group recognizes revenue at an amount that reflects the price that a customer would have paid for the promised goods or services if the customer had paid cash for those goods or services when (or as) they transfer to the customer (i.e. the cash selling price).

5) Obligations to perform over period of time

The Group manufactures and sells specialized power machinery which are built based on customer`s orders designating the design elements and the manufacturing process generally takes one to three years. The Group recognizes revenue over time measuring the progress towards complete satisfaction of the performance obligation, only when the asset in its completed state has no alternative use to the Group and there is an enforceable right to payment for performance completed to date.

6) Measurement of the percentage-of-completion by contract cost incurred

The Group contracts for EPC plant construction contracts and power generating service contracts including purchasing, manufacturing and installing boiler, turbine and others and generally proceeds over a long period of time. The Group recognizes revenue following percentage-of-completion method, judging whether the construction/service contracts are provided over period of time if it meets all of the following conditions:
- the customers simultaneously acquire and consume benefits that the Group provides
- the Group creates or enhances the value of the asset that customers control

However, to represent performance degree faithfully, the Group recognizes the amount equal to the cost of the goods to perform the obligation as revenue if it meets all of the following conditions:
- undistinguished goods when the contract initiate
- expected that the customer can control significantly before the service is provided related to the goods
- the cost of the goods transferred is more significant than the total cost expected to fully perform the obligation
- the Group is provided the goods from the third party
- not significantly involved in the design and production of the goods

7) Allocating the transaction price to performance obligations

The Group allocates the transaction price to each performance obligation on a relative stand-alone selling price basis. The Group uses adjusted market assessment approach to estimate the stand-alone selling price, however, for certain transactions, `expected cost plus a margin approach' is used exceptionally

8) Warranty obligation

The Group generally provide warranty contract with customers pursuant to the local laws and customs. Most of these warranties are assurance type of warranty and accrue provision based on reliable estimate under K-IFRS No. 1037, 'Provisions, Contingent Liabilities and Contingent Assets'.

However, if the Group provides extended warranty that is not assurance type of warranty under non-standardized contract, it is accrued as service type of warranty and separated to performance obligation requiring allocation of transaction price. Revenue is recognized over period of time.

(27) Due from (to) customers for contract work

The due from customers for contract work on assets are the cumulative cost plus the profits (deduction of recognized loss) exceeds the billing amount the amount. The due from customers for contract work on liabilities are the billing amount the amount exceeds the cumulative cost plus the profits (deduction of recognized loss). The amount received before the work is recognized as Advanced received in the consolidated statement of financial position. Any amount previously recognized as a contract asset is reclassified to trade receivables at the point at which it is invoiced to the customer.

(28) Government grants

Government grants that are earmarked for the acquisition of assets are recognized as a deduction from the acquisition cost of the received assets or other assets for temporarily investing received assets before the intended assets are acquired. When the intended assets are acquired, they are recorded as a deduction from the acquisition cost.

Government grants that have no specific condition for their use are recognized in operating income when it is directly related to primary operations. If not, government grants are recognized in other non-operating income. If there are specific expenses related to government grants, the Group offsets the income from government grants with such expenses and recognizes the net amount in profit or loss.

(29) Taxes and deferred tax

Income tax expense is composed of current and deferred tax. Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or loss or directly in equity, in which case, the current and deferred tax are also recognized in other comprehensive income or loss or directly in equity, respectively.

Income tax (current tax) expense is the sum of corporate tax for each fiscal year and tax added to corporate tax under corporate income tax law and other applicable laws. Additional income taxes or tax refunds for the prior periods are included in income tax expense for the current period when recognized.

The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable income. Deferred tax assets and liabilities are not recognized if the temporary difference arises from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable income nor the accounting income.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries, joint ventures and associates except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable income against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable income will be available to allow all or part of the asset to be recovered.

(30) Non-current assets held for sale

Non-current assets and disposal groups are classified as held-for-sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. Non-current assets (and disposal groups) classified as held for sale are measured at the lower of their previous carrying amount and fair value less costs to sell and are no longer depreciated or amortized.

If the fair value less costs to sell of the non-current assets held-for-sale (and disposal groups) decrease, impairment loss is recognized immediately in profit or loss. A gain should be recognized for any subsequent increase in fair value less costs to sell of an asset, but not in excess of the cumulative impairment loss previously recognized.

(31) Operating segments

Operating segments are reported on the same basis as the financial information that is reported to the management of the Group. The management of the Group is responsible for the allocation of resources and assessment of performance for the operating segments.

(32) Greenhouse gas emissions

The Group receives free emission rights as a result of emission trading schemes. The rights are received on an annual basis and, in return, the Group is required to remit rights equal to its actual emissions. The Group has adopted the net liability approach to the emission rights granted. Therefore, a provision is recognized only when actual emissions exceed the emission rights granted and still held.

The emission costs are recognized as other operating costs. Where emission rights are purchased from other parties, they are initially recorded at cost, and treated as a reimbursement right, whereby they are matched to the emission liabilities and subsequently measured at fair value. The changes in fair value are recognized in profit or loss.

3. Significant accounting estimates and assumptions

The estimates and underlying assumptions are reviewed on an ongoing basis. The estimates and underlying assumptions are based on historical experiences and other factors including expectation on possible future events. Actual results may differ from these estimates. The following are critical assumptions and key sources of estimation uncertainty at the end of reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of the Group's assets and liabilities within the next financial year.

(1) Revenue recognition based on percentage-of-completion

The Group recognizes revenue over time using the input method in relation to its performance obligation over time. Revenue is recognized as work progresses in the ratio of actual costs incurred to estimated total costs. Any changes in the early stages of long-term projects in the scope and costs of project implementation in the construction period, and in construction plans may have a significant effect on the amount of revenue recognized.

(2) Impairment of goodwill

Goodwill is tested for impairment annually and when circumstances indicate that the carrying value may be impaired. Recoverable amount of cash generating unit ("CGU") is calculated based on the value in use, this calculation requires the use of accounting estimates.

(3) Employee benefit liability

The Group operates a defined benefit plan. Defined benefit liability is calculated by annual actuarial valuations as of the reporting date. In order to perform the actuarial valuations, assumptions for discount rates, future salary increases and others are required to be estimated.

(4) Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, and if it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and if a reliable estimate can be made of the amount of the obligation. In accordance with the relevant laws and practices, the estimated amounts may change to prescribe for additional provisions to be recognized in future periods.

(5) Deferred tax

Recognition and measurement of deferred tax assets and liabilities require judgment of the Group's management. Especially, the recognition of deferred tax asset and the scope of recognition are influenced by assumptions about future circumstances and judgment of management.

(6) Impairment of non-financial assets

The Group is assessing whether there is any indication that an asset may be impaired at the end of each reporting period. The Group estimates the recoverable amount of an asset when such indication exists or when an impairment test for an asset is required each year. Recoverable amount of an asset is the higher of its fair value less costs of disposal and its value in use.

The recoverable amount is determined for individual assets. However, if an asset does not generate cash inflows that are largely independent of those from other assets, the recoverable amount is determined for the CGU to which the asset belongs. The asset is impaired if its carrying amount exceeds its recoverable amount and the carrying amount of the asset is reduced to its recoverable amount.

4. Financial risk management

The Group is exposed to various financial risks, such as market (foreign currency risk and interest rate risk), credit and liquidity, relating to the operations of the Group. The purpose of risk management policy is to minimize potential risks, which could have adverse effect on financial performance.

Financial risk management activities are performed by the treasury department in accordance with the risk management policies. In addition, the Group enters into derivative contracts to hedge against certain risks. The Group is trying to minimize the effect of financial risks by reorganizing financial risk management policy and monitoring financial risks regularly.

(1) Market risk

1) Foreign currency risk

The Group's exposure to the risk of changes in foreign currency exchange rates relates primarily to the Group's operating activities and net investments in foreign subsidiaries. The Group's objective of foreign currency risk management is to minimize uncertainty and volatility arising from fluctuations in foreign currency exchange rates. Foreign currency risk is managed in accordance to the Group's policy on foreign currencies, and currency trading for speculative purposes is prohibited.

Foreign currency risk is managed by the Group's policy on foreign currencies. The Group's basis for foreign currency management is to reduce income/loss volatility. The Group reduces exposure to foreign currency risk by matching the inflow and the outflow of foreign currencies (natural hedge) and manages foreign currency risk by using currency derivatives, such as currency forwards, for the remaining exposure.

The book value of the Group's monetary assets and liabilities denominated in foreign currencies, which represents the maximum exposure to foreign currency risk as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019					
		USD	**EUR**	**JPY**	**GBP**	**Others(*1)**	**Total**
Financial assets	₩	1,234,701	348,121	4,463	62,272	489,600	2,139,157
Financial liabilities		1,431,420	496,460	41,495	41,419	130,093	2,140,887
Net assets (liabilities)	₩	(196,719)	(148,339)	(37,032)	20,853	359,507	(1,730)

(In millions of won)		2018					
		USD	**EUR**	**JPY**	**GBP**	**Others(*1)**	**Total**
Financial assets	₩	1,216,872	281,056	16,887	75,165	422,666	2,012,646
Financial liabilities		1,817,964	581,113	92,231	51,381	11,089	2,553,778
Net assets (liabilities)	₩	(601,092)	(300,057)	(75,344)	23,784	411,577	(541,132)

(*1) Others are assets and liabilities denominated in foreign currencies other than USD, EUR, JPY and GBP.

A sensitivity analysis on the Group's income before tax for the period, assuming a 10% increase and decrease in currency exchange rates, as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**		**2018**	
		10% increase	**10% decrease**	**10% increase**	**10% decrease**
Income before tax impact	₩	(173)	173	(54,113)	54,113

The above-mentioned sensitivity analysis is based on monetary assets and liabilities denominated in foreign currencies other than the Group's functional currency as of December 31, 2019 and 2018.

2) Interest rate risk

Interest rate risk is related to borrowings and bank deposits with floating interest rates, and related interest income and expense are exposed to interest rate risk. The Group is exposed to interest rate risk mainly due to its borrowing or deposit with floating interest rates. The purpose of interest rate risk management is to minimize uncertainty and financial expense arising from interest rate fluctuation.

To manage its interest rate risk, the Group minimizes external borrowings using internal funds and reduces borrowings with high interest rates and maintains an appropriate balance between borrowings with floating interest rate and fixed-interest rate and short-term and long-term borrowings. The Group manages its interest rate risk preemptively through regular monitoring and adjustments to the changing domestic and overseas markets conditions and nature of its interest rates.

Floating rate financial assets and liabilities exposed to interest rate risk as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Financial assets	₩	302,001	248,044
Financial liabilities		3,013,532	2,167,763
Net liabilities	₩	(2,711,531)	(1,919,719)

A sensitivity analysis on the Group's income before tax for the period, assuming a 1% increase and decrease in interest rates, as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**		**2018**	
		1% increase	**1% decrease**	**1% increase**	**1% decrease**
Income before tax impact	₩	(27,115)	27,115	(19,197)	19,197

3) Price risk

The Group is exposed to equity price risks arising from its listed equity investments among financial investments. The Group periodically measures the risk as the fair value or future cash flows of equity investments may fluctuate due to the changes in market prices. Significant investments in the Group's portfolio are individually managed, and acquisition and disposal are approved by the Board of Directors.

(2) Credit risk

The Group is exposed to credit risk that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. Credit risk arises from trade and other receivables, debt instruments, beneficiary certificates, deposits in financial institutions, derivative financial instruments and financial guarantee contracts.

The Group enters into transactions with customers having met a certain level of credit quality and maintains policies and procedures on financial assets to manage such risks. The credit quality of a new customer is assessed based on publicly announced financial information and the information provided by credit rating agencies. Such assessment is used as a basis for determining a customer's credit limit. Furthermore, collaterals and credit guarantees are obtained as security, if necessary. In addition, the Group periodically reassesses the credit quality of customers by auditing credit limits and adjusts the amount covered by collaterals when deemed necessary. The Group also monitors whether the collection of financial assets have been impaired to take relevant actions.

The carrying amount of financial assets represents the Group's maximum exposure. The maximum exposure to credit risk as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019	2018
Cash and cash equivalents	₩	1,441,281	2,075,329
Short and long- term financial instruments		270,869	397,496
Trade receivables and other receivables		3,459,688	3,379,178
Deposits		348,346	326,956
Short and long- term investment in securities (excluding equity securities)		196,107	118,738
Derivative financial assets		52,077	43,255
Total	₩	5,768,368	6,340,952

In addition to the above, the maximum amount to be paid for the principal debtor related to financial guarantee contract is described in Note 32.

The Group's receivables' aging analysis as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
		Receivables assessed for impairment individually or on a collective basis					
		Before maturity	0–3 months	3–6 months	6–12 months	More than 12 months	Total
Trade receivables	₩	1,480,525	148,798	24,411	87,449	1,613,272	3,354,455
Loans and other receivables		853,920	262,567	59,077	194,471	1,421,200	2,791,235
Accrued income		17,638	7,861	7,588	16,344	61,098	110,529
Lease receivables		12,035	-	-	-	-	12,035
Total	₩	2,364,118	419,226	91,076	298,264	3,095,570	6,268,254

(In millions of won)		2018					
		Receivables assessed for impairment individually or on a collective basis					
		Before maturity	0–3 months	3–6 months	6–12 months	More than 12 months	Total
Trade receivables	₩	1,477,910	255,461	41,899	61,337	1,605,650	3,442,257
Loans and other receivables		691,462	249,360	36,536	79,391	1,541,102	2,597,851
Accrued income		25,781	374	269	535	109,664	136,623
Total	₩	2,195,153	505,195	78,704	141,263	3,256,416	6,176,731

ECLs are measured as the present value of all cash shortfalls. If the Group does not have reasonable and supportable information that is available without under cost or effort to measure ECLs on an individual instrument basis, the Group can group financial instruments on the basis of shared credit risk characteristics.

(3) Liquidity risk

The Group is exposed to liquidity risk, which is the risk that it will encounter difficulties in fulfilling the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset.

The Group manages liquidity risk by matching the duration of financial assets and liabilities through estimating future cash flows from its operating, investing and financing activities, and securing moderate levels of liquidity in advance.

A summary of the Group's non-derivative liabilities maturity as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019					
			Nominal cash flows according to contract				
		Book value	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years
Financial liabilities(*1)	₩	14,761,902	14,861,142	11,367,150	1,679,494	1,688,595	125,903
Interest on financial liabilities		-	309,942	213,529	76,302	20,111	-
Total	₩	14,761,902	15,171,084	11,580,679	1,755,796	1,708,706	125,903

(*1) This includes provision for payment guarantees in the amount of ₩54,855 million.

(In millions of won)		2018					
			Nominal cash flows according to contract				
		Book value	Total	Less than 1 year	1–2 years	2–5 years	More than 5 years
Financial liabilities	₩	15,137,780	15,241,481	9,454,357	2,732,191	1,695,384	1,359,549
Interest on financial liabilities		-	642,259	284,100	137,141	204,613	16,405
Total	₩	15,137,780	15,883,740	9,738,457	2,869,332	1,899,997	1,375,954

The contractual amounts of financial liabilities in the above tables are calculated based on non-discounted cash flows (including estimated interest expense) and differ from its book values. Besides the above non-derivative liabilities, the maximum guarantee amounts based on financial guarantee contracts provided by the Group as of December 31, 2019 are described in Note 32.

(4) Capital risk

The objective of the Group's capital risk management is to secure its ability to provide earnings to its shareholders and interested parties and sustain optimal capital structure to reduce the cost of capital. In order to sustain optimal capital structure, the Group uses a debt-to-equity ratio similar to other entities in the industry. Debt-to-equity ratio is calculated by dividing total liabilities by total equity.

Debt-to-equity ratios as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Total liabilities	₩	18,607,256	18,596,482
Total equity		6,201,993	6,218,430
Debt-to-equity ratio		300.02%	299.05%

5. Restricted financial assets

Details of restricted financial assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**	**Restrictions**
Cash and cash equivalents	₩	4,412	12,207	Collateral for advanced received and others
Short-term financial instruments		195,243	350,792	Government R&D projects(*1), shared growth fund, establishment of a pledge right, Price return swap ("PRS") deposit(*2) and others
Long-term financial instruments		50	62	Deposits for maintenance of checking accounts and others
Deposits		-	3,898	Reserves for repayments related to asset-backed borrowings
Total	₩	199,705	366,959	

(*1) The amounts are restricted in use and may only be used for specific national R&D projects.
(*2) This is deposit amount for the PRS contract that had been signed coincidently with disposal of Doosan Bobcat Inc. shares.

6. Investments in securities

(1) Investment in securities as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)

Description			2019	2018
Short-term investments in securities	Financial assets as measured at amortized cost	₩	39	1,815
	Financial assets as measured at FVOCI		69,961	3,732
	Financial assets as measured at FVTPL		9,280	30,127
	Subtotal		79,280	35,674
Long-term investments in securities(*1)	Financial assets as measured at amortized cost		3,284	20,291
	Financial assets as measured at FVOCI		4,826	17,986
	Financial assets as measured at FVTPL		193,378	159,468
	Subtotal		201,488	197,745
	Total	₩	280,768	233,419

(*1) A portion of long-term investments in securities have been pledged as collateral for developers' project financing and others as of December 31, 2019 (See Note 33).

(2) Details of the Group's investments in securities as of December 31, 2019 and 2018 are as follows:

(In millions of won)

Description				2019
Financial assets as measured at amortized cost	Debt securities	Government and corporate bonds and others	₩	3,323
		Subtotal		3,323
Financial assets as measured at FVOCI	Non-marketable equity securities	Lanco Kondapalli Power Ltd. and others		4,826
	Debt securities	K-Partners 20th Co., Ltd. and others		69,961
		Subtotal		74,787
Financial assets as measured at FVTPL	Marketable equity securities	HTC Purenergy Inc and others		9,507
	Non-marketable equity securities	S-Y Highway Co., Ltd. and others		70,328
	Investment in guarantee cooperative	Construction Guarantee Cooperative and others		108,283
	Others debt securities	The Export-Import Bank of Korea – Public Carbon Fund and others		14,540
		Subtotal		202,658
Total			₩	280,768

(In millions of won)

Description				2018
Financial assets as measured at amortized cost	Beneficiary certificates	DM Best 1st bonds	₩	18,400
	Debt securities	Government and corporate bonds and others		3,706
		Subtotal		22,106
Financial assets as measured at FVOCI	Non-marketable equity securities	Lanco Kondapalli Power Ltd. and others		17,986
	Debt securities	K-Partners 20th Co., Ltd. and others		3,732
		Subtotal		21,718
Financial assets as measured at FVTPL	Marketable equity securities	HTC Purenergy Inc and others		12,635
	Non-marketable equity securities	S-Y Highway Co., Ltd. and others		84,060
	Investment in guarantee cooperative	Construction Guarantee Cooperative and others		82,734
	Others debt securities	The Export-Import Bank of Korea – Public Carbon Fund and others		10,166
		Subtotal		189,595
	Total		₩	233,419

(3) Changes in financial assets as measured at fair value for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
		January 1	Acquisition	Disposal	Gain or loss on valuation	Others	December 31
Financial assets as measured at FVOCI	₩	21,718	66,437	-	(12,046)	(1,322)	74,787
Financial assets as measured at FVTPL		189,595	35,107	(18,639)	(2,544)	(861)	202,658
Total	₩	211,313	101,544	(18,639)	(14,590)	(2,183)	277,445

(In millions of won)

		2018					
		January 1(*1)	Acquisition	Disposal	Gain or loss on valuation	Others	December 31
Financial assets as measured at FVOCI	₩	94,401	53,764	(130,150)	-	3,703	21,718
Financial assets as measured at FVTPL		215,135	17,788	(33,072)	(21,148)	10,892	189,595
Total	₩	309,536	71,552	(163,222)	(21,148)	14,595	211,313

(*1) In accordance with adoption of K-IFRS No. 1109, equity securities classified as AFS financial asset were reclassified to financial assets as measured FVTPL and FVOCI.

