

POSCO International Corporation and its Subsidiaries

Consolidated financial statements
for the years ended December 31, 2022 and 2021
with the independent auditor's report

**POSCO International Corporation
and its Subsidiaries**

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Independent auditor's report
(English Translation of a Report Originally Issued in Korean)

The Shareholders and Board of Directors
POSCO International Corporation

Opinion

We have audited the accompanying consolidated financial statements of POSCO International Corporation (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2022 and 2021, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2022 and 2021, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("KIFRS").

Basis for opinion

We conducted our audit in accordance with Korean Standards on Auditing ("KSA"). Our responsibilities under those standards are further described in the Auditor's 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 the 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.

Key audit matters

Key Audit Matters are those matters that, in our professional judgment, were of most significance 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.

Assessment of Allowance for Doubtful Accounts for Trade Receivables

As the Group engages in trading as a general trading company and conducts business with customers located around the world, the Company's trade receivables are exposed to risks from global political and economic variables as well as credit risks from customers. Therefore, we identified the establishment of allowance for doubtful accounts as a key audit matter, taking into account the uncertainty of estimation due to various risk factors required to be considered in evaluating the recoverability of accounts receivable.

The primary audit procedures we have performed for the key audit matter are as follow:

- 1) We assessed the internal control procedures established by the Company in relation to the identification of impaired receivables.
- 2) We measured the estimated recoverable amount of receivables evaluated on individual basis and reviewed the evaluation process.
- 3) We reviewed whether the evaluation model is reasonable and whether the data required for estimation is complete for receivables evaluated on group basis, and measured and reviewed the group evaluation details presented by management.

Derivatives Accounting for Foreign Exchange Forward/Swap Contracts

The Group engages in trading as a general trading company, and as it conducts business with customers located around the world, payments and receipts for transactions are made through various currencies. As a result, we are exposed to foreign exchange risks in relation to assets, liabilities and gain and loss denominated in foreign currencies. In order to manage the foreign exchange risks, the Company enters into foreign exchange forward and currency swap contracts for foreign currency transactions, which is a key audit matter.

The primary audit procedures we have performed for the key audit matter are as follow:

- 1) We reviewed internal controls on the initiation, recording, reporting, and measurement of foreign exchange derivative transactions.
- 2) We reviewed whether the amount evaluated through an external inquiry procedure matches the amount which the Company calculated.
- 3) We reviewed the completeness of data required for reporting financial statements in relation to foreign exchange forward and swap contracts,.
- 4) We measured valuation gains and losses based on underlying data on foreign exchange derivative transactions and reviewed the evaluation process.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of the 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.

Auditor's 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 auditor's 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 KSA 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 KSA, 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 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 auditor's 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 auditor's 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 to 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 auditor's 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 auditor's report is Sangil Bae.



March 10, 2023

This audit report is effective as of March 10, 2023, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the auditor's report date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

POSCO International Corporation and its subsidiaries

Consolidated financial statements
for the years ended December 31, 2022 and 2021

“The accompanying consolidated financial statements, including all footnotes and disclosures, have been prepared by, and are the responsibility of, the Company.”

Joo, Si-Bo
Chief Executive Officer
POSCO International Corporation

POSCO International Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2022, and 2021

	Notes	Korean won in millions		U.S. dollar in thousands
		2022	2021	2022
Assets				
Current assets				
Cash and cash equivalents	4,30,31	₩ 1,297,706	₩ 521,160	\$ 1,023,993
Trade and other receivables, net	5,30,31	3,777,381	4,358,489	2,980,652
Other current financial assets	6,30,31	228,380	80,978	180,210
Derivative financial assets	19,30,31	52,832	61,539	41,689
Other current assets	7	204,934	228,839	161,709
Inventories, net	8	1,758,239	1,904,179	1,387,390
		₩ 7,319,472	₩ 7,155,184	\$ 5,775,643
Non-current assets				
Trade and other receivables, net	5,30,31	₩ 111,977	₩ 144,646	\$ 88,359
Other non-current financial assets	6,30,31	49,625	64,484	39,158
Long-term derivative financial assets	19,30,31	1,172	-	925
Investments in associates	9	434,167	359,634	342,592
Property, plant and equipment, net	10	1,560,752	1,353,149	1,231,557
Right-of-use assets, net	11	259,358	91,180	204,654
Intangible assets, net	12	2,236,253	1,189,369	1,764,580
Investment properties, net	13	140,149	142,991	110,589
Net defined benefit assets	17	45,215	9,052	35,678
Other non-current assets	7	3,027	1,459	2,388
Deferred tax assets	28	348,406	254,865	274,920
Current tax assets		6,764	4,721	5,337
		₩ 5,196,865	₩ 3,615,550	\$ 4,100,737
Total assets		₩ 12,516,337	₩ 10,770,734	\$ 9,876,380
Liabilities and equity				
Current liabilities				
Trade and other payables	14,30,31	₩ 2,646,663	₩ 2,913,929	\$ 2,088,427
Borrowings	15,30,31	1,998,370	1,894,385	1,576,872
Current portion of bonds	15,30,31	399,842	408,877	315,507
Derivative financial liabilities	19,30,31	57,587	76,303	45,441
Current provision	18	33,208	24,343	26,204
Other current liabilities	16	248,905	261,809	196,406
Current tax liabilities		102,865	89,693	81,169
		₩ 5,487,440	₩ 5,669,339	\$ 4,330,026
Non-current liabilities				
Trade and other payables	14,30,31	₩ 252,026	₩ 105,154	\$ 198,868
Borrowings	15,30,31	792,556	246,111	625,389
Bonds	15,30,31	1,363,593	1,143,578	1,075,983
Long-term derivative financial liabilities	19,30,31	2,117	-	1,670
Other non-current liabilities	16	95,542	1,538	75,390
Net defined benefit liabilities	17	7,903	5,411	6,236
Provisions	18,19	95,956	64,033	75,717
Deferred tax liabilities	28	21,077	23,430	16,631
		₩ 2,630,770	₩ 1,589,255	\$ 2,075,884
Total liabilities		₩ 8,118,210	₩ 7,258,594	\$ 6,405,910
Equity				
Issued capital	20	₩ 616,876	₩ 616,876	\$ 486,764
Capital surplus	20	540,527	558,242	426,519
Other components of equity	20	382	(8)	301
Accumulated other comprehensive income	6,21	16,974	18,775	13,394
Retained earnings	22	2,808,105	2,292,516	2,215,816
Equity attributable to equity holders of the parent		₩ 3,982,864	₩ 3,486,401	\$ 3,142,794
Non-controlling interests		415,263	25,739	327,676
Total equity		₩ 4,398,127	₩ 3,512,140	\$ 3,470,470
Total liabilities and equity		₩ 12,516,337	₩ 10,770,734	\$ 9,876,380

The accompanying notes are an integral part of the consolidated financial statements.