7. Trade and other receivables

(1) Trade and other receivables as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			2018		
		Gross	Allowance for doubtful accounts	Book value	Gross	Allowance for doubtful accounts	Book value
Current asset:							
Trade receivables	₩	3,334,135	(1,241,313)	2,092,822	3,410,823	(1,298,761)	2,112,062
Lease receivables		1,622	-	1,622	-	-	-
Other receivables		698,997	(228,123)	470,874	488,971	(183,113)	305,858
Accrued income		110,529	(32,020)	78,509	136,623	(32,463)	104,160
Short-term loans		228,575	(143,076)	85,499	197,631	(82,579)	115,052
Subtotal		4,373,858	(1,644,532)	2,729,326	4,234,048	(1,596,916)	2,637,132
Non-current asset:							
Long-term trade receivables		4,543	(56)	4,487	11,424	(60)	11,364
Lease receivables		8,583	-	8,583	-	-	-
Long-term other receivables		16,179	(5,703)	10,476	18,178	(5,454)	12,724
Long-term loans		1,798,974	(1,092,158)	706,816	1,869,330	(1,151,372)	717,958
Subtotal		1,828,279	(1,097,917)	730,362	1,898,932	(1,156,886)	742,046
Total	₩	6,202,137	(2,742,449)	3,459,688	6,132,980	(2,753,802)	3,379,178

(2) Changes in allowance for doubtful accounts for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019				
		January 1	Provision for (reversal of) allowance	Write-off of uncollectible amounts	Changes in foreign currency translation and others	December 31
Trade and other receivables:						
Trade receivables	₩	1,298,821	(6,833)	(43,045)	(7,574)	1,241,369
Other receivables		188,567	52,338	(13,884)	6,805	233,826
Accrued income		32,463	8	(451)	-	32,020
Short and long-term loans		1,233,951	98,995	(57,280)	(40,432)	1,235,234
Subtotal		2,753,802	144,508	(114,660)	(41,201)	2,742,449
Others:						
Due from customers for contract work		57,920	4,032	-	1,626	63,578
Deposits		2,601	28	-	43	2,672
Prepayments		1,292	676	(429)	(40)	1,499
Subtotal		61,813	4,736	(429)	1,629	67,749
Total	₩	2,815,615	149,244	(115,089)	(39,572)	2,810,198

(In millions of won)		2018					
		January 1	Provision for allowance	Write-off of uncollectible amounts	Adjustments on application of K-IFRS No. 1109 and 1115	Changes in foreign currency translation and others	December 31
Trade and other receivables:							
Trade receivables	₩	1,349,959	55,504	(52,918)	3,174	(56,898)	1,298,821
Other receivables		170,089	10,949	(58,274)	12,507	53,296	188,567
Accrued income		34,131	390	(2,058)	-	-	32,463
Short and long-term loans		904,676	336,604	(8,122)	-	793	1,233,951
Subtotal		2,458,855	403,447	(121,372)	15,681	(2,809)	2,753,802
Others:							
Due from customers for contract work		83,516	4,579	(33,089)	-	2,914	57,920
Deposits		2,848	100	(504)	-	157	2,601
Prepayments		32,376	276	(169)	(31,218)	27	1,292
Other non-current assets		208	-	-	-	(208)	-
Subtotal		118,948	4,955	(33,762)	(31,218)	2,890	61,813
Total	₩	2,577,803	408,402	(155,134)	(15,537)	81	2,815,615

8. Inventories

Inventories as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			2018		
		Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Finished goods	₩	659,701	(33,707)	625,994	579,368	(28,866)	550,502
Merchandise		321,464	(21,754)	299,710	262,375	(20,670)	241,705
Semi-finished goods		145,155	(281)	144,874	40,867	(81)	40,786
Work-in-process		344,717	(14,016)	330,701	302,043	(13,383)	288,660
Raw materials		586,156	(36,415)	549,741	501,029	(27,466)	473,563
Supplies		21,104	(2,631)	18,473	21,859	(95)	21,764
Materials-in-transit		223,787	-	223,787	269,122	-	269,122
Unfinished houses		8,428	-	8,428	5,474	-	5,474
Total	₩	2,310,512	(108,804)	2,201,708	1,982,137	(90,561)	1,891,576

The losses on inventory valuation recognized within the cost of sales amounted to ₩18,243 million for the year ended December 31, 2019 and the reversal of losses on inventory valuation recognized within the cost of sales amounted to ₩6,904 million for the year ended December 31, 2018.

9. Derivatives

(1) Details of valuation of derivatives as of December 31, 2019 and 2018 are as follows:

(In millions of won, in thousands of foreign currency)

				2019			
Buy		Sell			Gain (loss) on valuation of derivative financial instruments	Accumulated other comprehensive income (loss)(*1)	Firm commitment assets (liabilities)(*2)
Currency	Amount	Currency	Amount	Derivative financial assets (liabilities)			
Foreign currency forwards:							
KRW	2,098,162	USD	1,866,910	₩ (43,279)	(34,440)	4,179	25,605
KRW	300,123	EUR	225,276	5,039	1,524	1,310	(720)
KRW	199,713	JPY	18,082,201	3,449	(2,622)	(1,112)	(1,895)
KRW	70,902	Others		(862)	(978)	(64)	424
USD	1,450,610	KRW	1,674,689	11,410	38,493	3,178	(3,497)
EUR	269,516	KRW	364,052	(10,462)	(3,907)	(1,085)	129
JPY	16,838,081	KRW	208,006	(24,110)	(1,527)	(132)	73
Others		KRW	21,007	284	(88)	527	-
GBP and others		EUR and others		(16,922)	(11,345)	570	(618)
Long-term and short-term borrowing denominated in foreign currencies(*3)							
KRW	-	USD	-	-	-	-	180
Currency rate swap ("CRS")				12,753	1,588	(1,036)	-
Interest rate swap ("IRS")				(1,204)	-	(1,204)	-
PRS(*4)				(14,157)	(14,157)	-	-
Subtotal				(78,061)	(27,459)	5,131	19,681
Tax effect				-	-	(1,300)	-
Adjustments for consolidation				-	-	13,406	-
Total				₩ (78,061)	(27,459)	17,237	19,681

(*1) In consideration of the amounts adjusted in sales and cost of sales, the effective portion of changes in fair value of cash flow hedges of ₩17,237 million, net of tax, was recognized in accumulated other comprehensive income or loss.

(*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩43,934 million and firm commitment liabilities of ₩24,253 million were recognized in the consolidated statements of financial position by applying a fair value hedge accounting.

(*3) The Group designated its long-term and short-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.

(*4) The Group has entered into PRS contract to exchange profits due to changes in stock prices at the same time as the disposal of Doosan Bobcat Inc. stocks.

(In millions of won, in thousands of foreign currency)

2018								
Buy		Sell			Derivative financial assets (liabilities)	Gain (loss) on valuation of derivative financial instruments	Accumulated other comprehensive income (loss)(*1)	Firm commitment assets (liabilities)(*2)
Currency	Amount	Currency	Amount					
Foreign currency forwards:								
KRW	2,982,053	USD	2,715,022	₩	(13,149)	(57,565)	2,112	(48,902)
KRW	270,162	EUR	203,045		6,729	5,393	1,302	7,737
KRW	286,908	JPY	26,760,741		7,316	(5,425)	(971)	27,391
KRW	187,192	Others			1,844	(2,235)	441	4,662
USD	2,136,224	KRW	2,347,744		4,318	35,311	380	10,124
EUR	426,227	KRW	571,989		(17,601)	(9,837)	(5,896)	(995)
JPY	30,852,891	KRW	349,668		(27,181)	(168)	1,298	(1,477)
Others		KRW	139,591		(4,377)	(1,477)	(2,162)	(1,508)
GBP and others		EUR and others			(7,996)	17,064	(451)	(909)
Long-term and short-term borrowing denominated in foreign currencies(*3)								
KRW	-	USD	-		-	-	-	347
CRS					(11,626)	7,885	(8,950)	-
IRS					9,060	-	3,543	-
PRS(*4)					7,918	7,918	-	-
Subtotal					(44,745)	(3,136)	(9,354)	(3,530)
Tax effect					-	-	1,673	-
Adjustments for consolidation					-	-	16,262	-
Total				₩	(44,745)	(3,136)	8,581	(3,530)

(*1) In consideration of the amounts adjusted in sales and cost of sales, the effective portion of changes in fair value of cash flow hedges of ₩8,581 million, net of tax, was recognized in accumulated other comprehensive income or loss.

(*2) In consideration of the amounts adjusted in revenue, firm commitment assets of ₩23,718 million and firm commitment liabilities of ₩27,248 million were recognized in the consolidated statements of financial position by applying a fair value hedge accounting.

(*3) The Group designated its long-term and short-term borrowings denominated in foreign currencies as hedging instruments to hedge the fair value change of firm commitments.

(*4) The Group has entered into PRS contract to exchange profits due to changes in stock prices at the same time as the disposal of Doosan Bobcat Inc. stocks.

(2) Put option granted for financial investors

DEC, a subsidiary company, participated in SOC projects and development-type projects such as Masan Sewer Pipeline BTL, Sangju Yeongcheon Expressway, Suwon Gwangmyeong Road, and Seoul Munsan Expressway as a member of the construction investment company, and signed a put option contract of ₩12.6 billion in relation to stocks acquired by the financial investors to recruit financial investors. In addition, the Company acquired preferred shares of Nuscale Power LLC with Nuscale Korea, a financial investor, in 2019, and entered into a put option contract that could only be exercised under the conditions of non-compliance, including failure to obtain design certification in relation to the preferred shares (USD 50 million) acquired by Nuscale Korea. The Group classifies these options as derivative financial instruments, and there is no recognition of changes in the fair value of options in 2019 as gains (losses) on derivatives valuation and derivatives assets (liabilities).

10. Financial instruments

(1) Financial assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019					
		Financial assets as measured at amortized cost	Financial assets as measured at FVOCI	Financial assets as measured at FVTPL	Other financial assets(*1)	Carrying amounts	Fair value
Cash and cash equivalents	₩	1,441,281	-	-	-	1,441,281	1,441,281
Short and long-term financial instruments (*2)		270,869	-	-	-	270,869	270,869
Short and long-term investment in securities		3,323	74,787	202,658	-	280,768	280,768
Derivative financial assets		-	-	9,547	42,530	52,077	52,077
Trade and other receivables		3,447,438	12,250	-	-	3,459,688	3,459,688
Deposits		348,346	-	-	-	348,346	348,346
Total	₩	5,511,257	87,037	212,205	42,530	5,853,029	5,853,029

(*1) Other financial assets include derivatives as hedged item.
(*2) Some of short-term financial instruments have been pledged as collateral for borrowings (See Note 33).

(In millions of won)

		2018					
		Financial assets as measured at amortized cost	Financial assets as measured at FVOCI	Financial assets as measured at FVTPL	Other financial assets(*1)	Carrying amounts	Fair value
Cash and cash equivalents	₩	2,075,329	-	-	-	2,075,329	2,075,329
Short and long-term financial instruments		397,496	-	-	-	397,496	397,496
Short and long-term investment in securities		22,106	21,718	189,595	-	233,419	233,419
Derivative financial assets		-	-	21,320	21,935	43,255	43,255
Trade and other receivables		3,341,599	37,579	-	-	3,379,178	3,379,178
Deposits		326,956	-	-	-	326,956	326,956
Total	₩	6,163,486	59,297	210,915	21,935	6,455,633	6,455,633

(*1) Other financial assets include derivatives as hedged item.

(2) Financial liabilities as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019				
		Financial liabilities as measured at amortized cost	Financial liabilities as measured at FVTPL	Other financial liabilities(*1)	Carrying amounts	Fair value
Trade and other payables	₩	3,085,208	-	-	3,085,208	3,085,208
Borrowings and bonds		10,251,437	-	-	10,251,437	10,251,437
Derivative financial liabilities		-	45,863	84,275	130,138	130,138
Financial guarantee liabilities		-	-	13,900	13,900	13,900
Lease liabilities		256,538	-	-	256,538	256,538
Others		892,870	-	-	892,870	892,870
Total	₩	14,486,053	45,863	98,175	14,630,091	14,630,091

(*1) Other financial liabilities include derivatives as hedged item and others.

(In millions of won)		2018				
		Financial liabilities as measured at amortized cost	Financial liabilities as measured at FVTPL	Other financial liabilities(*1)	Carrying amounts	Fair value
Trade and other payables	₩	3,653,405	-	-	3,653,405	3,653,405
Borrowings and bonds		10,726,529	-	-	10,726,529	10,726,529
Derivative financial liabilities		-	50,526	37,474	88,000	88,000
Financial guarantee liabilities		-	-	14,379	14,379	14,379
Others		757,847	-	-	757,847	757,847
Total	₩	15,137,781	50,526	51,853	15,240,160	15,240,160

(*1) Other financial liabilities include derivatives as hedged item and others.

(3) As of December 31, 2019 and 2018, the Group uses the following hierarchy for determining and disclosing the fair value of financial instruments:

Level 1: Quoted (unadjusted) prices in active markets for identical assets or liabilities.
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly.
Level 3: Inputs that are not based on observable market data (unobservable inputs).

The fair value of financial instruments traded in active markets is based on quoted market prices at the dates of the consolidated statements of financial position. These instruments are included in level 1. Instruments included in level 1 primarily comprise listed equity investments classified as trading securities.

The fair value of financial instruments that are not traded in an active market (for example, over-the counter derivatives) is determined by using valuation techniques. These valuation techniques maximize the use of observable market data where it is available and rely as little as possible on entity-specific estimates. If all significant inputs required to fair value an instrument are observable, the instrument is included in level 2.

If one or more of the significant inputs are not based on observable market data, the instrument is included in level 3.

Specific valuation techniques used to value financial instruments include:

- quoted or dealer price of similar instruments.
- the fair value of forward foreign exchange contracts determined by using forward exchange rates at the reporting date, with the resulting value discounted to present value.
- other financial techniques such as discounted cash flow analysis.

The level of fair value measurements of financial instruments as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**			
		Level 1	**Level 2**	**Level 3**	**Total**
Financial assets measured at fair value:					
Measured at FVOCI	₩	-	82,210	4,827	87,037
Measured at FVTPL		9,590	9,547	193,068	212,205
Others		-	42,530	-	42,530
Total	₩	9,590	134,287	197,895	341,772
Financial liabilities measured at fair value:					
Measured at FVTPL	₩	-	45,863	-	45,863
Others		-	84,275	-	84,275
Total	₩	-	130,138	-	130,138

(In millions of won)		**2018**			
		Level 1	**Level 2**	**Level 3**	**Total**
Financial assets measured at fair value:					
Measured at FVOCI	₩	-	41,311	17,986	59,297
Measured at FVTPL		12,718	21,320	176,877	210,915
Others		-	21,935	-	21,935
Total	₩	12,718	84,566	194,863	292,147
Financial liabilities measured at fair value:					
Measured at FVTPL	₩	-	50,526	-	50,526
Others		-	37,474	-	37,474
Total	₩	-	88,000	-	88,000

Assumptions used for the measurement of financial assets at fair value based on level 3 valuation techniques as of December 31, 2019 are as follows:

	Valuation techniques	Discount rate	Note
Incheon-Gimpo Expressway Co., Ltd.	Dividend evaluation model	5.24%	Expected dividend cash flow for each financial period
S-Y Expressway Co., Ltd.	Cash flow discount model	7.40%	Expected cash flow
Sudokwon Seobu Expressway Co., Ltd.	Cash flow discount model	7.40%	Expected sales cash flow
West-Seoul Highway Co., Ltd.	Past transaction method	-	Recent sale transaction amount
Seoul-Munsan Expressway Co., Ltd	Past transaction method	-	Current share issuance amount
Kyunggi South Road Co., Ltd.	Cash flow discount model	7.40%	Expected cash flow to equity
Daegu South Circulation Road Corporation	Cash flow discount model	7.40%	Expected cash flow to equity
South-Seoul LRT Co., Ltd.	Past transaction method	-	Current share issuance amount
Construction Guarantee Cooperative	Past transaction method	-	Average final contract price in short sale
Machinery Financial Cooperative	Net asset value assessment	-	Fair value of net asset
West-Seoul Highway Co., Ltd.	Past transaction method	-	Current share issuance amount
Gyeonggi East-West beltway Co., Ltd.	Net asset value assessment	-	Fair value of net asset
The Export-Import Bank of Korea - Public Carbon Fund	Estimated sales price valuation method	-	Expected sales price
Engineering Guarantee Insurance	Estimated sales price valuation method	-	Expected sales price
Gyongnam GNTehc CCEI Fund	Net asset value assessment	-	Fair value of net asset
Emerald Technology Venture	Estimated sales price valuation method	-	Return on investment
Lanco Kondapalli Power Ltd.	Net asset value assessment	-	Fair value of net asset
Al Asilah Desalination Company	Net asset value assessment	-	Fair value of net asset
NuScale Power LLC	Net asset value assessment	-	Fair value of net asset
Others	Estimated sales price valuation method	-	Expected sales price and others

Changes in financial assets included in Level 3 of the fair value hierarchy for the years ended December 31, 2019 and 2018 are summarized as follows and there is no transfer between levels of the fair value except for the reclassification as a result of adjustment on application of K-IFRS No. 1109 for the year ended December 31, 2018.

(In millions of won)

		2019						
		January 1	Acquisition	Disposal	Profit (loss) for the year	Other comprehensive income (loss)	Others	December 31
Financial assets as measured at FVOCI	₩	17,986	722	-	-	(12,046)	(1,835)	4,827
Financial assets as measured at FVTPL		176,877	34,774	(18,309)	(105)	-	(169)	193,068
Total	₩	194,863	35,496	(18,309)	(105)	(12,046)	(2,004)	197,895

(In millions of won)

		2018						
		January 1	Adjustment on application of K-IFRS No. 1109	Acquisition	Disposal	Gain or loss on valuation	Others	December 31
Financial assets as measured at FVOCI	₩	-	13,059	3,091	-	-	1,836	17,986
Financial assets as measured at FVTPL		-	180,725	17,705	(11,489)	(21,028)	10,964	176,877
Total	₩	-	193,784	20,796	(11,489)	(21,028)	12,800	194,863

(4) Gain or loss by categories of financial instruments for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019						
		Gain or loss						
		Interest income (expense)	Dividend income	Gain or loss on valuation (*1)	Impairment loss on financial instruments	Gain or loss on disposal	Gain or loss on financial guarantee	Other comprehensive income(*2)
Financial assets:								
Measured at amortized cost	₩	44,205	-	-	(148,568)	(22,010)	-	-
Measured at FVOCI		2,530	5	-	-	-	-	(12,046)
Measured at FVTPL		9,801	1,336	(2,544)	-	2,921	-	-
Others		460	-	-	-	-	-	
Total	₩	56,996	1,341	(2,544)	(148,568)	(19,089)	-	(12,046)
Financial liabilities:								
Measured at amortized cost	₩	(506,710)	-	-	-	(7,682)	-	-
Others		-	-	-	-	-	(10,106)	-

(*1) Amounts in gain or loss on valuation exclude the gain or loss related with derivatives.
(*2) Amounts in other comprehensive income or loss exclude deferred tax effect.