POSCO International Corporation and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2022, and 2021

	Notes	Korean won in millions		U.S. dollar in thousands
		2022	2021	2022
Sales	3	₩ 37,989,588	₩ 33,948,865	\$ 29,976,791
Cost of sales	23	(36,421,950)	(32,814,146)	(28,739,801)
Gross profit		₩ 1,567,638	₩ 1,134,719	\$ 1,236,990
Selling and administrative expenses	23,24	(665,131)	(549,333)	(524,841)
Operating profit		₩ 902,507	₩ 585,386	\$ 712,149
Share of profit in associates	9	77,680	69,361	61,296
Share of loss in associates	9	(2,767)	(9,264)	(2,183)
Finance income	25	2,405,334	1,243,727	1,897,999
Finance costs	25	(2,572,003)	(1,319,082)	(2,029,514)
Other income	26	19,002	86,048	14,994
Other expenses	26	(87,607)	(167,476)	(69,129)
Profit for the year before tax	3	₩ 742,146	₩ 488,700	\$ 585,612
Income tax expenses	28	(137,234)	(132,212)	(108,289)
Profit for the year		₩ 604,912	₩ 356,488	\$ 477,323
Other comprehensive income (loss):				
<i>Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:</i>				
Equity adjustments in equity method	21,28	₩ 15,573	₩ 13,629	\$ 12,288
Loss on equity adjustments in equity method	21,28	524	2,869	413
Exchange difference on translation of foreign operations	21,28	(10,414)	34,945	(8,217)
Gain on valuation of derivatives	21	819	113	646
<i>Other comprehensive income (loss) not to be reclassified to profit or loss in subsequent periods:</i>				
Gain on valuation of equity instruments at FVOCI	21,28	₩ 2,093	₩ 28	\$ 1,652
Equity adjustments in equity method	21,28	(3,168)	(8,512)	(2,500)
Re-measurement loss on defined benefit liabilities	17,28	17,760	8,913	14,014
Exchange differences on translation of foreign operations	21,28	(29,877)	(19)	(23,575)
Other comprehensive income(loss) for the year, net of tax		₩ (6,690)	₩ 51,966	\$ (5,279)
Total comprehensive income for the year, net of tax		₩ 598,222	₩ 408,454	\$ 472,044
Profit for the year attributable to:				
Owners of the parent		₩ 589,750	₩ 360,789	\$ 465,359
Non-controlling interests		15,162	(4,301)	11,964
Total comprehensive income attributable to:				
Owners of the parent		₩ 612,487	₩ 412,758	\$ 483,301
Non-controlling interests		(14,265)	(4,305)	(11,256)
Earnings per share (Korean won and U.S. dollar):				
Basic	29	₩ 4,780	₩ 2,924	\$ 3.77
Diluted	29	₩ 4,780	₩ 2,924	\$ 3.77

The accompanying notes are an integral part of the consolidated financial statements.

POSCO International corporation and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2022, and 2021

	Korean won in millions							U.S. dollar in thousands	
	Equity attributable to owners of the parent						Non-controlling interest	Total	Total
	Issued capital	Capital surplus	Other components of equity	Accumulated other comprehensive income (loss)	Retained earnings	Sub-total			
As of January 1, 2021	₩ 616,876	₩ 558,027	₩ (8)	₩ (25,032)	₩ 2,008,233	₩ 3,158,096	₩ 2,778	₩ 3,160,874	\$ 2,494,180
Profit for the year	-	-	-	-	360,789	360,789	(4,301)	356,488	281,297
Net gain on valuation of equity instruments at FVOCI	-	-	-	28	-	28	-	28	22
Equity adjustments in equity method	-	-	-	7,986	-	7,986	-	7,986	6,302
Exchange differences on translation of foreign operations	-	-	-	34,945	-	34,945	(19)	34,926	27,559
Re-measurement of defined benefit liabilities (assets)	-	-	-	-	8,926	8,926	(13)	8,913	7,033
Gain on valuation of derivatives	-	-	-	84	-	84	28	112	88
Total comprehensive income	₩ -	₩ -	₩ -	₩ 43,043	₩ 369,715	₩ 412,758	₩ (4,305)	₩ 408,453	\$ 322,301
Dividends (DPS: ₩700)	-	-	-	-	(86,362)	(86,362)	-	(86,362)	(68,146)
Business combinations under common control	-	215	-	-	-	215	27,265	27,480	21,684
Disposal of shares in subsidiaries	-	-	-	1,695	-	1,695	-	1,695	1,337
Disposal of shares in associates	-	-	-	(888)	888	-	-	-	-
Reclassification arising from disposal of equity instruments at FVOCI	-	-	-	(42)	42	-	-	-	-
As of December 31, 2021	₩ 616,876	₩ 558,242	₩ (8)	₩ 18,776	₩ 2,292,516	₩ 3,486,402	₩ 25,738	₩ 3,512,140	\$ 2,771,356
As of January 1, 2022	₩ 616,876	₩ 558,242	₩ (8)	₩ 18,776	₩ 2,292,516	₩ 3,486,402	₩ 25,738	₩ 3,512,140	\$ 2,771,356
Profit for the year	-	-	-	-	589,750	589,750	15,162	604,912	477,323
Net gain on valuation of equity instruments at FVOCI	-	-	-	2,093	-	2,093	-	2,093	1,652
Equity adjustments in equity method	-	-	-	12,929	-	12,929	-	12,929	10,202
Exchange differences on translation of foreign operations	-	-	-	(10,414)	-	(10,414)	(29,877)	(40,291)	31,793
Re-measurement of defined benefit liabilities (assets)	-	-	-	-	17,719	17,719	41	17,760	14,014
Gain on valuation of derivatives	-	-	-	410	-	410	409	819	646
Total comprehensive income	₩ -	₩ -	₩ -	₩ 5,018	₩ 607,469	₩ 612,487	₩ (14,265)	₩ 598,222	\$ 472,044
Dividends (DPS: ₩800)	-	-	-	-	(98,700)	(98,700)	-	(98,700)	(77,882)
Dividends from subsidiaries	-	-	-	-	-	-	(3,065)	(3,065)	(2,419)
Capital increase of subsidiaries	-	442	-	-	-	442	3,301	3,743	2,954
Acquisition of business under common control	-	(18,157)	-	-	-	(18,157)	-	(18,157)	(14,327)
Incorporation of subsidiaries	-	-	-	-	-	-	403,554	403,554	318,436
Acquisition of treasury stock	-	-	(417)	-	-	(417)	-	(417)	(329)
Stock compensation cost	-	-	807	-	-	807	-	807	637
Reclassification arising from disposal of equity instruments at FVOCI	-	-	-	(6,820)	6,820	-	-	-	-
As of December 31, 2022	₩ 616,876	₩ 540,527	₩ 382	₩ 16,974	₩ 2,808,105	₩ 3,982,864	₩ 415,263	₩ 4,398,127	\$ 3,470,470

The accompanying notes are an integral part of the consolidated financial statements.

POSCO International corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2022, and 2021

	Korean won in millions		U.S. dollar in thousands	
	2022	2021	2022	
Operating activities				
Profit for the year	₩ 604,912	₩ 356,488	\$ 477,323	
Reconciliation of profit for the year to net cash flows provided by (used in) operating activities:				
Depreciation of property, plant and equipment	104,375	91,226	82,360	
Amortization of intangible assets	251,253	206,807	198,259	
Depreciation of right-of-use assets	42,088	42,735	33,211	
Depreciation of investment properties	2,843	3,066	2,243	
Retirement benefits	23,087	20,582	18,217	
Bad debt expenses	25,460	20,162	20,090	
Stock compensation cost	807	-	637	
Interest expenses	145,707	82,451	114,974	
Loss on valuation of financial instruments at FVPL	14,357	-	11,329	
Loss on disposal on financial assets at FVPL	2,890	-	2,280	
Share of loss in associates	2,767	9,264	2,183	
Loss on disposal of investments in associates	-	1,513	-	
Loss on foreign currency translation	266,662	130,163	210,417	
Loss on settlement of derivatives	623,306	457,490	491,838	
Loss on valuation of derivatives	207,063	178,698	163,389	
Loss on valuation of trade receivables	21,190	1,548	16,721	
Loss on valuation of trade payables	4,871	1,027	3,844	
Other bad debt expenses	5,150	7,535	4,064	
Loss on disposal of property, plant and equipment	1,060	3,440	836	
Impairment loss on property, plant and equipment	6,035	44,276	4,762	
Loss on disposal of intangible assets	100	-	79	
Impairment loss on intangible assets	31,383	25,485	24,764	
Reversal of impairment loss on intangible assets	-	(496)	-	
Loss on disposal of Investment properties	-	4	-	
Income tax expense	137,234	132,212	108,288	
Loss on valuation of inventories	21,611	231	17,053	
Financial guarantee expense	301	302	238	
Contingent losses	3,969	10,497	3,132	
Increase in provision for restoration	12,373	4,193	9,763	
Loss on termination of lease contract	-	27,422	-	
Loss on valuation of fair value of biological assets	344	-	271	
Interest income	(34,342)	(24,218)	(27,099)	
Dividends income	(553)	(706)	(436)	
Gain on disposal on financial assets at FVPL	(4,161)	-	(3,283)	
Gain on valuation of financial instruments at FVPL	-	(229)	-	
Gain on foreign currency translation	(235,004)	(102,368)	(185,437)	
Gain on settlement of derivatives	(672,651)	(370,839)	(530,775)	
Gain on valuation of derivatives	(224,314)	(218,768)	(177,001)	
Gain on valuation of trade receivable	(14,065)	(14,185)	(11,098)	
Gain on valuation of trade payable	(4,066)	(23)	(3,208)	
Proceeds from investment in associates	(77,680)	(69,361)	(61,296)	
Reversal of impairment loss on investment in associates	(6,385)	(9,407)	(5,038)	
Gain on disposal of investments in associates	(2,347)	(3,868)	(1,852)	
Reversal of other allowance for doubtful accounts	-	(2,146)	-	
Gain on disposal of property, plant and equipment	(700)	(682)	(552)	
Gain on disposal of intangible assets	(61)	(96)	(48)	
Gain on disposal of Investment properties	-	(38)	-	
Reversal of provisions for contingent loss	(1,169)	(27,891)	(922)	
Gain on fair value valuation of biological assets	-	(122)	-	
Financial guarantee income	(75)	(77)	(59)	
Gain on termination of lease contract	-	(26,598)	-	
Gain on exemption of debts	-	(669)	-	
Impairment loss on right-of-use assets	-	793	-	
	₩ 680,713	₩ 630,335	\$ 537,138	

(Continued)

POSCO International corporation and its subsidiaries
Consolidated statements of cash flows (cont'd)
for the years ended December 31, 2022, and 2021

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Working capital adjustment:			
Trade receivables	₩ 469,549	₩ (1,386,731)	\$ 370,511
Inventories	174,128	(956,247)	137,401
Other current receivables	(69,679)	(13,693)	(54,982)
Other current assets	31,714	(95,265)	25,025
Other non-current receivables	135	24,365	107
Other non-current assets	72,787	143	57,435
Trade payables	(445,257)	1,019,160	(351,343)
Other current payables	154,658	29,533	122,037
Other current liabilities	(77,824)	42,839	(61,409)
Other non-current payables	(1,741)	(164)	(1,374)
Other non-current liabilities	(2,284)	(863)	(1,802)
Retirement benefits paid	(380)	(1,888)	(300)
Increase in plan assets	(29,209)	(23,398)	(23,048)
Derivative financial assets	(10,009)	(9,053)	(7,898)
Non-current derivative financial assets and liabilities	944	-	
Increase (decrease) in provisions	(1,629)	6,033	(1,285)
	₩ 265,903	₩ (1,365,229)	\$ 209,075
Interest received	17,173	20,190	13,551
Dividends received	35,228	38,532	27,798
Interest paid	(142,374)	(60,242)	(112,344)
Income tax paid	(228,269)	(129,762)	(180,122)
Net cash flows provided by (used in) operating activities	₩ 1,233,286	₩ (509,688)	\$ 972,419
Investing activities			
Cash inflows from Investing activities			
Net decrease in short-term loans	₩ 2,982	₩ 4,196	\$ 2,353
Decrease in liquid long-term loans	49,921	50,132	39,392
Decrease in long-term loans	7	13,561	6
Decrease in short-term financial instruments	42,286	-	33,367
Disposal of equity at FVOCI	11,000	-	8,680
Disposal of investments in associates	-	16,705	-
Collection of investment in associates	-	14,739	-
Decrease in guarantee deposits	874	-	690
Decrease in guarantee deposits received	250	-	197
Decrease in long-term guarantee deposits	1,511	-	1,192
Proceeds from disposal of property, plant and equipment	9,321	30,502	7,355
Proceeds from disposal of intangible assets	70	9	55
Proceeds from disposal of investment properties	-	1,570	-
Disposal of financial assets at FVPL	36	12,830	28
Decrease in long-term financial instruments	-	-	-
Decrease in long-term other receivables	1,264	-	997
Decrease in finance lease receivables	54,614	97,701	43,095
Increase in cash flows from change in scope of consolidation	-	6,506	-

(Continued)

POSCO International corporation and its subsidiaries
Consolidated statements of cash flows (cont'd)
for the years ended December 31, 2022, and 2021