(In millions of won)	2018							
	Gain or loss							
		Interest income (expense)	Dividend income	Gain or loss on valuation (*1)	Impairment loss on financial instruments	Gain or loss on disposal	Gain or loss on financial guarantee	Other comprehensive income(*2)
Financial assets:								
Measured at amortized cost	₩	27,009	-	-	(403,626)	(17,660)	-	-
Measured at FVOCI		16,265	529	-	-	100	-	1,027
Measured at FVTPL		-	1,941	(21,148)	-	2,198	-	-
Total	₩	43,274	2,470	(21,148)	(403,626)	(15,362)	-	1,027
Financial liabilities:								
Measured at amortized cost	₩	(505,304)	-	-	-	(7,610)	-	-
Others		-	-	-	-	-	(9,170)	-

(*1) Amounts in gain or loss on valuation exclude the gain or loss related with derivatives.
(*2) Amounts in other comprehensive income or loss exclude deferred tax effect.

Gains or losses on translation or transaction of foreign currencies arising from foreign currency transactions except for derivative financial instruments have been mostly incurred from financial assets and liabilities measured at amortized cost.

Details of gains and losses on valuation and settlement of derivative financial instruments for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		Gain or loss on valuation	Gain or loss on settlement	Other comprehensive income(*1)
Derivatives measured at FVTPL	₩	22,694	2,088	-
Derivatives for fair value hedge		(54,999)	1,752	-
Derivatives for cash flow hedge		4,845	(4,341)	14,485
Total	₩	(27,460)	(501)	14,485

(*1) The amounts of gains and losses of derivatives are excluded.

(In millions of won)		2018		
		Gain or loss on valuation	Gain or loss on settlement	Other comprehensive income(*1)
Derivatives measured at FVTPL	₩	42,206	5,186	-
Derivatives for fair value hedge		(27,138)	(70)	-
Derivatives for cash flow hedge		(18,204)	1,233	27,674
Total	₩	(3,136)	6,349	27,674

(*1) The amounts of gains and losses of derivatives are excluded.

Gain or loss by categories of financial instruments for the years ended December 31, 2019 and 2018 include selling and administrative expenses, finance income and expenses, other non-operating income and expenses and other comprehensive income or loss from each financial instrument.

(5) Financial assets and financial liabilities subject to an enforceable master netting arrangement or similar agreement as of December 31, 2019 are as follows:

(In millions of won)		Eligible for legal right to offset		
		Total assets (liabilities)	**Offset amount**	**Amount after offset**
Derivative financial instrument assets	₩	60,726	(30,468)	30,258
Derivative financial instrument liabilities		(123,343)	30,468	(92,875)

11. Investments in associates and joint ventures

(1) Details of share of investment in associates and joint ventures as of December 31, 2019 and 2018 are as follows:

(In millions of won)	Countries	Percentage of ownership (%)		Acquisition cost 2019	Acquisition cost 2018	Book value 2019	Book value 2018
Associates:							
The HS-City Expressway(*1)	Korea	27.29	₩	9,578	9,578	3,806	4,920
POSPOWER Co., Ltd.(*1,2)	Korea	9.00		43,568	43,568	42,961	43,448
Daejung Offshore Wind Power Co., Ltd.	Korea	25.00		2,827	2,827	2,617	2,772
DBC Co., Ltd.(*5)	Korea	49.90		53,216	-	52,830	-
Potenit Co., Ltd.	Korea	27.80		5,333	5,333	-	4,779
Shinbundang Railroad Co., Ltd.(*3)	Korea	29.03		13,681	13,681	-	-
Kyunggi Railroad Co., Ltd.(*2,3)	Korea	6.99		7,067	7,067	-	-
Neo Trans Co., Ltd.	Korea	42.86		43	43	21,810	21,645
New Seoul Railroad Co., Ltd.(*2,3)	Korea	13.76		8,794	8,794	7,219	7,144
KIAMCO Kyunggi Railway Investment Private property investment trust(*3)	Korea	35.70		28,072	28,072	-	-
Incheon fuel cell Co., Ltd.	Korea	20.00		4,700	4,700	4,439	4,662
Dongbuk LRT(*6)	Korea	-		-	1,694	-	1,693
Subtotal				176,879	125,357	135,682	91,063
Joint ventures:							
Doosan Babcock Blackcat W.L.L	Qatar	49.00		243	243	-	-
Haman Industrial Complex Company(*3,4)	Korea	80.00		2,400	3,600	-	-
Doosan PSI LLC	USA	50.00		1,108	1,108	2,181	1,337
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	China	43.00		718	718	107	292
Tianjin Lovol Doosan Engine Co., Ltd.	China	50.00		25,640	12,727	17,787	8,235
Subtotal				30,109	18,396	20,075	9,864
Total			₩	206,988	143,753	155,757	100,927

(*1) The Group's investments in the company have been pledged as collateral for the company's project financing and contract of completion guarantee (See Note 33).

(*2) Although the Group's equity interest in the investee is less than 20%, the investee is classified as an associate considering the exercise of voting rights in the board of directors.

(*3) Investments in the investee have been pledged as collateral in connection with project financing (See Note 33).

(*4) Although the Group's equity interest in the investee is more than 50%, the investee is classified as a joint venture considering the agreement between the shareholders.
(*5) The Group reclassified DBC Co., Ltd. from investment in subsidiaries to investment in associates as the Company and DEC disposed the entire shares to Doosan Corp, DI and Doosan Bobcat Korea Co., Ltd. and the Group lost its control over DBC Co., Ltd. accordingly.
(*6) In the process of financing the current business, financial conditions have changed compared to when the agreement was originally signed. As a result of the consultation, the contract was terminated and the shares was sold.

(2) Changes in investment in associates and joint ventures for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019					
		January 1, 2019	**Acquisition (disposal)**	**Share of profit (loss)**	**Increase (decrease) in equity of associates**	**Others**	**December 31, 2019**
Associates:							
The HS-City Expressway	₩	4,920	-	(1,211)	-	97	3,806
POSPOWER Co., Ltd.		43,448	-	(477)	(10)	-	42,961
Daejung Offshore Wind Power Co., Ltd.		2,772	-	(155)	-	-	2,617
DBC Co.,Ltd		-	-	(386)	-	53,216	52,830
Potenit Co., Ltd.		4,779	-	(4,779)	-	-	-
Shinbundang Railroad Co., Ltd.(*1)		-	-	-	-	-	-
Kyunggi Railroad Co., Ltd.(*1)		-	-	-	-	-	-
Neo Trans Co., Ltd.		21,645	-	165	-	-	21,810
New Seoul Railroad Co., Ltd.		7,144	-	75	-		7,219
KIAMCO Kyunggi Railway Investment Private property investment trust		-	-	-	-	-	-
Incheon fuel cell Co., Ltd.		4,662	-	(223)	-	-	4,439
Dongbuk LRT		1,693	(1,665)	(28)	-	-	-
Subtotal		91,063	(1,665)	(7,019)	(10)	53,313	135,682
Joint ventures:							
Doosan Babcock Blackcat W.L.L		-	-	-	-	-	-
Haman Industrial Complex Company		-	-	-	-	-	-
Doosan PSI LLC		1,337	-	802	-	42	2,181
Doosan Infracore Liaoning Machinery Sales Co., Ltd.		292	-	(193)	-	8	107
Tianjin Lovol Doosan Engine Co., Ltd.		8,235	12,913	(3,139)	-	(222)	17,787
Subtotal		9,864	12,913	(2,530)	-	(172)	20,075
Total	₩	100,927	11,248	(9,549)	(10)	53,141	155,757

(*1) Recognized an additional ₩4,795 million in equity method losses under the amendment to K-IFRS No. 1028.

(In millions of won)		2018					
		January 1, 2018	**Acquisition (disposal)**	**Share of profit (loss)**	**Increase (decrease) in equity of associates**	**Others**	**December 31, 2018**
Associates:							
Tamra Offshore Wind Power Co., Ltd.	₩	11,413	(4,400)	5,898	(1,753)	(11,158)	-
The HS-City Expressway		9,700	-	(2,830)	(1,941)	(9)	4,920
POSPOWER Co., Ltd.		-	43,568	(121)	1	-	43,448
Daejung Offshore Wind Power Co., Ltd.		-	2,827	(55)	-	-	2,772
Potenit Co., Ltd.		-	5,333	(553)	-	(1)	4,779
DSDMP		2,735	(2,857)	-	122	-	-
Shinbundang Railroad Co., Ltd.		-	-	-	-	-	-
Kyunggi Railroad Co., Ltd.		-	-	-	-	-	-
Neo Trans Co., Ltd.		20,987	-	658	-	-	21,645
New Seoul Railroad Co., Ltd.		7,528	-	(384)	-	-	7,144
KIAMCO Kyunggi Railway Investment Private property investment trust		24,801	3,273	(28,074)	-	-	-
Incheon fuel cell Co., Ltd.		-	4,700	(38)	-	-	4,662
Dongbuk LRT		-	1,694	(1)	-	-	1,693
Subtotal		77,164	54,138	(25,500)	(3,571)	(11,168)	91,063
Joint ventures:							
Doosan Babcock Blackcat W.L.L		-	-	(281)	-	281	-
Haman Industrial Complex Company		-	-	-	-	-	-
Doosan PSI LLC		1,091	-	196	-	50	1,337
Doosan Infracore Liaoning Machinery Sales Co., Ltd.		412	-	(119)	-	(1)	292
Tianjin Lovol Doosan Engine Co., Ltd.		-	12,727	(3,998)	-	(494)	8,235
Subtotal		1,503	12,727	(4,202)	-	(164)	9,864
Total	₩	78,667	66,865	(29,702)	(3,571)	(11,332)	100,927

(3) The condensed financial information of the investees as of and for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019				
		Total assets	**Total liabilities**	**Sales**	**Profit (loss)**	**Total comprehensive income (loss)**
The HS-City Expressway	₩	172,125	157,720	10,387	974	(4,657)
POSPOWER Co., Ltd.		707,051	199,846	-	(5,294)	(5,294)
Daejung Offshore Wind Power Co., Ltd.		6,181	1,450	-	(617)	(617)
DBC Co., Ltd		322,297	219,050	-	(814)	(814)
Potenit Co., Ltd.		6,041	11,380	1,565	(2,243)	(2,243)
Shinbundang Railroad Co., Ltd.		838,864	975,027	103,015	(25,043)	(25,043)
Kyunggi Railroad Co., Ltd.		643,509	733,172	45,556	(33,580)	(33,580)
Neo Trans Co., Ltd.		68,267	17,381	94,406	385	385
New Seoul Railroad Co., Ltd.		205,457	152,996	-	(2,595)	(2,595)
KIAMCO Kyunggi Railway Investment Private property investment trust		78,705	16	-	4	4

(In millions of won)

		2019				
		Total assets	Total liabilities	Sales	Profit (loss)	Total comprehensive income (loss)
Incheon fuel cell Co., Ltd.	₩	22,669	475	-	(1,004)	(1,004)
Doosan Babcock Blackcat W.L.L		813	1,559	10,183	(608)	(608)
Doosan PSI LLC		9,924	5,561	19,412	1,605	1,605
Doosan Infracore Liaoning Machinery Sales Co., Ltd.		1,807	1,205	14,864	(449)	(449)
Tianjin Lovol Doosan Engine Co., Ltd.		41,629	1,007	-	(6,278)	(6,278)

(In millions of won)

		2018				
		Total assets	Total liabilities	Sales	Profit (loss)	Total comprehensive income (loss)
The HS-City Expressway	₩	178,270	159,208	9,328	(5,437)	(5,437)
POSPOWER Co., Ltd.		425,632	35,760	-	(4,536)	(4,536)
Daejung Offshore Wind Power Co., Ltd.		6,440	1,091	-	(590)	(590)
Potenit Co., Ltd.		8,478	11,575	813	(1,901)	(1,901)
Shinbundang Railroad Co., Ltd.		865,489	976,609	87,340	(39,867)	(39,867)
Kyunggi Railroad Co., Ltd.		670,303	728,713	43,801	(36,376)	(36,376)
Neo Trans Co., Ltd.		67,484	16,983	90,893	1,534	1,534
New Seoul Railroad Co., Ltd.		142,131	87,076	-	(2,795)	(2,795)
KIAMCO Kyunggi Railway Investment Private property investment trust		78,689	16	-	4	4
Incheon fuel cell Co., Ltd.		23,635	415	-	(191)	(191)
Dongbuk LRT		7,659	-	-	(3)	(3)
Doosan Babcock Blackcat W.L.L		1,132	1,385	849	(352)	(352)
Doosan PSI LLC		8,695	6,021	16,091	387	387
Doosan Infracore Liaoning Machinery Sales Co., Ltd.		1,826	780	15,415	(194)	(194)
Tianjin Lovol Doosan Engine Co., Ltd.		22,353	223	-	(2,334)	(2,334)

(4) The following table provides a reconciliation of the summarized financial information of the associates and joint ventures to the carrying amount of its interest in the associates and joint ventures:

(In millions of won)

				2019				
					Adjustment amount			
Company(*1)		**Net asset (a)**	**Equity ownership (%) (b)**	**Equity interest in the investee (axb)**	**Difference**	**Internal transaction**	**Others**	**Book value**
Associates:								
The HS-City Expressway	₩	14,405	27.29	3,931	-	-	(125)	3,806
POSPOWER Co., Ltd.		507,205	9.00	45,648	8,360	-	(11,047)	42,961
Daejung Offshore Wind Power Co., Ltd.		4,731	25.00	1,183	1,434	-	-	2,617
DBC Co., Ltd.		103,247	49.90	51,520	-		1,310	52,830
Potenit Co., Ltd.		(5,339)	27.80	(1,485)	5,641	-	(4,156)	-
Shinbundang Railroad Co., Ltd.		(136,163)	29.03	(39,528)	-	-	39,528	-
Kyunggi Railroad Co., Ltd.		(89,663)	6.99	(6,267)	-	-	6,267	-
Neo Trans Co., Ltd.		50,886	42.86	21,810	-	-	-	21,810
New Seoul Railroad Co., Ltd.		52,461	13.76	7,219	-	-	-	7,219
KIAMCO Kyunggi Railway Investment Private property investment trust		78,689	35.70	28,092	-	-	(28,092)	-
Incheon fuel cell Co., Ltd.		22,194	20.00	4,439	-	-	-	4,439
Dongbuk LRT		-	-	-	-	-	-	-
Subtotal		602,653		116,562	15,435	-	3,685	135,682
Joint ventures:								
Doosan Babcock Blackcat W.L.L		(746)	49.00	(365)	-	-	365	-
Doosan PSI LLC		4,363	50.00	2,181	-	-	-	2,181
Doosan Infracore Liaoning Machinery Sales Co., Ltd.		602	43.00	259	-	(152)	-	107
Tianjin Lovol Doosan Engine Co., Ltd.		40,622	50.00	20,312	-	(2,525)	-	17,787
Subtotal		44,841		22,387	-	(2,677)	365	20,075
Total	₩	647,494		138,949	15,435	(2,677)	4,050	155,757

(*1) Adjustments on Haman Industrial Complex Company were not included as the company discontinued recognizing its share of further losses.

(In millions of won)

	2018						
				Adjustment amount			
Company(*1)	Net asset (a)	Equity ownership (%) (b)	Equity interest in the investee (axb)	Difference	Internal transaction	Others	Book value
Associates:							
The HS-City Expressway	₩ 19,062	27.29	5,202	-	-	(282)	4,920
POSPOWER Co., Ltd.	389,872	9.00	35,088	8,360	-	-	43,448
Daejung Offshore Wind Power Co., Ltd.	5,349	25.00	1,337	1,435	-	-	2,772
Potenit Co., Ltd.	(3,097)	27.80	(861)	5,640	-	-	4,779
Shinbundang Railroad Co., Ltd.	(111,120)	29.03	(32,258)	-	-	32,258	-
Kyunggi Railroad Co., Ltd.	(58,410)	6.99	(4,082)	-	-	4,082	-
Neo Trans Co., Ltd.	50,501	42.86	21,645	-	-	-	21,645
New Seoul Railroad Co., Ltd.	55,055	13.76	7,577	-	-	(433)	7,144
KIAMCO Kyunggi Railway Investment Private property investment trust	78,673	35.70	28,090	-	-	(28,090)	-
Incheon fuel cell Co., Ltd.	23,220	20.00	4,644	-	-	18	4,662
Dongbuk LRT	7,659	22.00	1,685	-	-	8	1,693
Subtotal	456,764		68,067	15,435	-	7,561	91,063
Joint ventures:							
Doosan Babcock Blackcat W.L.L	(253)	49.00	(124)	-	-	124	-
Doosan PSI LLC	2,674	50.00	1,337	-	-	-	1,337
Doosan Infracore Liaoning Machinery Sales Co., Ltd.	1,046	43.00	450	-	(158)	-	292
Tianjin Lovol Doosan Engine Co., Ltd.	22,130	50.00	11,066	-	(2,831)	-	8,235
Subtotal	25,597		12,729	-	(2,989)	124	9,864
Total	₩ 482,361		80,796	15,435	(2,989)	7,685	100,927

(*1) Adjustments on Haman Industrial Complex Company were not included as the company discontinued recognizing its share of further losses.

12. Property, plant and equipment

(1) Changes in property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)	2019						
	Land	Buildings and structures	Machinery	Others	Construction in progress	Right-of-use assets	Total
As of January 1, 2019	₩ 4,223,399	1,042,510	731,014	138,695	278,869	-	6,414,487
Adjustment of changes in K-IFRS(*1)	-	-	-	-	-	257,660	257,660
Acquisition/ capital expenditure	41,773	34,449	53,469	53,973	195,978	58,266	437,908
Transfer(*2)	(388,345)	(16,490)	122,332	4,070	(156,676)	15	(435,094)
Disposals(*3, 4)	(148,490)	(3,548)	(2,631)	(3,300)	(29,539)	(191)	(187,699)
Depreciation	-	(64,296)	(164,177)	(48,768)	-	(91,126)	(368,367)
Impairment	2,173	(42,558)	-	(258)	(254)	-	(40,897)
Revaluation	50,974	-	-	-	-	-	50,974
Changes in the scope of consolidation	(177,529)	-	-	-	(58,036)	-	(235,565)
Changes in foreign currency translation and others	1,612	12,332	5,743	1,204	2,289	4,945	28,125
As of December 31, 2019	₩ 3,605,567	962,399	745,750	145,616	232,631	229,569	5,921,532
- Acquisition cost	₩ 2,054,122	1,966,882	2,802,832	698,755	232,881	320,477	8,075,949
- Accumulated depreciation and impairment	(12,299)	(1,004,483)	(2,057,082)	(553,139)	(250)	(90,908)	(3,718,161)
- Revaluation surplus	1,563,744	-	-	-	-	-	1,563,744

(*1) Right-of-use asset from the adoption of K-IFRS No. 1116 is classified as property, plant and equipment. (See Notes 2 and 14)
(*2) For the year, part of the land and buildings were reclassified as investment property (See Note 15).
(*3) Includes the amount due to termination of the right-of-use asset (See Note 14).
(*4) Includes the land reclassified as non-current assets held for sale and sold during 2019.

As of December 31, 2019, certain property, plant and equipment have been pledged as collateral for borrowings (See Note 33).

(In millions of won)		2018					
		Land	Buildings and structures	Machinery	Others	Construction in progress	Total
As of January 1, 2018	₩	4,507,328	1,198,690	856,962	137,803	204,073	6,904,856
Acquisition/ capital expenditure		4,974	18,218	32,579	47,548	150,962	254,281
Transfer		(5,484)	23,806	72,496	5,949	(76,304)	20,463
Disposals		(21,758)	(4,214)	(9,013)	(3,792)	(498)	(39,275)
Depreciation		-	(69,708)	(172,100)	(49,345)	-	(291,153)
Impairment		-	(1,593)	(461)	18	-	(2,036)
Changes in the scope of consolidation		(259,351)	(131,094)	(51,376)	(1,564)	(685)	(444,070)
Changes in foreign currency translation and others		(2,310)	8,405	1,927	2,078	1,321	11,421
As of December 31, 2018	₩	4,223,399	1,042,510	731,014	138,695	278,869	6,414,487
- Acquisition cost	₩	2,600,314	1,968,999	2,670,711	661,280	278,869	8,180,173
- Accumulated depreciation and impairment		(13,748)	(926,489)	(1,939,697)	(522,585)	-	(3,402,519)
- Revaluation surplus		1,636,833	-	-	-	-	1,636,833

(2) Capitalized borrowing costs for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Capitalized borrowing costs	₩	3,290	4,501
Interest rate of borrowing costs		3.69% ~ 4.20%	3.65% ~ 4.19%

(3) Details of depreciation on property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Cost of sales	₩	290,281	242,585
Selling and administrative expenses		58,559	22,908
Research and development costs and others		19,525	19,053
Profit for the year from discontinued operation		2	6,607
Total	₩	368,367	291,153

(4) Revaluation of land

In order to determine the fair value of the land, the Group requested fair value evaluation to a Pacific Appraisal Corporation, a recognized independent evaluation agency, and the revaluation date was October 31, 2019.

The fair value of the land was assessed based on the standard land price, and based on the principles of marketability and substitution, the trade cases where similarity is recognized in the neighborhood where the object is located are calculated and the ratification price is calculated by the comparison of transaction cases. The final appraisal was determined by reviewing the adequacy of the amounts calculated based on the standard quoted land prices.

The standard evaluation of the standard land price is based on the public land price of the comparative standard land located in the neighboring area. The price is determined by integrating price-forming factors such as demand and marketability. The other factors are determined by calculating the gap between targets and valuation precedents, taking into account the neighboring land price level and the real estate economic trends.

As of December 31, 2019, the carrying amount of the land measured by applying the cost model is ₩2,041,823 million. Changes in accumulated other comprehensive income due to revaluation for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
As of January 1	₩	1,125,653	1,200,279
Increase of other comprehensive income by revaluation		51,260	-
Tax effect of other comprehensive income by revaluation		(6,363)	2,948
Transfer to retained earnings by disposal of land		(60,307)	(75,632)
Non-controlling interests		(26,170)	(1,942)
As of December 31	₩	1,084,073	1,125,653

13. Intangible assets

(1) Changes in intangible assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019				
		Goodwill	Industrial property rights	Development costs	Other intangible assets	Total
As of January 1, 2019	₩	4,354,753	1,092,402	1,036,129	199,832	6,683,116
Increase		23,806	32,680	316,915	37,219	410,620
Internal development		-	-	316,915	-	316,915
Individual acquisition		23,806	32,680	-	37,219	93,705
Decrease		(3,741)	(1,119)	(122,204)	(54,365)	(181,429)
Amortization		-	(1,119)	(121,728)	(53,216)	(176,063)
Disposal		(3,741)	-	(476)	(1,149)	(5,366)
Transfer to other assets		-	635	(28,427)	21,192	(6,600)
Transfer to other expenses		-	-	(4,029)	-	(4,029)
Changes in foreign currency translation		107,184	30,089	4,034	1,959	143,266
Impairment loss		-	-	(10,816)	(2,242)	(13,058)
As of December 31, 2019	₩	4,482,002	1,154,687	1,191,602	203,595	7,031,886

(In millions of won)		2018				
		Goodwill	Industrial property rights	Development costs	Other intangible assets	Total
As of January 1, 2018	₩	4,233,995	1,063,964	951,541	226,171	6,475,671
Increase		-	1	309,452	21,816	331,269
Internal development		-	1	309,452	-	309,453
Individual acquisition		-	-	-	21,816	21,816
Decrease		-	(1,047)	(146,261)	(62,450)	(209,758)
Amortization		-	(1,047)	(146,261)	(60,432)	(207,740)
Disposal		-	-	-	(2,018)	(2,018)
Reclassification		-	537	(29,941)	28,908	(496)
Changes in scope of consolidation		-	-	(1,953)	(4,258)	(6,211)
Changes in foreign currency translation		120,758	28,947	(1,182)	1,225	149,748
Impairment loss		-	-	(45,527)	(11,580)	(57,107)
As of December 31, 2018	₩	4,354,753	1,092,402	1,036,129	199,832	6,683,116

The carrying amounts of intangible assets with indefinite useful lives including goodwill and others as of December 31, 2019 and 2018 amounted to ₩5,680,978 million and ₩5,494,102 million, respectively.

(2) Research and development costs expensed as incurred for the years ended December 31, 2019 and 2018 amounted to ₩238,030 million and ₩214,879 million, respectively.

(3) Capitalized borrowing costs for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Capitalized borrowing costs	₩	24,547	19,185
Interest rate of borrowing costs		3.69%~4.20%	3.65%~4.19%

(4) Details of amortization of intangible assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Cost of sales	₩	126,193	145,688
Selling and administrative expenses		49,728	61,297
Research and development costs and others		142	229
Profit for the year from discontinued operation		-	526
Total	₩	176,063	207,740

(5) Carrying amount of goodwill allocated to each CGU as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Business group of Doosan Heavy Industries & Construction Co., Ltd. ("DHI")	₩	673,395	651,446
DI		3,748,558	3,643,258
DEC		60,049	60,049
Total	₩	4,482,002	4,354,753

The recoverable amount of CGU is determined based on a value in use calculation, and major assumptions used as of December 31, 2019 are as follows:

	DHI	DI	DEC
Forecast growth rate	1.00%	1.50%	1.00%
Discount rate	9.60%	7.85%~9.07%	11.40%

A value in use is calculated using pre-tax cash flow projections based on financial budgets approved by senior management covering a five-year period. The management assessed the total profit in the budget based on past performances and market growth forecasts. Cash flows beyond the five-year period are extrapolated using a forecast growth rates, which do not exceed the long-term average growth rate for the industry where the CGU operates in and which are consistent with estimations included in industry reports. The discount rate used is risk adjusted discount rate that reflects relevant risks specific to the related CGU.

(6) Details of development costs as of December 31, 2019 and 2018 are as follows:

(In millions of won)	2019			
	Description		Book value	Remaining amortization period(*1)
DHI	Highly Efficient Heavy-Duty Gas Turbine Development for Power Generation	₩	444,398	-
	500MW Standard TPP		54,435	-
	IGCC Gasification Plant		46,491	18.58 years
	3MW Class III Wind Turbine Generator (Stage2)		18,989	3.67 years
	5.5MW Wind Turbine Generator		15,238	
DI	Stage5 Response Engine Development(*2)		19,991	-
	Development for Vehicle Engine		13,253	-
	Development for Gen 6 Loaders		31,028	-
	Development for Electronic Generator Engine		9,567	-
	Stage5 Response Engine Development(*2)		21,870	4.24~4.75 years
	Development for Big Excavators (DX800)		2,901	2.42 years
	BHL Project		4,889	4.92 years

(*1) Remaining amortization period is disclosed for assets which amortization has been initiated and disclosed as '-' for assets not yet amortized.
(*2) Some of the sub-projects that were amortized among the development costs were separately marked.

(In millions of won)

	2018			
	Description		Book value	Remaining amortization period(*1)
DHI	Highly Efficient Heavy-Duty Gas Turbine Development for Power Generation	₩	330,465	-
	500MW Standard TPP		49,119	-
	IGCC Gasification Plant		48,992	19.58 years
	3MW Class III Wind Turbine Generator (Stage2)		24,008	4.67 years
	5.5MW Wind Turbine Generator		11,764	
DI	Stage5 Response Engine Development		38,150	-
	Development for Gen 6 Loaders		22,155	-
	Development for Vehicle Engine		8,055	-
	Development for Electronic Generator Engine		5,241	-
	Development for Big Excavators (DX800)		4,102	3.42 years

(*1) Remaining amortization period is disclosed for assets which amortization has been initiated and disclosed as '-' for assets not yet amortized.

(7) Intangible assets for which an impairment loss has been recognized for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

			2019					
				Impairment loss				
	Description		Acquisition cost	Loss	Accumu-lated	Accumulated amortization	Book value	Method used to assess recoverability
DHI	Development costs							
	TM-ICI and other(*1)	₩	1,507	1,237	1,237	270	-	Value in use
	PCCS and 7 others(*1)		2,442	2,442	2,442	-	-	Value in use
	Others		1,742	1,068	1,742	-	-	Value in use
	Other intangible assets							
	Golf membership and others		5,571	4,759	5,111	-	460	Fair value
	Subtotal		11,262	9,506	10,532	270	460	
DI	Development costs							
	Development for DL06 Engine		5,202	763	2,318	2,383	501	Value in use
	Medium Frame GenV and others		135,489	4,824	4,824	130,665	-	Value in use
	Subtotal		140,691	5,587	7,142	133,048	501	
CUVEX	Other intangible assets							
	Condo memberships		73	19	26	47	-	Fair value
	Total	₩	152,026	15,112	17,700	133,365	961	

(*1) The Group has decreased book amount in whole due to uncertain condition of market sales for project award environment.

(In millions of won)

	Description		2018 Acquisition cost	Impairment loss: Loss	Impairment loss: Accumulated	Accumulated amortization	Book value	Method used to assess recoverability
DHI	Development costs							
	60Hz 50" Longer LSB(*1)	₩	6,348	6,348	6,348	-	-	Value in use
	Prototype Monoblock Rotor and 10 others(*2)		15,503	8,178	8,178	7,325	-	Value in use
	Others		58	58	58	-	-	Value in use
	Skoda R&D		19,853	15,131	19,853	-	-	Value in use
	Other intangible assets							
	Echogen License Agreement and 2 others(*3)		4,636	4,636	4,636	-	-	Value in use
	Skoda R&D		31,129	6,657	29,555	-	1,574	Value in use
	Subtotal		77,527	41,008	68,628	7,325	1,574	
DI	Development costs							
	Development for Next Tram Engine(*4)		9,889	9,889	9,889		-	Value in use
	Development for Ship Tier3 Engine and other(*5)		4,184	4,184	4,184	-	-	Value in use
	Development for DL06 Engine(*6)		3,564	1,738	1,738	-	1,826	Value in use
	Other intangible assets							
	Golf Memberships		22,907	306	13,105	-	9,802	Fair value
	Subtotal		40,544	16,117	28,916	-	11,628	
DEC	Other intangible assets							
	Condo memberships		60	1	60	-	-	Fair value
	Total	₩	118,131	57,126	97,604	7,325	13,202	

(*1) The Group has decreased book amount in whole due to uncertain condition of market sales for project award environment.
(*2) The Group has decreased book amount in whole due to order decrease caused by domestic nuclear construction halt and eco-regulation in China.
(*3) The Group has decreased book amount in whole due to low customer pool and economic feasibility even though license contract had been signed with Echogen of US for sCO2 technology early market test.
(*4) The Group has decreased book amount in whole due to delay of government business schedule causing timing of mass production to become uncertain.
(*5) The Group has decreased book amount in whole due to R&D stoppage.
(*6) The Group has decreased book amount partially due to decrease of value caused by decrease of amount compared to planned amount when at developing stage.

(8) Reversal of impairment loss of intangible assets

Reversal of impairment loss of intangible assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)

Description	Assets		2019 Reversal of impairment loss	2019 Method used to assess recoverability	2018 Reversal of impairment loss	2018 Method used to assess recoverability
Other intangible assets	Golf membership	₩	2,054	Fair value	19	Fair value

(9) Items in the consolidated statements of loss that included reversal of impairment loss

For the years ended December 31, 2019 and 2018, item in the consolidated statements loss the Group recognized reversal of impairment loss are as follows:

(In millions of won)		2019	2018
Other non-operating expenses	₩	(15,112)	(57,126)
Other non-operating income		2,054	19
Total	₩	(13,058)	(57,107)

14. Lease

(1) Changes in the right-of-use assets for the year ended December 31, 2019 are as follows:

(In millions of won)		Land	Building & structures	Machinery	Other tangible asset	Total
As of January 1, 2019	₩	-	-	-	-	-
Adjustment on initial application of K-IFRS (See Note 2)		18,858	178,976	5,275	54,551	257,660
Acquisition		276	36,194	4,791	17,005	58,266
Contract cancelation		-	-	-	(191)	(191)
Depreciation		(996)	(45,436)	(5,976)	(38,718)	(91,126)
Transfers		-	-	-	15	15
Foreign currency differences		365	4,704	59	(183)	4,945
As of December 31, 2019	₩	18,503	174,438	4,149	32,479	229,569
- Acquisition cost	₩	19,489	219,815	10,118	71,055	320,477
- Accumulated depreciation		(986)	(45,377)	(5,969)	(38,576)	(90,908)

(2) Changes in the lease liabilities for the year ended December 31, 2019 are as follows:

(In millions of won)		Lease liabilities
As of January 1, 2019	₩	-
Adjustment on initial application of K-IFRS (See Note 2)		288,626
Payment of lease		(107,331)
Acquisition of leased assets		58,266
Contract cancelation		(499)
Interest expense		16,026
Foreign currency differences		1,450
As of December 31, 2019	₩	256,538

(3) The depreciation of right-of-use assets by type of accounts for the year ended December 31, 2019 is as follows:

(In millions of won)		Depreciation of right-of-use assets
Cost of sales	₩	65,551
Selling and administration costs		25,000
R&D costs		575
Total	₩	91,126

(4) The maturity of lease receivables and liabilities as of December 31, 2019 are as follows:

(In millions of won)		Contractual nominal cash flow				
		Total	Less then 1 year	1-2 years	2-5 years	More then 5 years
Lease receivables	₩	12,724	2,134	2,756	6,934	900
Lease liabilities		296,460	84,640	48,763	90,666	72,391

(5) Expenses incurred in short-term leases and low-value asset leases that are not included in the Group's right-of-use assets for the year ended December 31, 2019 are as follows:

(In millions of won)		2019
Cost of sales	₩	6,700
Selling and administration costs		13,797
R&D costs		372
Total	₩	20,869

The Group, as an intermediate lessor, recognized a rental income of ₩3,964 million from the sub-lease of right-of-use assets for the year ended December 31, 2019.

15. Investment properties

Changes in investment properties for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		Land	Buildings	Total
As of January 1	₩	23,830	2,655	26,485
Acquisition		993	-	993
Transfers(*1)		391,721	57,550	449,271
Depreciation		-	(6,464)	(6,464)
Impairment		-	(57)	(57)
Others		127	27,856	27,983
As of December 31	₩	416,671	81,540	498,211
- Acquisition cost	₩	431,748	121,930	553,678
- Accumulated depreciation and impairment loss		(15,077)	(40,390)	(55,467)

(*1) Reclassified from tangible assets to investment property (See Note 12).

(In millions of won)

		2018		
		Land	Buildings	Total
As of January 1	₩	18,403	2,384	20,787
Transfers		5,985	430	6,415
Depreciation		-	(159)	(159)
Impairment		(504)	-	(504)
Others		(54)	-	(54)
As of December 31	₩	23,830	2,655	26,485
- Acquisition cost	₩	38,851	5,997	44,848
- Accumulated depreciation and impairment loss		(15,021)	(3,342)	(18,363)

Rental income from investment properties for the years ended December 31, 2019 and 2018 are ₩14,856 million and ₩257 million, respectively.

16. Bonds and borrowings

(1) Borrowings

1) Short-term borrowings as of December 31, 2019 and 2018 are as follows:

(In millions of won)

Type of borrowings	Borrower(*1)	Lender	Annual interest rate (%) as of December 31, 2019		2019(*3)	2018
Denominated in KRW	DHI	Korea Development Bank ("KDB") and others	1.40~5.09	₩	2,239,206	1,023,950
	DI	Korea EXIM Bank and others	2.57~3.95		329,082	593,500
	DEC	Construction guarantee cooperation and others	1.43~8.27		49,039	66,559
Denominated in foreign currencies	DHI	HSBC and others	1.16~10.45		871,686	810,842
	DI	KDB and others	0.28~5.96		251,988	331,010
		Disposal of receivables in foreign currency(*2)	-		10,013	13,090
	DEC	Asia commercial bank and others	2.50~3.70		16,256	1,121
		Total		₩	3,767,270	2,840,072

(*1) Includes the Company's overseas subsidiaries and their consolidated subsidiaries.
(*2) As discounting of commercial papers with recourse do not qualify for the derecognition of a financial asset, the Group continues to recognize the related receivables and accounted for the related amounts received as short-term borrowings.
(*3) The Group's PP&E and others have been pledged as collateral for the above borrowings (See Note 33).

2) Long-term borrowings as of December 31, 2019 and 2018 are as follows:

(In millions of won)

Type of borrowings	Borrower(*1)	Lender	Annual interest rate(%) as of December 31, 2019		2019(*2)	2018
Denominated in KRW	DHI	Korea EXIM Bank and others	2.34~5.30	₩	538,097	865,189
	DI	KDB and others	3.99~4.40		380,000	380,000
	DEC	KDB and others	7.50, CD+2.50		95,000	73,000
	Cuvex	SBI Savings Bank and others	5.00		1,000	26,200
	DBC	The Korea Securities Finance Corporation	-		-	178,200
Denominated in foreign currencies	DHI	Mashreq Bank and others	0.94~5.30		634,722	791,604
	DI	Korea EXIM Bank and others	2.30~8.00		1,002,720	1,512,341
Subtotal					2,651,539	3,826,534
Less: Current portion of long-term borrowings					(941,595)	(772,565)
Less: Discount on long-term borrowings					(11,961)	(10,532)
Total				₩	1,697,983	3,043,437

(*1) Includes the Company's overseas subsidiaries and their consolidated subsidiaries.
(*2) The Group's PP&E and others have been pledged as collateral for the above borrowings (See Note 33).

(2) Bonds

1) Details of bonds as of December 31, 2019 and 2018 are as follows:

(In millions of won)

	Annual interest rate (%) as of December 31, 2019		2019	2018
Public subscription bonds	1.77~5.87	₩	1,148,680	1,007,860
Private subscription bonds(*1)	4.10~5.10		313,000	332,000
Bonds with stock warrants	1.00~4.00		1,057,185	1,224,770
Bonds denominated in foreign currencies(*2)	2.13~4.55		621,980	686,994
Subtotal			3,140,845	3,251,624
Add: Redemption premium			108,674	123,208
Less: Exchange rights adjustment			(130,447)	(184,365)
Less: Current portion of long-term bonds			(2,251,796)	(1,109,493)
Less: Discount on bonds			(20,441)	(27,941)
Long-term bonds		₩	846,835	2,053,033

(*1) The Group's PP&E and others have been pledged as collateral for the above bonds (See Note 33).
(*2) The bonds denominated in foreign currencies are guaranteed by Korea EXIM Bank (See Note 32).

2) Bond with stock warrants

Changes in the carrying amount of bonds with stock warrants for the year ended December 31, 2019 are as follows:

(In millions of won)		January 1	Issuance / Redemption	Exercise / Amortization	December 31
Bond with stock warrants	₩	1,224,770	(167,570)	(15)	1,057,185
Redemption premium		123,208	(14,532)	(2)	108,674
Discount on bond		(16,819)	2,163	4,689	(9,967)
Exchange rights adjustment		(184,365)	8,913	45,005	(130,447)
Book value(*1)	₩	1,146,794	(170,026)	49,677	1,025,445
Consideration for stock warrants rights (other capital surplus)	₩	103,467	-	(4,829)	98,638

(*1) It has been replaced by current portion.

(a) 93rd bond with stock warrants issued by DEC

Issue date	Maturity Date	Coupon rate	YTM	Exercise year	Exercise price (in won)	Face value	Issuance value(*1)	Book value
March 21, 2017	March 21, 2020	2.50%	5.50%	From one month after date of issue to one month before maturity	₩2,470/share	₩150,000 million	₩144,480 million	₩9,946 million

(*1) Discount on debentures is deducted from the face value of debentures.