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Cash outflows from investing activities			
Increase in long-term loans	(56)	(4,667)	(44)
Increase in short-term financial instruments	(196,262)	(59,782)	(154,866)
Increase in long-term financial instruments	(260)	-	(205)
Acquisition of investments in associates	-	(756)	-
Increase in guarantee deposits	(10,787)	(970)	(8,512)
Increase in guarantee deposits received	(565)	-	-
Increase in long-term guarantee deposits	(4,585)	(58)	(3,618)
Acquisition of property, plant and equipment	(262,750)	(182,877)	(207,331)
Acquisition of intangible assets	(368,463)	(284,217)	(290,746)
Acquisition of financial assets at FVOCI	(5,327)	(8,063)	(4,203)
Acquisition of financial assets at FVPL	(4,832)	(27,063)	(3,813)
Increase in long-term other receivables	(32)	(32,219)	(25)
Decrease in cash flows from business transfer	(24,806)	-	(19,574)
Decrease in cash flows from change in scope of consolidation	(761,093)	-	(600,563)
Net cash flows used in investing activities	₩ (1,465,682)	₩ (352,221)	\$ (1,156,093)
Financing activities			
Cash inflows from financing activities			
Net increase in short-term borrowings	₩ 481,308	₩ 992,920	379,790
Increase in long-term borrowings	633,021	433,969	499,504
Issuance of bonds	606,258	436,321	478,386
Paid-in capital increase of subsidiaries	407,297	-	321,390
Cash outflows from financing activities			
Repayment of current portion of long-term borrowings	(520,876)	(537,908)	(411,012)
Redemption of current portion of bonds	(431,824)	(437,660)	(340,743)
Payment of lease liabilities	(94,217)	(108,068)	(74,345)
Dividends paid	(101,765)	(86,362)	(80,301)
Acquisition of treasury stock	(417)	-	(329)
Net cash flows provided by financing activities	₩ 978,785	₩ 693,212	\$ 772,340
Net increase (decrease) in cash and cash equivalents	₩ 746,389	₩ (168,697)	\$ 588,666
Cash and cash equivalents as of January 1	521,160	679,304	411,236
Net foreign exchange difference	30,157	10,553	23,796
Cash and cash equivalents as of December 31	₩ 1,297,706	₩ 521,160	\$ 1,023,698

The accompanying notes are an integral part of the consolidated financial statements.

1. Corporate information

1.1 The parent company

POSCO International Corporation (the “Company”) was incorporated on December 27, 2000 as a result of a spin-off of the trading segment of Daewoo Corporation.

The Company and its subsidiaries (collectively referred to as the “Group”) engages in various business activities, such as providing international trade, export agency services, intermediary trading, manufacturing, distribution, natural resource development and lease service. The primary products sold by the Company include various industrial grade steel, metals, chemicals, auto parts, machinery, ships, plants, electronics, special materials, grain and petroleum.

The Company has listed its shares on the Korea Exchange since March 23, 2001. The Company’s issued capital as of December 31, 2021 amounts to ₩616,876 million. POSCO Holdings Inc, the Company’s largest shareholder, owns 62.92% equity interest in the Company.

1.2 Consolidated subsidiaries

Subsidiaries	Business	Number of shares	Country of domicile	Equity ownership(%)	
				2022	2021
POSCO INTERNATIONAL AMERICA CORP.	Trading	555,000	USA	100	100
POSCO INTERNATIONAL DEUTSCHLAND GmbH	Trading	-	Germany	100	100
POSCO INTERNATIONAL JAPAN CORP.	Trading	209,600	Japan	100	100
POSCO INTERNATIONAL SINGAPORE PTE. LTD.	Trading	3,500,000	Singapore	100	100
POSCO INTERNATIONAL ITALIA S.R.L.	Trading	-	Italy	100	100
POSCO INTERNATIONAL CHINA CO., LTD.	Trading	-	China	100	100
POSCO INTERNATIONAL MYANMAR CO., LTD.	Trading	493,240	Myanmar	100	100
POSCO INTERNATIONAL MEXICO S.A. de C.V.	Trading	53,078	Mexico	100	100
POSCO INTERNATIONAL MALAYSIA SDN BHD	Trading	6,091,002	Malaysia	100	100
POSCO INTERNATIONAL SHANGHAI CO., LTD.	Trading	-	China	100	100
POSCO DAEWOO SHANGHAI WAIGAOQIAO CO., LTD.	Trading	-	China	100	100
POSCO INTERNATIONAL INDIA PVT., LTD.	Trading	8,940,000	India	100	100
POSCO INTERNATIONAL VIETNAM CO., LTD.	Trading	-	Vietnam	100	100
POSCO INTERNATIONAL (THAILAND) CO., LTD.	Trading	1,510,000	Thailand	100	100
POSCO INTERNATIONAL INDONESIA	Trading	111,672	Indonesia	100	100
POSCO SOUTH EAST ASIA PTE. LTD.	Trading	1,020,000	Singapore	100	100
POSCO MOBILITY SOLUTION (*4)	Steel manufacturing	1,000,000	Korea	100	-
POSCO INTERNATIONAL TEXTILE LLC.	Cotton	-	Uzbekistan	100	100
POSCO INTERNATIONAL AUSTRALIA HOLDINGS PTY. LTD. (*1)	Natural resource development	119,676,667	Australia	100	100
PI AAPC CORP.	Steel manufacturing	5,000	USA	100	100
PT. BIO INTI AGRINDO	Natural resource development	496,333	Indonesia	85	85
BRASIL SAOPAULO STEEL PROCESSING CENTER	Steel manufacturing	-	Brazil	51	51
POSCO INTERNATIONAL POWER (PNGLAE) LTD.	Service	36,239,782	Papua New Guinea	100	100
POHANG SRDC CO., LTD.	Steel manufacturing	909,979	Korea	51	51
GOLDEN LACE POSCO INTERNATIONAL CO., LTD.	Grain crop/Wholesales	60,000	Myanmar	60	60
POSCO INTERNATIONAL GLOBAL DEVELOPMENT PTE. LTD.	Hotel	254,117,647	Singapore	75	75
POSCO INTERNATIONAL AMARA CO., LTD.	Hotel	680,000	Myanmar	64	64
POSCO INTERNATIONAL UKRAINE LLC.	Grain procurement	-	Ukraine	100	100
POSCO TMC INDIA PVT. LTD.	Steel manufacturing	876,041	India	74	74
GRAIN TERMINAL HOLDING PTE. LTD.	Grain	75	Singapore	75	75
Mykolaiv Milling Works PJSC.	Grain	-	Ukraine	75	75
Yuzhnaya Stevedoring Company Limited LLC.	Grain	-	Ukraine	75	75
SUZHOU POSCO-CORE TECHNOLOGY CO., LTD. (*2)	Steel manufacturing	-	China	72	60
POSCO INTERNATIONAL E&P MALAYSIA SDN. BHD. (*2)	Natural resource	15,898,098	Malaysia	100	100
AGPA PTE. LTD.	Grain	92,388,487	Singapore	100	100
Senex Holdings PTY LTD. (*2) (*4)	Natural resource	442,424,082	Australia	50	-
POSCO INTERNATIONAL Mexico e-Mobility S.A DE C.V. (*2) (*3)	Steel manufacturing	1,084,383	Mexico	100	-
ESTEEL4U (*2)	Steel manufacturing	588,200	Korea	61	-

1.2 Consolidated subsidiaries (cont'd)

(*1) POSCO International Australia Holdings Pty. Ltd. is the holding company that has 100% ownership interests in POSCO Daewoo Narrabri Investment Pty. Ltd. and POSCO Daewoo Australia Pty. Ltd.

(*2) The investees were newly incorporated for the year ended December 31, 2022.

(*3) In July 2022, Posco Mexico e-Mobility S.A DE C.V. changed its name to POSCO INTERNATIONAL Mexico e-Mobility S.A DE C.V.

(*4) As of December 31, 2022, the shareholding ratio is 50.1%, but it is classified as a subsidiary as it is judged to have actual control in accordance with the shareholders' agreement.

1.3 Summarized financial information of the subsidiaries

Summarized financial information of the subsidiaries for the year ended December 31, 2022 is as follows (Korean won in millions):

Subsidiaries	Assets	Liabilities	Equity	Sales	Net profit(loss)
POSCO INTERNATIONAL AMERICA CORP.	536,696	411,978	124,718	2,658,298	31,044
POSCO INTERNATIONAL DEUTSCHLAND GmbH	403,283	390,779	12,504	979,225	5,398
POSCO INTERNATIONAL JAPAN CORP.	928,656	798,617	130,039	2,921,851	26,264
POSCO INTERNATIONAL SINGAPORE PTE. LTD.	226,735	219,775	6,960	4,955,151	(2,985)
POSCO INTERNATIONAL ITALIA S.R.L.	221,860	207,405	14,455	930,000	3,539
POSCO INTERNATIONAL CHINA CO., LTD.	61,065	34,772	26,293	255,863	2,327
POSCO INTERNATIONAL MYANMAR CO., LTD	2,459	1,998	461	210	(162)
POSCO INTERNATIONAL MEXICO S.A. de C.V.	141,393	110,888	30,505	722,821	1,547
POSCO INTERNATIONAL MALAYSIA SDN BHD	4,742	1,739	3,003	243,764	248
POSCO INTERNATIONAL SHANGHAI CO., LTD.	49,752	39,951	9,801	228,844	(525)
DAEWOO INTERNATIONAL SHANGHAI WAIGAOQIAO CO., LTD.	19,301	18,667	635	81,103	825
POSCO INTERNATIONAL INDIA PVT., LTD.	14,609	19,250	(4,641)	8,099	1,736
POSCO INTERNATIONAL VIETNAM CO., LTD.	14,283	6,792	7,492	280,690	788
POSCO INTERNATIONAL (THAILAND) CO., LTD.	25,656	14,643	11,013	299,257	3,418
PT POSCO INTERNATIONAL INDONESIA	15,439	3,865	11,574	38,620	2,168
POSCO INTERNATIONAL UKRAINE LLC.	3,626	4,392	(766)	1,639	(1,735)
POSCO SOUTH EAST ASIA PTE. LTD.	7,909	14,666	(6,756)	-	(550)
POSCO MOBILITY SOLUTION	966,837	350,253	616,584	1,420,467	19,320
POSCO INTERNATIONAL TEXTILE LLC.	173,679	67,541	106,139	166,455	(15,503)
POSCO INTERNATIONAL AUSTRALIA HOLDINGS PTY. LTD.	135,130	42,770	92,359	129,277	69,394
PT. BIO INTI AGRINDO	336,880	187,861	149,020	219,621	71,913
BRASIL SAOPAULO STEEL PROCESSING CENTER	3,043	29,728	(26,684)	-	(1,567)
POSCO INTERNATIONAL POWER (PNGLA) LTD.	71,745	34,666	37,079	54,975	12,160
POHANG SRDC CO., LTD.	14,354	4,414	9,940	6,566	375
GOLDEN LACE POSCO INTERNATIONAL CO., LTD.	19,554	22,049	(2,495)	5,170	(4,032)
POSCO INTERNATIONAL GLOBAL DEVELOPMENT PTE. LTD.	274,023	255,063	18,960	-	(7,608)
POSCO INTERNATIONAL AMARA CO., LTD.	308,643	379,974	(71,331)	34,000	(12,626)
POSCO TMC INDIA PVT. LTD.	19,264	14,660	4,605	65,408	1,288
GRAIN TERMINAL HOLDING PTE. LTD.	72,983	47,972	25,011	-	1
Mykolaiv Milling Works PJSC.	54,082	67,357	(13,275)	5,461	255
Yuzhnaya Stevedoring Company Limited LLC.	18,402	496	17,906	163	(6,427)
SUZHOU POSCO-CORE TECHNOLOGY CO., LTD.	130,688	40,109	90,580	150,449	(3,654)
POSCO INTERNATIONAL E&P MALAYSIA SDN. BHD.	2,843	312	2,531	-	(1,854)
AGPA PTE. LTD.	100,617	115	100,502	-	14,812
Senex Holdings PTY LTD	1,386,504	604,124	782,379	186,794	24,621
POSCO INTERNATIONAL Mexico e-Mobility S.A DE C.V.	57,612	52	57,560	-	(1,355)
ESTEEL4U	124,863	115,004	9,859	178,808	235

The financial information of PI AAPC Corp. is not presented as it is not material to the Group's consolidated financial statements.

2. Basis of preparation and summary of significant accounting policies

2.1 Basis of preparation

The Company and its subsidiaries (collectively referred to as the “Group”) prepares statutory financial statements in accordance with International Financial Reporting Standards as adopted by the Republic of Korea (“KIFRS”) enacted by the *Act on External Audit of Stock Companies*.

The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments, debt and equity instruments that have been measured at fair value. The carrying values of assets and liabilities that are designated as hedged items in fair value is not recorded at amortized cost but recorded reflecting changes in the fair values attributable to the risks that are being hedged. The consolidated financial statements are presented in Korean won (KRW or ₩), and the financial statements are presented in Korean won in thousands while all of notes in Korean won in millions, except when otherwise indicated.

2.1.1 Basis of consolidation

The consolidated financial statements comprise the financial statements of the Group and its subsidiaries as of December 31 of each financial year. 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
- The ability to use its power over the investee to affect its returns

When the Group has less than a majority of the voting 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 between with the other vote holders
- 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 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) 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.

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, it derecognizes the related assets (including goodwill), liabilities, non-controlling interest and other components of equity while any resultant gain or loss is recognized in profit or loss. Any remaining investment in the previous subsidiary is recognized at fair value.

2.2 Summary of significant accounting policies

2.2.1 Business combinations and Goodwill

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any non-controlling interest in the acquiree. For each business combination, the acquirer measures the non-controlling interest in the acquiree at fair value or a proportionate share of the non-controlling interest in the acquiree's identifiable net assets. Acquisition-related costs are expensed when incurred.

The Group classifies or designates identifiable assets acquired and liabilities assumed at the acquisition date based on the terms and conditions of the acquisition, economic conditions, the acquirer's operating or accounting policies and other related conditions. This classification includes the separation of embedded derivatives from the acquiree's main contract.

If the acquirer has provided the acquiree with contingent consideration, the consideration is measured at its acquisition-date fair value and included in the consideration transferred and subsequent changes in the fair value of the contingent consideration classified as an asset or liability are recognized in profit or loss or other comprehensive income in accordance with KIFRS 1109. In addition, contingent consideration classified as equity is not remeasured but is accounted for within equity at the time of settlement. If the contingent consideration does not fall within the scope of KIFRS 1109, it is measured in accordance with the appropriate KIFRS.

Goodwill is measured in the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests, and any previous interest held, over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group re-assesses whether it has correctly identified all of the assets acquired and all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregate consideration transferred, then the gain is recognized in profit or loss.