① Early redemption
The early redemption right is exercisable as a whole or in part against the face value of bonds with stock warrants at the interest payment date in 2 years and 2.5 years after the date of issuance of bonds.

② Redemption at maturity
The coupon rate for the bond is 2.5%. For bonds not converted until maturity, 109.7128% of the principal amount will be paid on March 21, 2020 with a yield to maturity rate of 5.5% compounded quarterly.

③ Calculation of exercise price
The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

④ Exercise of stock warrants
As of December 31, 2019, stock warrants were exercised in the amount pertaining to 14.73% of the principal amount of bond with stock warrants and 3.57% of the principal amount was substituted. The number of shares issued as a result of the exercise of the stock warrants were 7,465,686 shares.

(b) 94th bond with stock warrants issued by DEC

Issue date	Maturity Date	Coupon rate	YTM	Exercise year	Exercise price (in won)	Face value	Issuance value(*1)	Book value
May 11, 2018	May 11, 2021	4.00%	7.00%	From one month after date of issue to one month before maturity	₩2,070/share	₩70,000 million	₩67,033 million	₩54,748 million

(*1) Discount on debentures is deducted from the face value of debentures.

① Early redemption
The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 1.5 years after the date of issuance of bonds.

② Redemption at maturity
The coupon rate for the bond is 4.0%. For bonds not converted until maturity, 109.9188% of the principal amount will be paid on May 11, 2021 with a yield to maturity rate of 7.0% compounded quarterly.

③ Calculation of exercise price
The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

④ Exercise of stock warrants
As of December 31, 2019, stock warrants were exercised in the amount pertaining to 0.05% of the principal amount of bond with stock warrants and 0.04% of the principal amount was substituted. The number of shares issued as a result of the exercise of the stock warrants were 11,508 shares.

(c) 48th bond with stock warrants issued by the Company

Issue date	Maturity date	Coupon rate	YTM	Exercise year	Exercise price (in won)	Face value	Issuance value(*1)	Book value
May 4, 2017	May 4, 2022	1.00%	2.00%	From one month after date of issue to one month before maturity	₩17,100/share	₩500,000 million	₩491,546 million	₩476,106 million

(*1) Discount on debentures is deducted from the face value of debentures.

① Early redemption
The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 3 years after the date of issuance of bonds.

② Redemption at maturity
The coupon rate for the bond is 1.0%. For bonds not converted until maturity, 105.2448% of the principal amount will be paid on May 4, 2022 with a yield to maturity rate of 2.0% compounded quarterly.

③ Calculation of exercise price
The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants or debt securities with warrants.

④ Exercise of stock warrants
As of December 31, 2019, stock warrants were exercised in the amount pertaining to 0.05% of the principal amount of bond with stock warrants and 0.04% of the principal amount was substituted. The number of shares issued as a result of the exercise of the stock warrants were 11,394 shares.

(d) 31th bond with stock warrants issued by DI

Issue date	Maturity date	Coupon rate	YTM	Exercise year	Exercise price (in won)	Face value	Issuance value(*1)	Book value
August 1, 2017	August 1, 2022	2.00%	4.75%	From one month after date of issue to one month before maturity	₩6,430/share	₩500,000 million	₩491,607 million	₩492,991 million

(*1) Discount on debentures is deducted from the face value of debentures.

① Early redemption
The early redemption right is exercisable as a whole or in part against the par value of bond with stock warrants at the interest payment date in 3 years after the date of issuance of bonds.

② Redemption at maturity
The coupon rate for the bond is 2.0%. For bonds not converted until maturity, 115.4175% of the principal amount will be paid on August 1, 2022 with a yield to maturity rate of 4.75% compounded quarterly.

③ Calculation of exercise price
The exercise price is adjusted when there is an increase in paid-in capital through issuance of shares at a price lower than the market price, stock dividends, or capitalization of reserves, before exercising the stock warrants, or when there is an issuance of stock purchase warrants of debt securities with warrants.

④ Exercise of stock warrants
As of December 31, 2019, stock warrants were exercised in the amount pertaining to 1.13% of the principal amount of bond with stock warrants and 1.09% of the principal amount was substituted. The number of shares issued as a result of the exercise of the stock warrants were 705,965 shares.

(3) Asset-backed borrowings

The Group transferred revenue from construction contracts to a special purpose vehicle, and the special purpose vehicle issued asset-backed securities backed by transferred assets. As of December 31, 2019 and 2018, the special purpose vehicle is liable on the following asset-backed borrowings:

(a) Short-term asset-backed borrowings

(In millions of won)

Company	Lender	Discount rate (%)		2019(*1)	2018
DEC	Shinyoung securities and others	7.30~7.50	₩	382,100	492,000
	Less: Discount on long-term borrowings			(526)	(629)
	Total		₩	381,574	491,371

(*1) The Group's investment property have been pledged as collateral for the above asset-backed borrowings (See Note 33).

(b) Long-term asset-backed borrowings

(In millions of won)

Company	Lender	Discount rate (%)		2019(*1)	2018
The Company	KDB and Others	3.03~5.50	₩	369,000	420,000
	Less: Current portion of long-term borrowings			(73,800)	(170,000)
	Less: Discount on long-term borrowings			(2,910)	(1,212)
	Total		₩	292,290	248,788

(*1) The Group's equity investments and others have been pledged as collateral for the above asset-backed borrowings (See Note 33).

17. Defined benefit liabilities

The Group operates defined benefit plans, and the cost of providing benefit under the defined benefit plans is determined using the projected unit credit method on actuarial valuation of the present value of its defined benefit obligations.

(1) Details of defined benefit liabilities as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Present value of defined benefit obligations	₩	2,345,826	2,144,480
Fair value of plan assets(*1)		(1,671,562)	(1,533,196)
Defined benefit liabilities	₩	674,264	611,284

(*1) Include employer contributions of ₩1,271 million and ₩1,350 million to the National Pension Service as of December 31, 2019 and 2018, respectively.

(2) Expenses recognized in consolidated statements of loss for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Current service cost	₩	78,863	87,583
Net interest cost		23,439	28,892
Past service cost		(9,129)	(6,669)
Total	₩	93,173	109,806

(3) Classification of expenses related to the employee benefit liability for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Cost of sales	₩	47,688	78,486
Selling and administrative expenses		36,277	24,678
Research and development costs		9,150	4,858
Profit from discontinued operations		58	1,784
Total	₩	93,173	109,806

(4) Changes in the present value of the defined benefit obligations for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
As of January 1	₩	2,144,480	2,283,407
Current service costs		78,864	87,583
Past service costs		(9,129)	-
Transfer from related parties		4,900	3,028
Transfer to related parties		(4,521)	(10,040)
Interests		70,252	67,336
Remeasurement gain (loss) in OCI:			
Actuarial changes arising from changes in demographic assumptions		(1,542)	(17,503)
Actuarial changes arising from changes in financial assumptions		195,813	(113,375)
Others		23,902	8,338
Effect of curtailment and settlement		(11,928)	(6,669)
Contributions by plan participants		3,119	2,602
Benefits paid		(225,829)	(150,755)
Others		77,445	(9,472)
As of December 31	₩	2,345,826	2,144,480

(5) Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
As of January 1	₩	1,533,196	1,604,848
Expected return on plan assets		46,813	38,444
Transfer from related parties		2,922	1,278
Transfer to related parties		(5,523)	(2,266)
Remeasurement gain (loss) in OCI		143,923	(86,435)
Contributions by plan participants		14,504	22
Contributions by employer		94,122	87,769
Benefits paid		(195,506)	(90,993)
Effect of collapse and liquidation		(11,920)	-
Others		49,031	(19,471)
As of December 31	₩	1,671,562	1,533,196

In relation to the defined benefit plans, the reasonable estimates of future employer contributions during the year 2020 amounts to ₩142,160 million. In addition, the actual return on plan assets for the years ended December 31, 2019 and 2018 amounts to ₩190,736 million and (-)₩47,991 million, respectively.

(6) The principal assumptions used in determining employee benefit liability as of December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate	1.30%~7.39%	2.00%~7.76%
Future salary increase rate	0.08%~8.00%	2.10%~8.00%

(7) Components of plan assets as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Equity investments	₩	384,019	302,545
Government and corporate bonds		650,963	620,904
Trust funds and others		636,580	609,747
Total	₩	1,671,562	1,533,196

(8) Details of a sensitively analysis on the defined benefit obligation for changes in the significant assumptions as of December 31, 2019 are as follows:

(In millions of won)		Amount	Ratio
Discount rate:			
1% increase	₩	(286,438)	(12.21%)
1% decrease		356,160	15.18%
Future salary increases:			
1% increase	₩	102,137	4.36%
1% decrease		(89,084)	(3.80%)

(9) The weighted average maturity of defined benefit obligations is approximately 13.70 years as of December 31, 2019.

(10) With regard to the defined contribution pension plans, the Group recognized expenses for the years ended December 31, 2019 and 2018 amounting to ₩24,744 million and ₩17,952 million, respectively.

18. Provision

Changes in significant provisions for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019							
		January 1	Arising during the year	Unused amounts reversed	Utilized	Others(*1)	December 31	Less: Current	Non-current
Warranties	₩	395,835	234,246	(10,466)	(161,489)	4,909	463,035	(234,214)	228,821
Provisions for construction losses		15,065	6,191	(10,033)	(23)	534	11,734	(11,734)	-
Others(*2)		10,996	162,534	(51,133)	(17,494)	133,867	238,770	(144,595)	94,175
Total	₩	421,896	402,971	(71,632)	(179,006)	139,310	713,539	(390,543)	322,996

(*1) Includes gain or loss arising from changes in foreign exchange rates.
(*2) As of the end of December 31, 2019, it includes ₩54,850 million in provisions related to guarantee the return of membership fees and ₩39,331 million in provisions related to ordinary wage suits.

(In millions of won)	2018								
	January 1	**Adjustment on application of K-IFRS No. 1115(*1)**	**Arising during the year**	**Unused amounts reversed**	**Utilized**	**Others(*2)**	**December 31**	**Less: Current**	**Non-current**
Warranties	₩ 388,941	-	150,541	(83,017)	(32,659)	(27,971)	395,835	(177,115)	218,720
Returned goods	5,336	-	-	(5,427)	-	91	-	-	-
Provisions for construction losses	-	10,143	9,245	(4,019)	(176)	(128)	15,065	(9,265)	5,800
Others	10,078	-	7,733	(9,060)	(1,568)	3,813	10,996	(1,952)	9,044
Total	₩ 404,355	10,143	167,519	(101,523)	(34,403)	(24,195)	421,896	(188,332)	233,564

(*1) In accordance with adoption of K-IFRS No. 1115, the adjustment amount of due from (to) customers for contract work has been calculated as a provision.
(*2) Includes gain or loss arising from changes in foreign exchange rates.

The Group estimates expenses required to settle the Group's obligations on product warranties, refunds, maintenance and others based on the level of warranty period, historical experience and other considerations.

19. Capital stock

As of December 31, 2019 and 2018, the total number of shares to be issued by the Company is 400,000,000 shares, with a par value is 5,000 per share. As of December 31, 2019, the number of shares with limited voting rights under Korean Commercial Code is 8,479 treasury shares (as of December 31, 2018: 8,479 shares). The Company increased 85,000,000 shares of the common stock on May 17, 2019, and repaid 12,904,210 shares of redeemable convertible preferred stock on December 6, 2019. Repayment of redeemable convertible preferred stock did not result in a decrease in capital stock due to its source from distributable income.

Capital stock and Paid-in capital in excess of par value as of December 31, 2019 and 2018 are as follows:

(In millions of won except for share, In shares)	Number of shares		Capital stock			Paid-in capital in excess of par value		
	Common shares	**Preferred shares**	**Common shares**	**Preferred shares**	**Total**	**Common shares**	**Preferred shares**	**Total**
Balance at December 31, 2019	202,146,875	-	₩ 1,010,733	64,522	1,075,255	265,843	299,701	565,544
Balance at December 31, 2018	117,146,803	12,904,210	₩ 585,733	64,522	650,255	228,479	299,701	528,180

20. Capital surplus

Capital surplus as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Paid-in capital in excess of par value	₩	565,544	528,180
Asset revaluation surplus		594,262	594,262
Other capital surplus		602,822	556,472
Total	₩	1,762,628	1,678,914

21. Other components of equity

(1) Other components of equity as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Treasury stock	₩	(135)	(85,775)
Stock options		1,599	3,590
Others		47,471	26,237
Total	₩	48,935	(55,948)

(2) Treasury stocks as of December 31, 2019 and 2018 are as follows:

(In millions of won except for share, In shares))	2019			2018		
	Number of shares		Amount	Number of shares		Amount
Common stock	8,479	₩	135	8,479	₩	135
Preferred stock	-		-	3,025,532		85,640
	8,479	₩	135	3,034,011	₩	85,775

(3) Stock option

The Company has granted stock options to its executives. The settlement method for stock options includes issuance of new shares, issuance of treasury shares or cash settlement. The type of settlement method chosen is determined based on the Board of Directors' decision at the time of exercise. These stock options require a vesting condition of a two year continuous employment from the grant date.

1) The terms and conditions of stock options granted as of December 31, 2019 are summarized as follows:

(In won, shares)

Grant date	Number of shares to be issued	Exercise period		Exercise price	Estimated fair value as of the grant date
26 Mar 2010	2,300	26 Mar 2013 ~ 25 Mar 2020	₩	90,100	41,077
25 Mar 2011	6,900	25 Mar 2014 ~ 24 Mar 2021		65,700	24,642
30 Mar 2012	20,000	30 Mar 2015 ~ 29 Mar 2022		66,800	16,337
29 Mar 2013	37,700	29 Mar 2016 ~ 28 Mar 2023		44,900	10,860
28 Mar 2014	75,300	28 Mar 2017 ~ 27 Mar 2024		34,550	7,948
	142,200				

2) Change in the stock options for the year ended December 31, 2019 is summarized as follows:

(In shares)	Number of shares to be issued			
Grant date	January 1	Newly granted	Retired	December 31
27 Mar 2009	3,500	-	(3,500)	-
26 Mar 2010	6,500	-	(4,200)	2,300
25 Mar 2011	16,500	-	(9,600)	6,900
30 Mar 2012	47,500	-	(27,500)	20,000
29 Mar 2013	88,000	-	(50,300)	37,700
28 Mar 2014	134,700	-	(59,400)	75,300
	296,700	-	(154,500)	142,200

(In millions of won)		Valuation			
Grant date		**January 1**	**Newly granted**	**Retired**	**December 31**
27 Mar 2009	₩	115	-	(115)	-
26 Mar 2010		267	-	(173)	94
25 Mar 2011		407	-	(237)	170
30 Mar 2012		777	-	(448)	329
29 Mar 2013		954	-	(546)	408
28 Mar 2014		1,070	-	(472)	598
	₩	3,590	-	(1,991)	1,599

No compensation expenses are recognized for the years ended December 31, 2019 and 2018 and are expected to be recognized in the future periods.

3) The estimated fair value was calculated using the modified fair value method and assumptions applied to this method are summarized as follows:

Grant date	Risk free rate(*1)	Expected exercise period	Expected volatility	Expected dividend yield
26 Mar 2010	3.82%	3 years	66.45%	10.00%
25 Mar 2011	3.66%	3 years	53.12%	10.00%
30 Mar 2012	3.57%	3 years	38.21%	13.33%
29 Mar 2013	2.45%	3 years	35.98%	15.00%
28 Mar 2014	2.88%	3 years	34.72%	15.00%

(*1) Based on a three-year treasury bond yield rate.

22. Accumulated other comprehensive income

(1) Accumulated other comprehensive income as of December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Loss on change in fair value of financial assets measured at FVOCI	₩	(35,079)	(25,948)
Gain on valuation of derivative financial instruments		17,237	8,581
Change in equity of equity method investments		66	75
Gain on revaluation of land		1,084,073	1,125,653
Loss on translation of foreign operations		(416,767)	(427,826)
Total	₩	649,530	680,535

(2) Details of income taxes on OCI items directly reflected in equity as of December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		Balance before tax	**Tax effect**	**Balance after tax**
Loss on change in fair value of financial assets measured at FVOCI	₩	(34,005)	(1,074)	(35,079)
Gain on valuation of derivative financial instruments		10,030	7,207	17,237
Change in equity of equity method investments		160	(94)	66
Gain on revaluation of land		1,474,697	(390,624)	1,084,073
Loss on translation of foreign operations		(416,767)	-	(416,767)
Total	₩	1,034,115	(384,585)	649,530

(In millions of won)		2018		
		Balance before tax	**Tax effect**	**Balance after tax**
Loss on change in fair value of financial assets measured at FVOCI	₩	(21,971)	(3,977)	(25,948)
Gain on valuation of derivative financial instruments		5,538	3,043	8,581
Change in equity of equity method investments		169	(94)	75
Gain on revaluation of land		1,493,283	(367,630)	1,125,653
Loss on translation of foreign operations		(427,826)	-	(427,826)
Total	₩	1,049,193	(368,658)	680,535

23. Accumulated deficit

(1) Accumulated deficit as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Legal reserve	₩	138,118	136,368
Voluntary reserve		180,039	636,561
Undisposed accumulated deficit		(1,292,370)	(921,838)
Total	₩	(974,213)	(148,909)

(2) Details of dividends for the years ended December 31, 2019 and 2018 are as follows:

		2019		2018	
		Common stock	**Preferred stock**	**Common stock**	**Preferred stock**
Number of shares (In shares)		202,146,875	-	117,146,803	12,904,210
Par value per share (In won)	₩	5,000	-	5,000	5,000
Par value dividend rate		0.00%	-	0.00%	27.12%
Dividends per share (In won)	₩	-	-	-	1,356
Dividends (In millions of won)(*1)	₩	-	-	-	17,498

(*1) Represents the amount proposed prior to the date of approval of issuance of consolidated financial statements, but not recognized as appropriations of retained earnings on the consolidated financial statements as at the reporting date.

The Company paid dividends for the year ended December 31, 2018 in April 2019.

24. Segment information

(1) The reportable segments of the Group and major products and services by segments are as follows:

Business segment	Major products and services
DHI	NSSS, BOP, Turbine, Seawater desalination plants and water treatment system, plant, civil engineering, architecture and others
DI	Internal combustion engines, and various construction machinery, transport equipment and others
DEC	Apartment building and others
Cuvex	Operation of resort and golf club
DBC(*1)	Property development

(*1) Some of its shares were sold to Doosan Corporation for the current year. As a result, the Group lost control of DBC and classified it as discontinued operation (See Note 36).

(2) Summarized financial information by reportable segments as of and for the years ended December 31, 2019 and 2018 is as follows:

(In millions of won)		2019				
		Sales	Intercompany	External sales	Operating income (loss)	Profit (loss)
DHI	₩	5,950,733	(273,695)	5,677,038	152,138	(589,929)
DI		8,185,840	(1,649)	8,184,191	840,397	395,698
DEC		1,781,925	(25,425)	1,756,500	81,028	(75,166)
Cuvex		68,412	(26,467)	41,945	2,633	934
DBC		-	-	-	(54)	(41)
Subtotal		15,986,910	(327,236)	15,659,674	1,076,142	(268,504)
Attributed to:						
Discontinued operations		-	-	-	54	41
Consolidation adjustments		(327,236)	327,236	-	691	164,096
Total	₩	15,659,674	-	15,659,674	1,076,887	(104,367)

(In millions of won)		2018				
		Sales	Intercompany(*1)	External sales	Operating income (loss)	Profit (loss)
DHI	₩	5,806,630	(347,160)	5,459,470	203,140	(51,611)
DI		7,730,108	(884)	7,729,224	848,127	394,170
DE		200,186	-	200,186	(23,839)	(21,983)
DEC		1,547,804	(35,422)	1,512,382	(52,151)	(551,780)
Cuvex		66,051	(24,247)	41,804	3,015	499
DBC		-	-	-	(1,804)	(1,744)
Subtotal		15,350,779	(407,713)	14,943,066	976,488	(232,449)
Attributed to:						
Discontinued operations		(199,427)	17,425	(182,002)	26,199	31,413
Consolidation adjustments		(390,288)	390,288	-	814	(220,689)
Total	₩	14,761,064	-	14,761,064	1,003,501	(421,725)

(*1) Intercompany sales include discontinued operations adjustment of DE.

(3) Summarized financial information on assets and liabilities by business segments as of December 31, 2019 and 2018 is as follows:

(In millions of won)		2019		2018	
		Assets	**Liabilities**	**Assets**	**Liabilities**
DHI	₩	14,374,611	10,023,084	14,168,828	9,288,372
DI		11,338,593	7,071,041	11,029,167	7,208,352
DEC		2,329,566	1,763,226	2,399,085	2,031,410
Cuvex		220,792	103,295	213,382	100,557
DBC		-	-	282,276	178,214
Subtotal		28,263,562	18,960,646	28,092,738	18,806,905
Consolidation adjustments		(3,454,313)	(353,390)	(3,277,826)	(210,423)
Total	₩	24,809,249	18,607,256	24,814,912	18,596,482

25. Revenue

(1) Revenue for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Revenue from contracts with customers			
Sales of goods	₩	8,313,935	7,907,734
Construction contracts		7,180,889	6,639,881
Others		181,725	188,675
Subtotal		15,676,549	14,736,290
Others			
Rental and others		74,557	60,970
Hedging gains		(91,432)	(36,196)
Subtotal		(16,875)	24,774
Total	₩	15,659,674	14,761,064

(2) In the following table, revenue for the years ended December 31, 2019 and 2018 are disaggregated by primary geographical market and timing of revenue recognition. The table also includes a reconciliation of the disaggregated revenue with the Group's reportable segments.

(In millions of won)		2019				
		DHI	**DI**	**DEC**	**Cuvex**	**Total**
Primary geographical market						
Domestic	₩	2,285,727	1,753,618	1,692,999	41,945	5,774,289
Americas		118,229	3,664,568	-	-	3,782,797
Asia		1,704,954	1,362,664	47,873	-	3,115,491
Middle East		617,228	-	-	-	617,228
Europe		946,880	1,394,750	15,628	-	2,357,258
Others		4,020	8,591	-	-	12,611
Total	₩	5,677,038	8,184,191	1,756,500	41,945	15,659,674

(In millions of won)		2019				
		DHI	DI	DEC	Cuvex	Total
Timing of revenue recognition						
At a point in time	₩	203,504	7,950,664	11,223	41,945	8,207,336
Over time		5,473,534	233,527	1,745,277	-	7,452,338
Total	₩	5,677,038	8,184,191	1,756,500	41,945	15,659,674

(In millions of won)		2018							
		DHI	DI	DE	DEC	Cuvex	Subtotal	Discontinued operation	Total
Primary geographical market									
Domestic	₩	2,040,253	1,801,669	152,853	1,468,760	41,804	5,505,339	(134,669)	5,370,670
Americas		97,523	3,233,953	158	38,317	-	3,369,951	(158)	3,369,793
Asia		1,208,625	1,402,314	39,573	-	-	2,650,512	(39,573)	2,610,939
Middle East		1,218,255	-	-	-	-	1,218,255	-	1,218,255
Europe		893,717	1,282,141	1,279	5,305	-	2,182,442	(1,279)	2,181,163
Others		1,097	9,147	6,323	-	-	16,567	(6,323)	10,244
Total	₩	5,459,470	7,729,224	200,186	1,512,382	41,804	14,943,066	(182,002)	14,761,064
Timing of revenue recognition									
At a point in time	₩	286,856	7,603,171	200,186	25,526	41,804	8,157,543	(182,002)	7,975,541
Over time		5,172,614	126,053	-	1,486,856	-	6,785,523	-	6,785,523
Total	₩	5,459,470	7,729,224	200,186	1,512,382	41,804	14,943,066	(182,002)	14,761,064

(3) Contract balances

The following table provides information about receivables, contract assets and contract liabilities from contracts with customers as of December 31, 2019 and 2018.

(In millions of won)		2019	2018
Receivables, which are included in 'trade and other receivables'	₩	2,310,963	2,302,985
Contract assets		1,866,283	1,922,030
Contract liabilities		(1,892,365)	(1,614,074)

The contract assets primarily relate to the Group's rights to consideration for work completed but not billed at the reporting date. The contract assets are transferred to receivables when the rights become unconditional. The contract liabilities primarily relate to the advance consideration received from customers for construction, for which revenue is recognized over time.

(4) Changes in transaction price for construction contract allocated to the performance obligations satisfied over time for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)			2019			
	Project name		**January 1**	**Increase (decrease)**	**Revenue recognized**	**December 31**
DHI	Fadhili CHP and others	₩	15,381,173	3,906,871	5,401,992	13,886,052
DEC	Gimhae Centum we've and others		7,703,951	1,659,097	1,748,573	7,614,475
DI	Extended warranty and others		89,110	548,049	326,290	310,869
	Subtotal		23,174,234	6,114,017	7,476,855	21,811,396
	Internal transaction		(419,297)	321,159	(24,259)	(73,879)
	Attributed to: Discontinued operations		(9,240)	(95)	(258)	(9,077)
	Total	₩	22,745,697	6,435,081	7,452,338	21,728,440

(In millions of won)			2018			
	Project name		**January 1**	**Increase (decrease)**	**Revenue recognized**	**December 31**
DHI	Fadhili CHP and others	₩	17,030,436	3,525,561	5,174,824	15,381,173
DEC	Gimhae Centum we've and others		7,163,279	2,063,280	1,522,608	7,703,951
DI	Extended warranty and others		58,881	156,282	126,053	89,110
DE	Shingori #3 and #4 emergency generators, alternative AC power diesel engine and 10 others		20,686	(2,428)	18,258	-
	Subtotal		24,273,282	5,742,695	6,841,743	23,174,234
	Internal transaction		(441,134)	(15,795)	(37,632)	(419,297)
	Attributed to: Discontinued operations		(37,022)	9,194	(18,588)	(9,240)
	Total	₩	23,795,126	5,736,094	6,785,523	22,745,697

(5) The Group shall recognize as an asset for the incremental costs of obtaining a contract with a customer that is, agent fee if the Group expects to recover those costs.

(In millions of won)		**2019**	**2018**
Incremental costs of obtaining a contract with a customer recognized an asset	₩	52,663	45,519
The amount of amortization		15,264	21,915

An asset recognized in accordance with above shall be amortized on a systematic basis that is consistent with the transfer to the customer of the good or services to which the asset relates.

(6) The Group shall recognize an asset from the costs incurred to fulfill a contract if those costs relate directly to a contract or to an anticipated contract the Group can specifically identify. The Group believes that these costs generate or enhance resources of the Group that will be used in satisfying performance obligations in the future and are expected to be recovered.

(In millions of won)		**2019**	**2018**
Costs incurred to fulfill a contract recognized an asset	₩	123,701	107,642
The amount of amortization		79,329	22,893

An asset recognized in accordance with above shall be amortized on a systematic basis that is consistent with the transfer to the customer of the good or services to which the asset relates.

(7) Changes in profit or loss in current and future reporting periods and the book value of due from (to) customers for contracts work (excluding foreign currency translation effect) resulting from changes in total contract revenue and in total estimated contract costs for construction contracts in progress as of December 31, 2019 are as follows:

(In millions of won)

		Provision for construction loss	Changes in total contract revenue	Changes in total contract cost	Effect on loss for the period	Effect on profit for the future	Changes in due from (to) customer for contract work
DHI	₩	11,256	590,016	509,499	(31,053)	111,570	(31,053)
DEC		478	295,145	322,849	(43,265)	15,561	(43,265)
Total	₩	11,734	885,161	832,348	(74,318)	127,131	(74,318)

Impacts on current and future profit were calculated based on total contract revenue and costs which were estimated based on the current circumstances as of December 31, 2019. Those estimations may change in the future.

(8) As of December 31, 2019, details of contracts that the revenue was recognized based on the percentage-of-completion measured by input method, and whose contract revenue is more than 5% of sales of the year ended December 31, 2018 are as follows. There is no contract that the Group decided not to disclose due to the prohibition by related regulations or contracts.

(In millions of won)

					Due from customers for contract work		Trade receivables (receivables from construction contract)	
	Contract date	Due date / Delivery date in contract	Percentage-of-completion (%)		Gross amounts	Accumulated impairment losses	Gross amounts	Allowance for doubtful accounts
Fadhili CHP(*1)	12 Nov 16	30 Nov 19	96.58	₩	100,966	30	-	-
Nghi Son II	24 Dec 14	10 Jul 22	38.77		189,292	42	9,999	3
Qurayyah Add-On(*1)	16 Sep 09	15 Oct 14	99.72		-	-	8,299	2
Song Hau1(*1)	10 Apr 15	2 Oct 19	83.55		30,922	9	-	-
UAE BNPP # 1,2 NSSS (*1)	30 Jun 10	30 Aug 19	98.55		-	-	-	-
UAE BNPP # 3,4 NSSS	30 Jun 10	31 Dec 20	98.21		13,276	4	-	-
Vinh Tan 4 TPP(*2)	26 Feb 14	26 Jun 18	99.72		44,939	13	21,901	-
Yanbu ph.3 MSF(*1)	4 Dec 12	30 Apr 19	98.28		-	-	-	-
Samchuck #1,2 EPC	24 Jul 18	30 Apr 24	8.27		-	-	-	-
Singori #3,4 NSSS(*1)	28 Aug 06	31 Aug 19	99.79		-	-	6,425	2
Singori #5,6 NSSS	28 Aug 14	30 Jun 24	69.95		-	-	-	-
Sinhanul #1,2 NSSS	31 Jul 09	31 Aug 21	97.21		-	-	-	-
Jawaharpur	22 Dec 16	21 Oct 21	45.04		29,770	-	46,837	-
Obra C	22 Dec 16	21 Oct 21	41.31		-	-	31,017	-

(*1) The Group is negotiating to extend contract period with respective contract party.
(*2) The Group has completed the production process, but will demand for payment at the time of a trial run, commercial operation or etc. according to the contract.

26. Expenses classified by nature

Expenses classified by nature for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Changes in inventories	₩	(310,132)	(153,609)
Purchases of raw materials and goods		7,357,818	7,181,951
Salaries		1,993,942	2,012,912
Depreciation and amortization		550,894	491,901
Others		4,990,265	4,224,408
Total	₩	14,582,787	13,757,563

27. Selling and administrative expenses

Selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Salaries	₩	486,484	468,141
Severance and retirement benefits		39,719	26,516
Employee welfare benefits		98,063	89,278
Travel		47,304	46,133
Training		12,573	12,355
Taxes and dues		21,805	19,647
Commissions		212,878	206,611
Sales commission		71,932	76,449
Rents		22,829	57,047
Bad debt expenses (reversal)		(4,327)	62,407
Transportation		11,689	11,473
Depreciation		62,488	22,992
Amortization		49,728	61,297
Research		219,528	189,015
Marketing		15,668	16,626
Advertising		91,576	73,657
Warranty		18,021	15,372
others		121,299	111,058
Total	₩	1,599,257	1,566,074

28. Finance income and expenses

(1) Finance income for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Interest income	₩	56,996	43,274
Dividend income		1,341	2,470
Gain on foreign currency transaction		129,463	128,657
Gain on foreign currency translation		81,269	71,434
Gain on settlement of derivative financial instruments		71,563	117,770
Gain on valuation of derivative financial instruments		84,819	98,451
Gain on valuation of firm commitments		61,896	67,938
Others		1,992	546
Total	₩	489,339	530,540

(2) Finance expenses for years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Interest expenses	₩	506,710	505,304
Loss on foreign currency transaction		149,490	154,004
Loss on foreign currency translation		121,559	117,914
Loss on settlement of derivative financial instruments		72,064	111,421
Loss on valuation of derivative financial instruments		112,278	101,587
Loss on valuation of firm commitments		23,613	13,730
Payment of guarantee fee		74,002	67,892
Loss on redemption of bonds		7,281	7,312
Others		2,706	1,013
Total	₩	1,069,703	1,080,177

29. Other non-operating income and expenses

(1) Other non-operating income for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Gain on disposal of property, plant and equipment	₩	1,981	1,823
Gain on disposal of intangible assets		81	284
Gain on disposal of other non-current assets		-	588
Reversal of impairment loss on property, plant and equipment		2,237	18
Reversal of impairment loss on intangible assets		2,054	19
Gain on disposal of long-term financial instruments		3,115	1,268
Commissions income		5,819	8,620
Miscellaneous gain and others		33,243	57,392
Total	₩	48,530	70,012

(2) Other non-operating expenses for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)		2019	2018
Loss on disposal of trade receivables	₩	22,010	17,857
Loss on disposal of property, plant and equipment		31,068	10,057
Other bad debt expenses		153,571	345,995
Impairment loss of property, plant and equipment		43,134	2,054
Impairment loss of intangible assets		15,112	57,126
Impairment loss of investment property		57	504
Donations		12,217	11,861
Loss on disposal of investment in subsidiaries		2,739	14,067
Miscellaneous loss and others		155,612	138,139
Total	₩	435,520	597,660

30. Income tax expense

(1) The component of income tax expense for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Current income tax expense	₩	98,372	130,603
Adjustments in respect of current income tax of prior year		52,061	(4,680)
Tax effect of temporary difference		16,512	129,508
Total income tax expense		166,945	255,431
Current income tax related to items recognized in equity during the year		(14,801)	2,065
Deferred tax related to items recognized in equity during the year		57,946	(19,669)
Income tax benefit related to discontinued operation		(51)	(18,061)
Others		113	106
Income tax expense	₩	210,152	219,872

(2) The component of income tax expense and deferred tax related to items recognized in equity for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Net gain (loss) on revaluation of land	₩	6,687	(12,941)
Net gain on valuation of FVOCI		2,915	-
Net loss on valuation of derivative financial instruments		(4,728)	(5,764)
Remeasurement of the net defined benefit liability		21,840	(9,299)
Others		16,431	10,400
Total	₩	43,145	(17,604)

(3) Changes in deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019		
		January 1	Change	December 31
Provision for retirement and severance benefits	₩	225,625	7,437	233,062
Allowance for doubtful accounts		400,547	54,781	455,328
Property, plant and equipment		13,732	10,059	23,791
Intangible assets		50,457	(7,130)	43,327
Derivative financial instruments		8,026	8,523	16,549
Foreign currency denominated assets (liabilities)		3,350	7,403	10,753
Gain on revaluation of land		(671,266)	36	(671,230)
Others		55,823	(97,621)	(41,798)
Total	₩	86,294	(16,512)	69,782

(In millions of won)		2018		
		January 1	Change	December 31
Provision for retirement and severance benefits	₩	243,081	(17,456)	225,625
Allowance for doubtful accounts		481,922	(81,375)	400,547
Property, plant and equipment		23,377	(9,645)	13,732
Reserve for research and development		(18,554)	18,554	-
Intangible assets		47,320	3,137	50,457
Derivative financial instruments		21,977	(13,951)	8,026

(In millions of won)		2018		
		January 1	**Change**	**December 31**
Foreign currency denominated assets (liabilities)	₩	(600)	3,950	3,350
Gain on revaluation of land		(736,350)	65,084	(671,266)
Others		153,629	(97,806)	55,823
Total	₩	215,802	(129,508)	86,294

(4) The amount of deductible temporary differences for which no deferred tax asset is recognized in the statements of financial position as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Deductible temporary differences	₩	4,061,984	4,644,909

The probability of deferred tax assets being realized depends on the Group's ability to generate taxable income in future years over which temporary differences are expected to reverse depending on the economic situation, industry forecast and other various factors. The Group periodically reviews such matters.

(5) Temporary differences related to investment in subsidiaries, associates and joint ventures which are not recognized as deferred tax asset (liability) as of December 31, 2019 and 2018 are as follows:

(In millions of won)		**2019**	**2018**
Investment in subsidiaries	₩	725,841	935,503
Investment in associates or joint ventures		2,057	70,809
Total	₩	727,898	1,006,312

(6) Reconciliation of profit (loss) before income tax at the statutory tax rate to income tax expense at the effective income tax rate of the company as follows:

(In millions of won)		**2019**	**2018**
Profit (loss) before income tax	₩	95,190	(103,486)
Income tax expense (benefit) using the statutory tax rate		65,306	(166,772)
Adjustments:			
Permanent differences		82,946	38,581
Unrecognized deferred tax related to temporary differences		28,344	177,272
Tax credit		(34,821)	(13,943)
Others		68,377	184,734
Income tax expense	₩	210,152	219,872
Effective tax rate(*1)		221%	-

(*1) Effective tax rate for the year ended December 31, 2018 were not calculated due to loss before income tax.

31. Loss per share

(1) Basic loss per share

Basic loss per share for the years ended December 31, 2019 and 2018 are as follows:

(In won, except for share)		2019	2018
Loss for the period attributable to equity holders of the parent	₩	(395,296,012,245)	(523,793,621,412)
Less: preferred stock dividend(*1)		51,299,224,178	17,498,108,760
Loss for the period attributable to ordinary equity holders of the parent	₩	(446,595,236,423)	(541,291,730,172)
Loss from continuing operations	₩	(459,311,198,388)	(468,202,347,369)
Income (loss) from discontinued operations		12,715,961,965	(73,089,382,803)
Weighted-average number of common share outstanding		170,467,151 shares	112,605,233 shares
Loss per share:			
Basic loss for the period attributable to ordinary equity holders of the parent	₩	(2,620)	(4,807)
Loss for the period from continuing operations		(2,694)	(4,158)
Earnings (loss) for the period from discontinued operations		74	(649)

(*1) Preferred stock dividend for the year ended December 31, 2019, are due to redemption of redeemable convertible preferred stock.

Weighted-average number of common shares outstanding for the years ended December 31, 2019 and 2018 are as follows:

(In shares)	2019	2018
Beginning outstanding shares	117,138,324	106,463,093
Acquisition of treasury stock	-	(4,878)
Issuance of stock due to merger	-	6,143,446
Capital increase	53,328,767	-
Exercise of bonds with stock warrants	60	3,572
Weighted-average number of common shares outstanding as of December 31	170,467,151	112,605,233

(2) Diluted earnings (loss) per share

There are no potential common shares with dilutive effect for the years ended December 31, 2019 and 2018. Therefore, diluted earnings (loss) per share are the same as basic earnings (loss) per share.

Details of potential common shares that are potentially dilutive but were not included in the calculation of earnings (loss) per share, as there were no dilutive effects for the years ended December 31, 2019 and 2018 are as follows:

(In shares)	2019	2018
Stock option (Mar 27, 2009)	-	3,500
Stock option (Mar 26, 2010)	2,300	6,500
Stock option (Mar 25, 2011)	6,900	16,500
Stock option (Mar 30, 2012)	20,000	47,500
Stock option (Mar 29, 2013)	37,700	88,000
Stock option (Mar 28, 2014)	75,300	134,700
RCPS	-	12,904,210
Bonds with stock warrants	29,217,999	26,576,029
Total	29,360,199	39,776,939

32. Commitments and contingencies

(1) As of December 31, 2019, 5 blank notes, 31 blank checks have been provided as collateral to relevant financial institutions and others for the Group's debt and guarantees.