After initial recognition, goodwill is measured at acquisition cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash generating units that are expected to benefit from the synergy effect of combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

When disposing of a business within a cash-generating unit to which goodwill is allocated, the goodwill related to the business to be disposed of is included in the carrying values of the business when determining the profit or loss on disposal, and is measured based on the relative value of the part that exists and the part that is disposed within the cash-generating unit.

2.2.2 Investment in associates and joint ventures

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not control or joint control over those policies.

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 arrangement. 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 are accounted for using the equity method. Under the equity method, the investment in an associate or a joint venture is initially recognized at cost. The carrying amount of the investment is adjusted to recognize changes in the Group's share of net assets of the associate or joint venture since the acquisition date. The goodwill associated with the associate or joint venture is included in the carrying values of the investment and does not carry out amortization or separate impairment testing.

2.2.2 Investment in associates and joint ventures (cont'd)

The statement of comprehensive income reflects the Group's share of the results of operations of the associate or joint venture. Any change in OCI of those investees is presented as part of the Group's OCI. In addition, when there has been a change recognized directly in the equity of the associate or joint venture, the Group recognizes its share of any changes in the statement of changes in equity. Unrealized gains and losses resulting from transactions between the Group and the associate or joint venture are eliminated to the extent of the interest in the associate or joint venture.

The aggregate of the Group's share of profit or loss of an associate and a joint venture is shown in non-operating profit or loss in the consolidated statements of comprehensive income after deducting tax effects and non-controlling interests in the subsidiaries of the associate and the joint venture.

The financial statements of the associate or joint venture are prepared for the same reporting period as the Group. When necessary, adjustments are made to bring the accounting policies in line with those of the Group.

After application of the equity method, the Group determines whether it is necessary to recognize an impairment loss on its investment in its associate or joint venture. At each reporting date, the Group determines whether there is objective evidence that the investment in the associate or joint venture is impaired. If there is such evidence, the Group calculates the amount of impairment as the difference between the recoverable amount of the associate or joint venture and its carrying value, then recognizes the loss as other expenses in the statement of comprehensive income.

Upon loss of significant influence over the associate or joint control over the joint venture, the Group measures and recognizes any retained investment at its fair value. Any difference between the carrying amount of the associate or joint venture upon loss of significant influence or joint control and the fair value of the retained investment and proceeds from disposal is recognized in profit or loss.

2.2.3 Current versus non-current classification

The Group presents assets and liabilities in the statement of financial position based on current/non-current classification.

An asset is current when it is:

- Expected to be realized or intended to be sold or consumed in the normal operating cycle
- Held primarily for the purpose of short-term trading
- Expected to be realized within twelve months after the reporting period, or
- Cash or cash equivalent unless restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period

All other assets are classified as non-current.

A liability is current when:

- It is expected to be settled in the normal operating cycle
- It is held primarily for the purpose of short-term trading
- It is due to be settled within twelve months after the reporting period, or
- There is no unconditional right to defer the settlement of the liability for at least twelve months after the reporting period

The Group classifies all other liabilities as non-current.

Deferred tax assets and liabilities are classified as non-current assets and liabilities.

2.2.4 Fair value measurement

The Group measures financial instruments such as derivatives at fair value as of the reporting date. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value measurement is based on the presumption that the transaction to sell the asset or transfer the liability takes place either:

- In the principal market for the asset or liability, or
- In the absence of a principal market, in the most advantageous market for the asset or liability

The principal or the most advantageous market must be accessible by the Group.

The fair value of an asset or a liability is measured using the assumptions that market participants would use when pricing the asset or liability, assuming that market participants act in their economic best interest.

A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use.

The Group uses valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs.

All assets and liabilities for which fair value is measured or disclosed in the financial statements are categorized within the fair value hierarchy, described as follows, based on the lowest level input that is significant to the fair value measurement:

- Level 1 — Quoted (unadjusted) market prices in active markets for identical assets or liabilities
- Level 2 — Valuation techniques for which the lowest level input that is significant to the fair value measurement is directly or indirectly observable
- Level 3 — Valuation techniques for which the lowest level input that is significant to the fair value measurement is unobservable

For assets and liabilities that are recognized in the financial statements at fair value on a recurring basis, the Group determines whether transfers have occurred between levels in the hierarchy by re-assessing categorization based on the lowest level input that is significant to the fair value measurement at the each reporting date.

For the purpose of fair value disclosures, the Group has determined classes of assets and liabilities on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy.

Fair value related disclosures for financial instruments and non-financial assets that are measured at fair value or where fair values are disclosed, are summarized in the following notes:

	Notes
Disclosure for valuation methods, significant estimates and assumptions	2, 6 and 30
Quantitative disclosures of fair value measurement hierarchy	30
Investment properties	13
Financial instruments (including those carried at amortized cost)	6 and 30

2.2.5 Revenue from contracts with customers

Revenue from contracts with customers is recognized when control of the goods or services are transferred to the customer at an amount that reflects the consideration to which the Group expects to be entitled in exchange for those goods or services.

2.2.5.1 Trade

(1) Classification and implementation of performance obligations

Performance obligations are identified in certain contracts with respect to (1) the sale of goods, and (2) transport services for the performance of their duties as part of their trade transactions with customers. The Group recognizes the transaction price allocated to these performance obligations as revenue upon completion of each performance obligation by applying the expected cost plus margin approach.

For the transactions of custom-made equipment, if the Group has no alternative use for assets created by fulfilling obligations and the Group has the enforceable right for the payment for the portion completed up to now, the revenue is recognized by the percentage-of-completion methods.

The Group provides guarantees for goods and services that are defective at the time of sale in accordance with the requirements of the law. Assurance type guarantees are accounted for in accordance with KIFRS 1037, *Contingent Liabilities and Contingent Assets*. Guarantees of the types of services classified as separate performance obligations are not recognized.

(2) Variable consideration

If the consideration in a contract includes a variable amount, the Group estimates the amount of consideration to which it will be entitled in exchange for transferring the goods to the customer. The variable consideration is estimated at contract inception and is included in the transaction price only to the extent that it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved.

In the case of a contract in which a right of return exists, for goods that are expected to be returned, instead of revenue, the Group recognizes it as a refund liability. A right of goods returned and corresponding adjustment to cost of sales are also recognized. If the Group receives short-term advances from its customers, the practical expedient is used, and the Group does not adjust the promised amount of consideration for the effects of a significant financing component if it expects, at contract inception, that the period between the transfer of the promised good or service to the customer and when the customer pays for that good or service will be one year or less.

(3) Judgment on principal versus agent

The Group controls each good or service prior to providing the goods or services to the customer, taking into account the main responsibilities and obligation of fulfilling the commitments in the trade transaction with the customer, and right to determine prices. Therefore, the Group has generally concluded that it is the principal in its revenue arrangements, except for the agency services, in which sales commission is recognized as revenue.

2.2.5.2 Resource development sector

Product distribution contracts in some of the contracts of the resource development transaction are not subject to the standard as the counterparties to the contract are not the "customers" as defined in KIFRS 1115. Revenue from gas sales is recognized when the control of goods is transferred.

2.2.5.3 Others

In addition to the above, the Group has manufacturing sectors, in which the revenue is recognized when the controls of goods or services are transferred.