(2) As of December 31, 2019, the Group has credit lines of borrowings, bank overdraft and others from financial institutions up to ₩7,791,176 million and used ₩6,358,203 million, with unused credit lines amounting to ₩1,432,973 million.

As of December 31, 2019, the Company's borrowings (₩78,571 million) from SC Bank require that the credit ratings of the corporate bonds issued by the Company, respectively, evaluated by two or more credit rating agencies, to be maintained at BBB or higher. In addition, borrowings (₩202,615 million) from Mashreq Bank require that the Company maintain the debt to equity ratio below 3 and interest coverage ratio above 2.5. Non-fulfillment of these debt covenants would trigger accelerated repayment of these borrowings.

(3) Pending litigations

1) As of December 31, 2019, the Group is in the process of claiming damages amounting to ₩1,001.3 billion, and the result is currently unpredictable.

2) In 2011, an external investor acquired 20% of interest in Doosan Infracore China Co., Ltd., a subsidiary of DI, for ₩380 billion. According to the shareholders' agreement entered into with DI, both parties have the right to request for the counterparty to jointly sell their respective shares to a third party. In case the external investor requests for such share, principally DI shall also jointly sell its share but also has a right to purchase the external investor's shares at the proposed purchase price.

In 2014, the external investor requested for due diligence information to initiate its sale of shares. However, as DI was not able to confirm the potential purchaser, DI was not able to provide such due diligence information which included confidential proprietary information.

The external investor filed a claim with the Seoul District Court to obtain the due diligence information but on March 2, 2015 the claim was dismissed based on the ruling that DI was not liable to provide such information to the external investor.

In November 2015, the external investor claimed for payment of the share purchase price (share purchase price: ₩709.3 billion, claim amounts: ₩10 billion). The first ruling on January 12, 2017 dismissed the external investor's claim stating that DI did not breach its obligation to cooperate with the external investor's sale of its shares. However on February 21, 2018 the court overturned the 1st ruling and recognized DI's obligation and ordered DI to pay the claim amounts of ₩10 billion.

On February 26, 2018 DI has appealed against the 2nd ruling to the Supreme Court. On February 28, 2018 the Seoul District Court has ruled that the DI application for court order suspension is valid and suspended the 2nd ruling's court order for payment.

In March 2018, the external investor made an additional claim for the payment of the share purchase price (claim amounts: ₩705.1 billion) and the case is in the process of first trial.

In accordance with the decision of reconciliation recommendation of the Seoul Central District issued in July 2018, DI has provided 8,288,196 shares in Doosan Bobcat Inc. as collateral and paid ₩10 billion as temporary payment to external investor. If DI prevails in the Supreme Court in the future, the external investor must cancel the pledge and return temporary payment to DI.

(4) As of December 31, 2019, the Group has entered into 13 technical contracts with Mitsubishi Heavy Industries, Ltd. and others. For the years ended December 31, 2019 and 2018, royalty payments amounted to ₩651 million and ₩3,663 million, respectively.

(5) The Group continues to recognize factored financial assets in the consolidated statement of financial position since the Group holds virtually all the risks and rewards of ownership. The Group also recognizes the associated financial liabilities amounting to ₩10,013 million as of December 31, 2019.

(6) As of December 31, 2019, the Group provides joint and several guarantees amounting to ₩362,573 million for the performance of construction contracts to other construction companies. In addition, the Group provides joint and several guarantees for construction performance to Korea Housing Finance Corporation related to the guarantee for housing sales, which was provided by Korea Housing Finance Corporation to the developers the company provides a conditional debt acquisition agreement (Limit : ₩1,214,100 million) to Gwangmyeong Medical Complex and two other projects if the project fails to fulfill its responsibilities. In addition, in relation to the SOC project, construction investors have an agreement to provide funds for the withdrawal when the agreement is terminated or a purchase is requested from the competent authority and if it is insufficient to repay the loan principal at the purchase price, there is a commitment to provide that funds.

(7) As of December 31, 2019, payment guarantees by financial institutions amounting to ₩13,234,396 million are provided for the Group in connection with domestic and overseas construction projects and others.

(8) As of December 31, 2019, the Group provides payment guarantees amounting to ₩1,313,699 million to customers and purchasers of vacant lots for housing sales for the purpose of supporting reconstruction and redevelopment project unions and domestic and overseas sales.

(9) As of December 31, 2019, the Company has provided a guarantee of payment of ₩16,945 million to Employee Stock Ownership Association for Union loan.

(10) As of December 31, 2019, details of guarantees provided by the Group for developers' project financing are as follows:

(In millions of won)

Type	Developer	Project name	Lender	Guarantee period	Guarantee limit	Loan balance	Guarantee type
Loan	DEC	Pohang new port	Shinhan Bank and others	2010.03.26~ 2025.12.31	₩ 3,385	3,385	Joint surety
		Daejeon Riverside	KEB Hana Bank	2019.05.07~ 2022.05.06	1,300	1,300	〃
		Subtotal			4,685	4,685	
Short-term bond	DEC	Cheonan Chengdangdong	BNK Securities	2019.11.28~ 2020.02.28	60,000	17,700	〃
		Cheonan Chengdangdong	BNK Securities	2019.12.06~ 2020.03.02	40,000	7,400	〃
		Cheonan Chengdangdong	BNK Securities	2019.12.31~ 2020.03.31	135,000	70,000	〃
		Yongin samga	BNK Securities	2019.12.27~ 2020.03.27		32,900	〃
		Yongin samga	BNK Securities	2019.12.30~ 2020.03.27	130,000	20,000	〃
		Subtotal			365,000	148,000	
		Total			₩ 369,685	152,685	

(11) Details of consolidated structured entities as of December 31, 2019 are as follows:

(In millions of won)

Entity	Nature of interests in consolidated structured entities or provision of financial support	Liability amount of interests in consolidated structured entities	Maximum exposure to the loss of consolidated structured entities
DEC			
New start DM 7th Co.,Ltd.(*1)	Obligation for financial support including principle, interest, etc	₩ 140,000	140,000
PINETREECITY 1st Co., Ltd.(*2)	〃	35,300	35,300
DM Best 3rd Co., Ltd.(*3)	〃	90,000	90,000
New start DM 8th Co.,Ltd.(*4)	〃	122,000	122,000
Great GM 4th Co., Ltd.(*5)	〃	65,000	65,000
Doosan E&C 4th Co., Ltd.(*6)	〃	95,000	95,000
The Company			
KDPP 3rd Co., Ltd.(*7)	〃	40,000	40,000
KDPP 5th Co., Ltd.(*8)	〃	169,000	219,700
U Best 5th Co., Ltd.(*9)	〃	160,000	160,000

(*1) New start DM 7th Co., Ltd. was established for the purpose of liquidating future contract bonds of Goyanghyang-dong 4 zone and 7 subcontractors owned by DEC. As of December 31, 2019, the amount of the underlying assets is ₩140,000 million, based on their carrying amount in the financial statements.

(*2) PINETREECITY 1st Co., Ltd. was established for the purpose of borrowing by providing DEC's Changwon 2nd plant as subordinated collateral. The Group issued ABS bonds to financial institution for funding and the book value of underlying assets are amounting to ₩35,300 million based on its financial statement as of December 31, 2019. The Group has provided the certain portion of properties for obligation for financial supporting for the company

(*3) DM Best 3rd Co., Ltd. was established for the purpose of securitizing future construction receivables from eight government-ordered construction project including Hanam double track railway zone 2 project of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩90,000 million as of December 31, 2019.

(*4) New start DM 8th Co., Ltd. was established for the purpose of securitizing future construction receivables from Seoul Moonsan road and other 4 government-ordered construction project. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩122,000 million as of December 31, 2019.

(*5) Great GM 4th Co., Ltd. was established for the purpose of securitizing future construction receivables from Busan-Guseo and other 4 government-ordered construction projects of DEC. It receives funds from issuing ABS bonds to financial institutions. Based on the book value presented in its financial statements, underlying amounted to ₩65,000 million as of December 31, 2019.

(*6) Doosan E&C 4th Co., Ltd was established for the purpose of securitizing future construction receivables from Saemangeum-Jeonju 8 zone and other 3 government-ordered construction projects of DEC and of borrowing by providing DEC's Changwon 2nd plant as senior collateral. the company issued ABS bonds to financial institution for funding and the book value of underlying assets are amounting to ₩95,000 million based on its financial statement as of December 31, 2019. The Group has provided the certain portion of properties for obligation for financial supporting for the company.

(*7) KDPP 3rd Co., Ltd. was established for the purpose of securitizing common shares and RCPS of DEC belongs to the Company. It receives funds from issuing ABCP bonds to financial institutions. Based on the book value presented in its financial statements, underlying assets amounted to ₩40,000 million.

(*8) KDPP 5th Co., Ltd. was established for the purpose of securitizing future construction receivables belongs to the Company. It is mainly financed by issuing ABSTBs from financial institutions. The carrying amount is ₩169,000 million.

(*9) UBest 5th Co., Ltd. was established for the purpose of securitizing newly issued bonds of the Company and DI. The amount is ₩160,000 million based on the carrying amount in the financial statements.

(12) Other commitments and contingencies

1) As of December 31, 2019, DI issued 32nd and 57th series bond denominated in USD 300 million respectively. In accordance with the agreement for issuing the 32nd and 57th series bonds, an early redemption clause exists for when and if DI's guarantor, KDB, becomes no longer controlled by Korean government. In addition, DI has provided its 11,533,388 shares and 11,362,886 shares of Doosan Bobcat Inc. to lenders as collateral for above bonds, respectively. And if the total value of the shares provided is less than the collateral standard price, additional shares or deposits equivalent to the difference amounts should be provided.

   DI has provided 16,341,780 shares of Doosan Bobcat Inc. as collateral for borrowings of ₩350,000 million from KDB and other 8 other financial institutions. In connection with the borrowings, if the ratio does not meet the contracted collateral limit, additional collateral must be provided.

In addition, in case DI receives an long-term credit rating of BB0 or lower from more than two of the domestic credit rating agencies (NICE Investors Service Co., Ltd., Korea Investors Service, Inc., Korea Ratings Corporation), this is a trigger clause for the financial institutions to collect the loans before the maturity. For ₩ 50,000 million of 43rd bond issued by DI (share) as of December 31, 2019, DI includes an agreement that constitutes the reason for the loss of profit due when the long-term credit rating granted by one or more of the three domestic credit rating agencies (Nice Credit Evaluation Co., Korea Credit Rating Co., and Korea Ratings Co.) is below BB+.

DI has provided 3,650,000 shares of Doosan Bobcat Inc. as collateral for borrowings of ₩100,000 million from SC Bank. In connection with the borrowings, if the ratio does not meet the contracted collateral limit, additional collaterals (shares or deposits) must be provided or early redemption must be made.

2) DEC entered into construction contracts with INTDC Co., Ltd. and Daewon Plus Constructions Co., Ltd., to develop Ilsan Zenith project and Haeundae Zenith project, respectively. DEC has provided guarantees to customers, who purchase the Ilsan Zenith and Haeundae Zenith apartments, for the consideration paid to purchase the apartments during the repurchase guarantee periods (2~3 years after the date of sale), should customers apply for such guarantees (See Note 32-(8)). As of December 31, 2019, the Group's consolidated financial statements do not reflect the effect from such guarantees as the Group cannot reasonably predict the number of purchasers applying for the guarantee and the related guaranteed amount.

3) The Company has agreed to take responsibility for the completion of projects and assume liabilities (limit: ₩421,200 million). If it fails to complete construction of Namyangju Baekbong District Apartment House, Yangsan Deokgye 2nd, Gyeongju Yonggang-dong Doosan We've and Anyang Myeonghak Project.

4) DI entered into invest agreements with Nautilus Venture Partners Fund II, L.P., ICONIQ Strategic Partners IV-B, L.P., ZIGG CAPITAL I, L.P and Caffeinated Capital Opportunity Fund II, LP and the amounts of agreements are USD 10,000 thousand, USD 3,000 thousand, USD 5,000 thousand and USD 2,000 thousand, respectively.

5) As of December 31, 2019, the Company and DI, DEC and Doosan Bobcat Korea Co., Ltd. which are its subsidiaries have signed a 15-year lease contract with DBC to lease Doosan Bundang Center.

6) DEC didn't reconized provisions because it could not estimate payment obligations and the resources to be leaked from the costs incurred at the end of the land permit for the lease of factory land with Haiphong Department of Natural and Resources.

33. Assets pledged as collateral

(1) Assets pledged as collateral related with debt

1) As of December 31, 2019, assets that have been pledged as collateral for the Group's borrowings and others are as follows:

(In millions of won)

Pledger	Collateralized asset		Collateralized amount	Amount of borrowings and others	Pledgee
The Company	Property, plant and equipment	₩	1,674,749	1,197,691	KDB and others
	Equity shares		507,195	406,811	Construction Guarantee Cooperative and others
	Subtotal		2,181,944	1,604,502	
DI	Property, plant and equipment(*1)		642,938	297,110	KDB and others
	Inventories(*1)		195,000	80,000	Korea Exim Bank
	Subtotal		837,938	377,110	
DEC	Short-term financial instruments		2,000	-	IBK bank
	Investment properties		208,000	130,300	KDB and others
	Investments in associates and the rights to the benefits(*2)		234,055	12,000	Woori Bank
	Equity shares		36,517	27,039	Construction Guarantee Cooperative
	Subtotal		480,572	169,339	
Cuvex	The rights to the benefits(*3)		63,600	53,000	Saengbo Real Estate Trust Co., Ltd.
	Total	₩	3,564,054	2,203,951	

(*1) The rights to the benefits from property insurance have been pledged as collateral to KDB.
(*2) It includes collateral (₩107,796 million) on investment property provided by subsidiary Value Works.
(*3) Receivables of real estate security on property, plant and equipment.

2) Subsidiary of Clark Equipment Co., ("CECO") and Doosan Holdings Europe Ltd. ("DHEL") repaid all the long-term borrowings funded in May 28, 2014 and entered into a new loan agreement to borrow USD 1,345,000 thousand and overdraft limit agreement of USD 150,000 thousand on May 18, 2017. Doosan Bobcat Inc. provided all of shares of CECO, Doosan Bobcat EMEA s.r.o and Doosan Bobcat Singapore Pte. Ltd. as collateral for borrowings and overdraft limit agreement. Doosan Bobcat Inc. also provided the certain portion of properties and its shares of subsidiaries as collateral. As of December 31, 2019, the relevant balance of borrowings is USD 657,013 thousand and the total collateral amount is USD 1,495,000 thousand.

(2) Other Assets pledged as collateral

1) As of December 31, 2019, assets pledged as collateral on behalf of others are summarized as follows:

(In millions of won)

Pledger	Collateralized asset		Book value	Pledgee	Beneficiary
The Company	Long-term investment securities and others	₩	21,596	Kookmin Bank and others	Incheon-Gimpo Expressway Co., Ltd. and others
DEC	Long-term investment securities		64,978	KDB and others	Sudokwon Seobu Expressway Co., Ltd. and others
	Investments in associates and joint venture		7,219	KDB and others	New Seoul Railway Corporation and others
	Investment properties		97,000	KDB and others	Doosan Mecatech Co., Ltd.
	Subtotal		169,197		
	Total	₩	190,793		

2) The Company has entered into a contract of completion guarantee regarding the Samcheok #1,2 TPP construction project and provided 1,193,066 shares (₩43,568 million) in POSPOWER Co., Ltd. as collateral.

3) As of December 31, 2019, the Company has entered into a contract for the request for stock exchange with Korea EXIM Bank for new equity securities issued by its subsidiary, DPS S.A. According to this, if the Korea EXIM Bank holds new hybrid securities in accordance with the investors' exercise of the right to put options, it is obligated to settle cash at the request of the Korea EXIM Bank. As of December 31, 2019, the Company has provided to the Korea EXIM Bank with 75,509,366 shares (₩1,483,471 million) of the subsidiary DI held as collateral.

4) As of December 31, 2019, its subsidiary, DI has entered into a contract of completion guarantee for the ₩375,000 million PF loan contract signed by its affiliated company, DBC, to establish the Doosan Bundang Center. DI provides 1,057,880 shares of DBC (₩ 53,066 million) and claims for construction insurance claims (₩252,300 million) as collateral.

34. Related party transactions

(1) The major related parties of the Group and nature of their relationship with the Group as of December 31, 2019 are as follows:

1) As of December 31, 2019, the Group's ultimate parent company is Doosan Corp. (equity ownership: 34.36%).

2) As of December 31, 2019, the details of the Group's associates and joint ventures, other related parties are as follows:

Control relationship	Related party
Associates and joint ventures(*4)	Kyunggi Railroad Co., Ltd.
	Shinbundang Railroad Co., Ltd.
	Neo Trans Co., Ltd.
	New Seoul Railroad Co., Ltd.
	Haman Industrial Complex Company
	The HS-City Expressway
	Potenit Co., Ltd.
	Doosan PSI LLC
	Tianjin Lovol Doosan Engine Co., Ltd.
	KIAMCO Kyunggi Railway Investment Private property investment trust
	Doosan Infracore Liaoning Machinery Sales Co., Ltd.
	POS POWER Co., Ltd.
	Daejung Offshore Wind Power Co., Ltd.
	Incheon fuel cell Co., Ltd.
	Doosan Babcock Blackcat W.L.L
	DBC Co., Ltd.(*3)
Other related parties	
Subsidiaries of the parent company	Oricom Inc.
	Hancom Co., Ltd.
	Doosan Bears Inc.
	Doosan Robotics Co., Ltd.
	Neoplux Co., Ltd.
	Doosan 2nd Real Estate Securitization Specialty Co., Ltd.
	DLI Co., Ltd
	Doosan Mecatec Co., Ltd.
	Doosan Mobility Innovation Inc
	Sunnyrucel 8th Co., Ltd.
	D pay 1st Co., Ltd.(*1)
	Doosan Logistics Solutions Co., Ltd.(*1)
	DESA Service LLC(*1)
	Doosan Mobility Innovation (Shenzhen) Co. Ltd.(*1)
	Doosan (Hongkong) Ltd.
	Doosan Shanghai Chemical Materials Co., Ltd.
	Doosan Electro-Materials Singapore Pte Ltd.
	Doosan Electro-Materials(Shen Zhen) Limited
	Doosan Electro-Materials (Changshu) Co., Ltd.
	Doosan Electro-Materials America, LLC
	Doosan Digital Innovation America LLC
	Doosan Digital Innovation China LLC
	Doosan Digital Innovation Europe Limited
	Doosan Industrial Vehicle Europe N.V.
	Doosan Industrial Vehicle U.K. Ltd.