2.2.6 Cash and cash equivalents

Cash and cash equivalents in the statement of financial position comprise cash at banks and on hand and short-term deposits with an original maturity of three months or less.

2.2.7 Financial instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

2.2.7.1 Financial assets

(1) Initial recognition and measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortized cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

The classification of financial assets at initial recognition depends on the financial asset's contractual cash flow characteristics and the Group's business model for managing them. With the exception of trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient, the Group initially measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs. Trade receivables that do not contain a significant financing component or for which the Group has applied the practical expedient are measured at the transaction price determined under KIFRS 1115.

In order for a financial asset to be classified and measured at amortized cost or fair value through OCI, it needs to give rise to cash flows that are 'solely payments of principal and interest (SPPI)' on the principal amount outstanding. This assessment is referred to as the SPPI test and is performed at an instrument level.

The Group's business model for managing financial assets refers to how it manages its financial assets in order to generate cash flows. The business model determines whether cash flows will result from collecting contractual cash flows, selling the financial assets, or both.

Purchases or sales of financial assets that require delivery of assets within a time frame established by regulation or convention in the market place (regular way trades) are recognized on the trade date, i.e., the date that the Group commits to purchase or sell the asset.

(2) Subsequent measurement

For purposes of subsequent measurement, financial assets are classified in four categories:

- Financial assets at amortized cost (debt instruments)
- Financial assets at fair value through OCI with recycling of cumulative gains and losses (debt instruments)
- Financial assets designated at fair value through OCI with no recycling of cumulative gains and losses upon derecognition (equity instruments)
- Financial assets at fair value through profit or loss

Financial assets at amortized cost (debt instruments)

Financial assets at amortized cost are subsequently measured using the effective interest rate (EIR) method and are subject to impairment. Gains and losses are recognized in profit or loss when the asset is derecognized, modified or impaired.

The Group's financial assets measured at amortized cost include cash and cash equivalents, trade receivables and other financial assets.

2.2.7.1 Financial assets (cont'd)

Financial assets at fair value through OCI (debt instruments)

The Group measures debt instruments at fair value through OCI if both of the following conditions are met:

- The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling and
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

For debt instruments at fair value through OCI, interest income, foreign exchange revaluation and impairment losses or reversals are recognized in profit or loss and computed in the same manner as for financial assets measured at amortized cost. The remaining fair value changes are recognized in OCI. Upon derecognition, the cumulative fair value change recognized in OCI is recycled to profit or loss.

The Group's debt instruments at fair value through OCI are included under other non-current financial assets.

Financial assets designated at fair value through OCI (equity instruments)

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under KIFRS 1032 *Financial Instruments: Presentation* and are not held for trading.

Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognized as other income in the statement of profit or loss when the right of payment has been established, except when the Group benefits from such proceeds as a recovery of part of the cost of the financial asset, in which case, such gains are recorded in OCI. Equity instruments designated at fair value through OCI are not subject to impairment assessment.

The Group elected to classify irrevocably its non-listed equity investments under this category.

Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss include financial assets held for trading and financial assets upon initial recognition designated at fair value through profit or loss or required at fair value. Financial assets are classified as held for trading if they are acquired for the purpose of selling or repurchasing in the near term. Derivatives, including separated embedded derivatives, are also classified as held for trading unless they are designated as effective hedging instruments. Financial assets with cash flows that are not solely payments of principal and interest are classified and measured at fair value through profit or loss, irrespective of the business model. Notwithstanding the criteria for debt instruments to be classified at amortized cost or at fair value through OCI, as described above, debt instruments may be designated at fair value through profit or loss on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch

Financial assets at fair value through profit or loss are carried in the statement of financial position at fair value with net changes in fair value recognized in profit or loss.

Derivatives and the listed equity investments that were not elected to classify to financial assets at fair value through OCI are included in this category. Dividends on the listed equity investments are recognized as profit or loss when the right is confirmed.

2.2.7.1 Financial assets (cont'd)

A derivative embedded in a hybrid contract is separated from the host and accounted for as a separate derivative if: the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at fair value through profit or loss. A derivative embedded in a hybrid contract, with a financial liability or non-financial host, is separated from the host and accounted for as a separate derivative if: the economic characteristics and risks are not closely related to the host; a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative; and the hybrid contract is not measured at fair value through profit or loss. Embedded derivatives are measured at fair value with changes in fair value recognized in profit or loss. Reassessment only occurs if there is either a change in the terms of the contract that significantly modifies the cash flows or a reclassification of a financial asset out of the fair value through profit or loss category.

A derivative embedded within a hybrid contract containing a financial asset host is not accounted for separately. The financial asset host together with the embedded derivative is required to be classified in its entirety as a financial asset at fair value through profit or loss.

(3) Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the Group's consolidated statement of financial position) when:

- The rights to receive cash flows from the asset have expired, or
- The Group has transferred its rights to receive cash flows from the asset or has assumed an obligation to pay the received cash flows in full without material delay to a third party under a 'pass-through' arrangement; and either (a) the Group has transferred substantially all the risks and rewards of the asset, or (b) the Group has neither transferred nor retained substantially all the risks and rewards of the asset, but has transferred control of the asset

When the Group has transferred its rights to receive cash flows from an asset or has entered into a pass-through arrangement, it evaluates if, and to what extent, it has retained the risks and rewards of ownership. When it has neither transferred nor retained substantially all of the risks and rewards of the asset, the Group continues to recognize the transferred asset to the extent of its continuing involvement. In that case, the Group also recognizes an associated liability. The transferred asset and the associated liability are measured on a basis that reflects the rights and obligations that the Group has retained.

Continuing involvement that takes the form of a guarantee over the transferred asset is measured at the lower of the original carrying amount of the asset and the maximum amount of consideration that the Group could be required to repay.

(4) Impairment of financial assets

Disclosures related to impairment of financial assets are provided below:

- Disclosures for significant assumptions
- Debt instruments at fair value through OCI
- Trade receivables, including contract assets

The Group recognizes an allowance for expected credit losses (ECLs) for all debt instruments not held at fair value through profit or loss. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

2.2.7.1 Financial assets (cont'd)

ECLs are recognized in two stages. For credit exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12-months (a 12-month ECL). For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (a lifetime ECL).

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognizes a loss allowance based on lifetime ECLs at each reporting date. The Group has established a provision matrix that is based on its historical credit loss experience, adjusted for forward-looking factors specific to the debtors and the economic environment.

For debt instruments at fair value through OCI, the Group applies the low credit risk simplification. At every reporting date, the Group evaluates whether the debt instrument is considered to have low credit risk using all reasonable and supportable information that is available without undue cost or effort. In making that evaluation, the Group reassesses the internal credit rating of the debt instrument. In addition, the Group considers that there has been a significant increase in credit risk when contractual payments are more than 30 days past due.

The Group's debt instruments at fair value through OCI comprise solely of quoted bonds that are graded in the top investment category by the credit rating agency and, therefore, are considered to be low credit risk investments. It is the Group's policy to measure ECLs on such instruments on a 12-month basis. However, when there has been a significant increase in credit risk since origination, the allowance will be based on the lifetime ECL. The Group uses the ratings from the credit rating agency both to determine whether the debt instrument has significantly increased in credit risk and to estimate ECLs.