Control relationship	Related party
	Doosan Industrial Vehicle America Corp.
	Doosan Industrial Vehicle Yantai Co., Ltd.
	Rushlift Holdings Ltd.
	Rushlift Ltd.
	Genesis Forklift Trucks Limited
	Doosan Materials Handling UK Ltd.
	Doosan Material Handling Solutions LLC
	Doosan Energy Solutions America, Inc.
	Doosan Logistics Europe GmbH
	Doosan Mottrol (Jiangyin) Co.
	Doosan Fuel Cell America, Inc. and others.
Associates and joint ventures of the parent company	Prestoliteasia Co., Ltd.
	Sichuan Kelun-Doosan Biotechnology Company Limited
	KDDI Korea Co., Ltd.
	Geaenzymes
	Wise fashion Co., Ltd.(*2)
	Recarbon,Inc(*2) and others
Others	Dongdaemoon Miraechangcho Foundation
	Doosan Credit Union
	Yonkang Foundation
	Chung-Ang University
	Chung-Ang University hospital
	Daejeon Riverside Expressway Co., Ltd.
	Doosan Solus Co., Ltd.
	Doosan Fuel Cell Co., Ltd.
	Doosan Energy Solution Kft and others

(*1) Newly established in 2019.
(*2) Newly acquired in 2019.
(*3) In 2019, the Group lost control and the subsidiary was reclassified as an associate. It is also a subsidiary of the parent company.
(*4) Northeast line railway Co., Ltd. was sold in 2019

(2) Significant transactions (excluding financial and investment) with related parties for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)	2019						
	Sales and others			**Purchases and others**			
	Sales	**Disposal of PP&E and intangible assets**	**Other revenue**	**Purchase**	**Acquisition of PP&E and intangible assets**	**Other expense**	**Right-of-use asset acquisition**
Parent:							
Doosan Corp.	₩ 83,698	2	5,639	111,936	53,324	88,734	5,351
Associates and joint ventures:							
DBC Co., Ltd	21,563	-	515	-	-	-	-
New Seoul Railway Corporation	43,530	-	-	-	-	-	-
Neo Trans Co., Ltd.	6,187	-	-	-	-	-	-
POSPOWER Co., Ltd.	124,523	-	-	-	-	-	-
Others	354	-	-	-	-	158	-
Subtotal	196,157	-	515	-	-	158	-
Other related parties:							
Oricom Inc.	1,918	-	42	340	-	19,396	-
Doosan Bears Inc.	1,104	-	2	542	-	15,385	-
Doosan Digital Innovation America LLC	-	-	756	-	-	46,771	1,689
Doosan Digital Innovation China LLC	-	-	-	-	37	7,831	-
DLI Co., Ltd	2,119	-	27	1	-	8,917	-
Doosan Energy Solution Kft	16,151	-	-	-	-	-	-
Doosan Mecatec Co., Ltd.	12,106	-	26	13	-	3	1
Chung-Ang University	-	-	-	-	-	5,500	-
Others	2,520	-	354	880	111	3,202	350
Subtotal	35,918	-	1,207	1,776	148	107,005	2,040
Total	₩ 315,773	2	7,361	113,712	53,472	195,897	7,391

(In millions of won)		2018					
		Sales and others			Purchases and others		
		Sales	Disposal of PP&E and intangible assets	Other revenue	Purchase	Acquisition of PP&E and intangible assets	Other expense
Parent:							
Doosan Corp.	₩	73,337	70	6,162	133,799	3,570	90,689
Associates and joint ventures:							
Kyunggi Railroad Co., Ltd.		17,007	-	-	-	-	-
New Seoul Railway Corporation		29,476	-	-	-	-	-
Neo Trans Co., Ltd.		5,886	-	-	-	-	-
Tianjin Lovol Doosan Engine Co., Ltd.		-	-	6,147	-	-	-
Tamra Offshore Wind Power Co., Ltd.		7,096	-	-	432	-	-
Others		1,676	-	-	5	-	100
Subtotal		61,141	-	6,147	437	-	100
Other related parties:							
Doota mall Co., Ltd.		1,555	-	1,042	5	-	3,238
Oricom Inc.		1,884	-	38	55	-	15,362
Doosan Bears Inc.		1,015	-	1	-	-	9,726
Doosan Information and Communications America, LLC		-	-	4	-	-	41,750
Doosan Information and Communications China Co., Ltd.		-	-	-	-	-	6,562
Doosan Leadership Institute		2,077	-	31	-	-	13,601
Chung-Ang University		-	-	-	10	-	4,931
Doosan Mecatec Co., Ltd.		5,274	-	225	-	-	109
Doosan Energy Solution Kft		6,288	-	-	-	-	-
Others		1,506	-	89	510	-	1,751
Subtotal		19,599	-	1,430	580	-	97,030
Total	₩	154,077	70	13,739	134,816	3,570	187,819

(3) The outstanding receivables and payables arising from the transactions with related parties (excluding dividend and investment) as of December 31, 2019 and 2018 are as follows:

(In millions of won)

		2019						
		Receivables			Payables			
		Trade receivables	Loans receivables	Other receivables	Trade payables	Borrowings	Other payables	Lease liabilities
Parent:								
Doosan Corp.	₩	11,659	-	5,200	19,247	-	23,610	5,285
Associates and joint ventures:						-	-	-
Kyunggi Railroad Co., Ltd.		792	36,521	-	-	-	-	-
Shinbundang Railroad Co., Ltd.		11,023	32,574	-	-	-	-	-
Others		2,059	-	9	-	-	152	-
Subtotal		13,874	69,095	9	-	-	152	-
Other related parties:								
Oricom Inc.		763	-	18	6,035	-	5,092	-
Doosan Fuel Cell America, Inc.		-	-	-	-	6,258	-	-
Doosan Mecatec Co., Ltd.		2,321	-	11	-	-	6,960	-
Others		3,490	-	772	13,441	-	4,986	1,863
Subtotal		6,574	-	801	19,476	6,258	17,038	1,863
Total	₩	32,107	69,095	6,010	38,723	6,258	40,800	7,148

(In millions of won)

		2018				
		Receivables			Payables	
		Trade receivables	Loans receivables	Other receivables	Trade payables	Other payables
Parent:						
Doosan Corp.	₩	5,527	-	6,896	73,939	23,098
Associates and joint ventures:						
Kyunggi Railroad Co., Ltd.		792	30,362	-	-	-
Shinbundang Railroad Co., Ltd.		11,023	32,574	-	-	-
Haman Industrial Complex Company		826	-	3,002	-	-
Others		727	-	9	248	152
Subtotal		13,368	62,936	3,011	248	152
Other related parties:						
Oricom Inc.		618	-	16	6,995	3,681
Doosan Mecatec Co., Ltd.		4,655	-	-	-	10,697
Others		248	-	1,943	102	6,102
Subtotal		5,521	-	1,959	7,097	20,480
Total	₩	24,416	62,936	11,866	81,284	43,730

(4) Financial transactions (including investment) with related parties for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019									
		Loans		Borrowing		Investments		Dividend		Share	
		Loans	Collection	Borrowings	Repayment	Increase of capital	Investment	Income	Payout	Acquisition	Disposal
Parent:											
Doosan Corp.	₩	-	-	-	-	141,586	-	-	-	-	29,114
Associates and joint ventures:											
Kyunggi Railroad Co., Ltd.		6,159	-	-	-	-	-	-	-	-	-
Tianjin Lovol Doosan Engine Company Ltd.		-	-	-	-	12,913	-	-	-	-	-
Other related parties:											
KDDI Korea Co., Ltd.		-	-	-	-	-	-	58	-	-	-
Doosan Fuel Cell America, Inc.		-	-	6,258	-	-	-	-	-	-	-
Doosan Mecatec Co., Ltd		-	-	-	-	-	-	-	6,200	-	-
Total	₩	6,159	-	6,258	-	154,499	-	58	6,200	-	29,114

(In millions of won)		2018					
		Loans		Investments		Dividend	
		Loans	Collection	Increase of capital	Investment	Income	Payout
Associates and joint ventures:							
Kyunggi Railroad Co., Ltd.	₩	21,012	-	-	-	-	-
KIAMCO Kyunggi Railway Investment Private property investment trust		-	-	-	3,273	-	-
Tianjin Lovol Doosan Engine Company Ltd.		-	-	-	12,727	-	-
Potenit Co,. Ltd.		-	-	-	5,333	-	-
POSPOWER Co., Ltd.		-	-	-	43,568	-	-
Dongbuk LRT		-	-	-	1,694	-	-
Daejung Offshore Wind Power Co., Ltd.		-	-	-	2,827	-	-
Incheon fuel cell Co., Ltd.		-	-	-	4,700	-	-
Subtotal		21,012	-	-	74,122	-	-
Other related parties:							
KDDI Korea Co., Ltd.		-	-	-	-	9	-
Total	₩	21,012	-	-	74,122	9	-

(5) The Group provides payment guarantees and collateral to certain related parties as of December 31, 2019 (See Notes 32 and 33).

(6) Key management personnel are standing directors who have authorities and responsibilities for planning, operation and control of the business of the Group. Compensation for key management personnel for the years ended December 31, 2019 and 2018 consists of following:

(In millions of won)		2019	2018
Short-term employee benefits	₩	46,142	50,728
Severance and retirement benefits		4,162	3,633
Total	₩	50,304	54,361

35. Consolidated statements of cash flows

(1) Details of cash generated from operation for years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Loss for the period	₩	(104,367)	(421,725)
Adjustments:			
Interest expenses		509,356	515,983
Loss on foreign currency translation		122,759	119,697
Bad debt expenses (reversal)		(4,331)	65,383
Other bad debt expenses		153,571	345,995
Loss on valuation of inventory		20,982	19,985
Loss on valuation of derivative financial instruments		112,278	106,660
Loss on valuation of firm commitments		23,613	15,022
Loss on equity method investments		14,344	29,755
Depreciation		374,831	291,312
Amortization of intangible assets		176,063	207,740
Loss on disposal of property, plant and equipment		31,068	10,169
Impairment loss on property, plant and equipment		40,897	2,036
Impairment loss on intangible assets		13,058	57,107
Impairment loss on investment property		57	504
Severance and retirement benefits		93,173	109,806
Provision for warranties		223,780	67,524
Other provisions (reversal)		107,559	(1,528)
Loss on redemption of bonds		7,281	7,312
Loss on disposal of trade receivable		22,010	17,857
Income tax expense		210,203	237,933
Interest income		(57,009)	(43,701)
Dividend income		(1,341)	(2,470)
Gain on foreign currency translation		(81,477)	(72,190)
Gain on valuation of derivatives financial instruments		(84,819)	(98,706)
Gain on valuation of firm commitments		(61,896)	(74,735)
Gain on disposal of property, plant and equipment		(1,981)	(1,841)
Loss (gain) on disposal of discontinued operations		(29,862)	24,411
Others		7,292	20,121
Changes in operating assets and liabilities:			
Trade receivables		21,134	(226,719)
Due from customers for contract work		68,664	17,211
Other receivables		137,810	9,626
Derivative financial assets and liabilities		17,083	(14,163)
Firm commitments assets and liabilities		15,052	(33,758)
Inventories		(312,640)	(316,073)
Other current assets		(33,742)	(154,279)
Other non-current assets		5,487	(12,768)
Trade payables		(651,295)	235,901
Due to customers for contract work		183,204	383,436
Other payables		74,248	89,737
Provision for warranties		(156,580)	(60,630)
Other provisions		116,884	3,688

(In millions of won)		2019	2018
Other current liabilities	₩	2,533	86,330
Other non-current liabilities		(157,890)	61,134
Severance payments paid		(222,710)	(148,153)
Plan assets		86,880	3,202
Subtotal		(805,878)	(76,278)
Cash generated from operations	₩	1,031,214	1,479,138

(2) Significant non-cash transactions for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019	2018
Transfer from PP&E to investment property	₩	449,271	-
Transfer from construction-in-progress to another account		156,676	76,304
Transfer to current portion of bonds and borrowings		3,366,648	2,272,434
Change in other payables from acquisition of property, plant and equipment		(591)	19,198

(3) Changes of liability in financing activities for the years ended December 31, 2019 and 2018 are summarized as follows:

(In millions of won)				Non-cash changes				
		Balance at January 1, 2019	Cash flows from financing activities, net	Current portion of long-term debt	Changes in foreign currency translation	Changes in consolidation scope	Others(*1)	Balance at December 31, 2019
Short-term borrowings	₩	2,840,072	910,965	-	16,233	-	-	3,767,270
Asset-backed borrowings		491,371	(109,900)	-	-	-	103	381,574
Current portion of long-term debt		2,049,828	(2,133,370)	3,285,612	54,478	-	8,937	3,265,485
Current lease liabilities		-	(91,305)	81,036	1,811	-	89,246	80,788
Bonds		2,053,033	899,205	(2,164,206)	9,360	-	49,443	846,835
Long-term borrowings		3,043,437	(292,948)	(957,606)	75,088	(180,600)	10,612	1,697,983
Long-term asset backed borrowings		248,788	204,863	(163,800)	-	-	2,439	292,290
Non-current lease liabilities		-	-	(81,036)	(302)	-	257,088	175,750
Total	₩	10,726,529	(612,490)	-	156,668	(180,600)	417,868	10,507,975

(*1) The amount of lease liabilities recognized in accordance with K-IFRS No. 1116 is included (See Note 2).

(In millions of won)			Non-cash changes				
	Balance at January 1, 2018	Cash flows from financing activities, net	Discontinued operation	Current portion of long-term debt	Changes in foreign currency translation	Others	Balance at December 31, 2018
Short-term borrowings	₩ 3,765,147	(836,548)	(65,738)	-	(4,685)	(18,104)	2,840,072
Asset-backed borrowings	597,625	(156,582)	-	138,000	-	(87,672)	491,371
Current portion of long-term debt	1,867,840	(1,817,226)	(249,240)	2,134,434	12,872	101,148	2,049,828
Bonds	2,600,067	542,740	-	(1,192,709)	51,036	51,899	2,053,033
Long-term borrowings	2,062,074	1,736,393	-	(791,725)	31,987	4,708	3,043,437
Long-term asset backed borrowings	197,479	337,112	-	(288,000)	-	2,197	248,788
Total	₩ 11,090,232	(194,111)	(314,978)	-	91,210	54,176	10,726,529

36. Discontinued operations

(1) Summary of discontinued operations

1) Business division of DBC

For the year ended December 31, 2019, the Group completed the disposal of 578,760 shares of its subsidiary, DBC and lost control. Details are as follows:

Buyer	Doosan Corp.
Amount sold	₩29,114 million
Date of disposal	April 16, 2019

The Group reclassified segment of DBC to discontinued operations in 2019, and accordingly the comparative consolidated financial statements of the prior year have been restated.

2) Business division of DE

The Group completed disposal of Business division of DE in 2018.

3) HRSG & CPE business division

The Group completed the disposal of its HRSG and CPE divisions (owned by DEC and Doosan Heavy Industries Vietnam Co., Ltd., subsidiaries of the Company) in 2017.

(2) The results of discontinued operations of the Group for the years ended December 31, 2019 and 2018 are presented below:

(In millions of won)		2019			
		DBC	**HRSG**	**CPE**	**Total**
Sales	₩	-	258	-	258
Cost of sales		-	120	-	120
Selling and administrative cost		54	16,609	(1,598)	15,065
Operating gain (loss)		(54)	(16,471)	1,598	(14,927)
Other non-operating income (expense)		13	(3,689)	(613)	(4,289)
Gain (loss) before income tax		(41)	(20,160)	985	(19,216)
Income tax expense		-	-	-	-
Gain (loss) from discontinued operations		(41)	(20,160)	985	(19,216)
Gain on disposal of discontinued operations		29,862	-	-	29,862
Tax expense related to discontinued operations		51	-	-	51
Subtotal		29,811	-	-	29,811
Gain (loss) for the period from discontinued operations	₩	29,770	(20,160)	985	10,595
- Owners of the Company	₩	29,788	(17,948)	876	12,716
- Non-controlling interests		(18)	(2,212)	109	(2,121)

(In millions of won)		2018				
		DBC	**Business division of DE**	**HRSG**	**CPE**	**Total**
Sales	₩	-	182,002	330	-	182,332
Cost of sales		-	190,925	242	-	191,167
Selling and administrative cost		1,804	15,471	13,206	4,915	35,396
Operating loss		(1,804)	(24,394)	(13,118)	(4,915)	(44,231)
Other non-operating income (expense)		60	(7,370)	(4,855)	500	(11,665)
Loss before income tax		(1,744)	(31,764)	(17,973)	(4,415)	(55,896)
Income tax benefits		-	(2,095)	-	-	(2,095)
Loss from discontinued operations		(1,744)	(29,669)	(17,973)	(4,415)	(53,801)
Loss on disposal of discontinued operations		-	(24,411)	-	-	(24,411)
Tax expense related to discontinued operations		-	20,156	-	-	20,156
Subtotal		-	(44,567)	-	-	(44,567)
Loss for the period from discontinued operations	₩	(1,744)	(74,236)	(17,973)	(4,415)	(98,368)
- Owners of the Company	₩	(1,000)	(57,225)	(11,933)	(2,931)	(73,089)
- Non-controlling interests		(744)	(17,011)	(6,040)	(1,484)	(25,279)

(3) The net cash flows incurred by discontinued operations of the Group for the years ended December 31, 2019 and 2018 are as follows:

(In millions of won)		2019			
		DBC	**HRSG**	**CPE**	**Total**
Net cash flows provided by (used in) operating activities	₩	698	(14,834)	(23,948)	(38,084)
Net cash flow provided by (used in) investing activities(*1)		20,187	(2)	48	20,233
Net cash flows provided by financing activities		2,400	14,836	23,900	41,136
Net cash flow	₩	23,285	-	-	23,285

(*1) Investing activities includes cash flows from disposal of discontinued operations.

(In millions of won)		2018				
		DBC	**Business division of DE**	**HRSG**	**CPE**	**Total**
Net cash flows provided by (used in) operating activities	₩	(9,784)	(22,536)	(13,980)	2,067	(44,233)
Net cash flow provided by (used in) investing activities(*1)		(13,473)	4,681	-	-	(8,792)
Net cash flows provided by (used in) financing activities		142,404	(8,700)	13,980	(2,067)	145,617
Effect of exchange rate fluctuation on cash held		-	713	-	-	713
Net cash flow	₩	119,147	(25,842)	-	-	93,305

(*1) Investing activities includes cash flows from disposal of discontinued operations.

37. Subsequent events

1) Acquiring Doosan Mecatech Co.,Ltd. stocks by investment in kind

In accordance with the resolution of the Board of Directors on December 5, 2019, the Company acquired 100% of Doosan Mecatech Co., Ltd. common shares held by Doosan Corp. on February 5, 2020, and in return, the Company issued 44,102,845 new shares of our common stock to Doosan Corp.

2) Comprehensive exchange of DEC stock

In accordance with the Board of Directors on December 12, 2019, the Company acquired all of common stocks held by external shareholders of DEC and treasury stocks held by DEC, on March 10, 2020. In return, the Company issued 6,891,058 common stocks to external shareholders of DEC.

3) Plan of financial structure improvement

The Group faces financial difficulties as its business performance has steadily deteriorated over the years due to the global power market slump and external environment changes. To overcome this management crisis, the Group is preparing a plan to improve profitability, including human-resources restructuring, and to streamline its subsidiaries' management, and to implement a plan to improve its financial structure in phases, such as reducing borrowings through capital expansion. As a result, the Board of Directors held on February 14, 2020 decided on a plan to restructure the workforce to secure financial soundness, and on March 10, 2020, the Group gave a notice about the shutdown of limited idle workforce at a level that would not interfere with operations.

38. Going concern basis of accounting

The Group's consolidated financial statements have been prepared under the going concern assumption, on the assumption that the Group was accounted for on the assumption that it could be recovered or redeemed through the normal course of business. However, net loss is ₩104,367 million for the years ended December 31, 2019, current borrowings amounted is ₩7,414,329 million and current liabilities exceeded assets of ₩4,421,614 million due to accumulated losses since 2014. In this situation, the Group raises significant questions about going concern.

With substantial doubt raised about the Group's ability to continue as a going concern, material uncertainty exists depending on the success or failure of the financing plan for debt repayment and other funding and the financial and management improvement plan to achieve stable ordinary profit.

If these plans are disrupted, the Group's assets and liabilities may not be recovered or redeemed at their carrying amount through the normal course of business, and the Group's financial statements do not reflect such adjustments in relation to the assets and liabilities and the classification thereof and the related profit or loss that may arise from this uncertainty.

39. Approval of the consolidated financial statements

The consolidated financial statements for 2019 were authorized for issue by the Board of Directors on February 14, 2020 and will be get final approval the shareholders' meeting on March 30, 2020.

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