The Group considers a financial asset in default when contractual payments are 90 days past due. However, in certain cases, the Group may also consider a financial asset to be in default when internal or external information indicates that the Group is unlikely to receive the outstanding contractual amounts in full before taking into account any credit enhancements held by the Group. A financial asset is written off when there is no reasonable expectation of recovering the contractual cash flows.

2.2.7.2 Financial liabilities

(1) Initial recognition and measurement

Financial liabilities are classified, at initial recognition, as financial liabilities at fair value through profit or loss, loans and borrowings, payables, or as derivatives designated as hedging instruments in an effective hedge, as appropriate.

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

The Group's financial liabilities include trade and other payables, loans and borrowings including bank overdrafts and derivative financial instruments.

(2) Subsequent measurement

The measurement of financial liabilities depends on their classification, as described below:

Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading and financial liabilities designated upon initial recognition as of fair value through profit or loss.

2.2.7.2 Financial assets (cont'd)

Financial liabilities are classified as held for trading if they are incurred for the purpose of repurchasing in the near term. This category also includes derivative financial instruments entered into by the Group that are not designated as hedging instruments in hedge relationships as defined by KIFRS 1109. Separated embedded derivatives are also classified as held for trading unless they are designated as effective hedging instruments.

Gains or losses on liabilities held for trading are recognized in the statement of profit or loss.

Financial liabilities designated at fair value through profit or loss are designated only at the initial date of recognition if the criteria in KIFRS 1109 are satisfied. The Group has not designated any financial liability as fair value through profit or loss.

Loans and borrowings

This is the category most relevant to the Group. After initial recognition, interest-bearing loans and borrowings are subsequently measured at amortized cost using the EIR method. Gains and losses are recognized in profit or loss when the liabilities are derecognized as well as through the EIR amortization process.

Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. This category generally applies to interest-bearing loans and borrowings.

(3) Derecognition

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in the statement of profit or loss.

2.2.7.3 Offsetting of financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the consolidated statement of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, to realize the assets and settle the liabilities simultaneously.

2.2.7.4 Derivative financial instruments and hedge accounting

(1) Initial recognition and subsequent measurement

The Group uses derivative financial instruments, such as forward currency contracts, interest rate swaps and forward commodity contracts, to hedge its foreign currency risks, interest rate risks and commodity price risks, respectively. Such derivative financial instruments are initially recognized at fair value on the date on which a derivative contract is entered into and are subsequently remeasured at fair value. Derivatives are carried as financial assets when the fair value is positive and as financial liabilities when the fair value is negative.

For the purpose of hedge accounting, hedges are classified as:

- Fair value hedges when hedging the exposure to changes in the fair value of a recognized asset or liability or an unrecognized firm commitment
- Cash flow hedges when hedging the exposure to variability in cash flows that is either attributable to a particular risk associated with a recognized asset or liability or a highly probable forecast transaction or the foreign currency risk in an unrecognized firm commitment
- Hedges of a net investment in a foreign operation

At the inception of a hedge relationship, the Group formally designates and documents the hedge relationship to which the Group wishes to apply hedge accounting and the risk management objective and strategy for undertaking the hedge.

2.2.7.4 Derivative financial instruments and hedge accounting (cont'd)

The documentation includes identification of the hedging instrument, the hedged item, the nature of the risk being hedged and how the Group will assess whether the hedging relationship meets the hedge effectiveness requirements (including the analysis of sources of hedge ineffectiveness and how the hedge ratio is determined). A hedging relationship qualifies for hedge accounting if it meets all of the following effectiveness requirements:

- There is 'an economic relationship' between the hedged item and the hedging instrument.
- The effect of credit risk does not 'dominate the value changes' that result from that economic relationship.
- The hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

Hedges that meet the strict criteria for hedge accounting are accounted for, as described below:

(2) Fair value hedges

The change in the fair value of a hedging derivative is recognized in the statement of profit or loss. The change in the fair value of the hedged item attributable to the risk hedged is recorded as part of the carrying value of the hedged item and is also recognized in the statement of profit or loss

For fair value hedges relating to items carried at amortized cost, any adjustment to carrying value is amortized through profit or loss over the remaining term of the hedge using the EIR method. EIR amortization may begin as soon as an adjustment exists and no later than when the hedged item ceases to be adjusted for changes in its fair value attributable to the risk being hedged.

If the hedged item is derecognized, the unamortized fair value is recognized immediately in profit or loss.

When an unrecognized firm commitment is designated as a hedged item, the subsequent cumulative change in the fair value of the firm commitment attributable to the hedged risk is recognized as an asset or liability with a corresponding gain or loss recognized in profit and loss.

(3) Cash flow hedges

The effective portion of the gain or loss on the hedging instrument is recognized in OCI in the cash flow hedge reserve, while any ineffective portion is recognized immediately in the statement of profit or loss. The cash flow hedge reserve is adjusted to the lower of the cumulative gain or loss on the hedging instrument and the cumulative change in fair value of the hedged item.

The Group uses forward currency contracts as hedges of its exposure to foreign currency risk in forecast transactions and firm commitments, as well as forward commodity contracts for its exposure to volatility in the commodity prices. The ineffective portion relating to foreign currency contracts is recognized as other expense and the ineffective portion relating to commodity contracts is recognized in other operating income or expenses.

The Group designates only the spot element of forward contracts as a hedging instrument. The forward element is recognized in OCI and accumulated in a separate component of equity under cost of hedging reserve.

The amounts accumulated in OCI are accounted for, depending on the nature of the underlying hedged transaction. If the hedged transaction subsequently results in the recognition of a non-financial item, the amount accumulated in equity is removed from the separate component of equity and included in the initial cost or other carrying amount of the hedged asset or liability. This is not a reclassification adjustment and will not be recognized in OCI for the period. This also applies where the hedged forecast transaction of a non-financial asset or non-financial liability subsequently becomes a firm commitment for which fair value hedge accounting is applied.

2.2.7.4 Derivative financial instruments and hedge accounting (cont'd)

For any other cash flow hedges, the amount accumulated in OCI is reclassified to profit or loss as a reclassification adjustment in the same period or periods during which the hedged cash flows affect profit or loss.

If cash flow hedge accounting is discontinued, the amount that has been accumulated in OCI must remain in accumulated OCI if the hedged future cash flows are still expected to occur. Otherwise, the amount will be immediately reclassified to profit or loss as a reclassification adjustment. After discontinuation, once the hedged cash flow occurs, any amount remaining in accumulated OCI must be accounted for depending on the nature of the underlying transaction as described above.

2.2.8 Inventories

Inventories are valued at the lower of cost and net realizable value. Acquisition costs for each inventory include purchase cost, conversion cost and other costs attributable to bringing the inventory to the location and condition. The unit cost of inventories is determined by the first-in-first-out method (individual method for materials-in-transit) and the weighted average method (Finished goods and Work-in-process).

2.2.9 Non-current assets held for sale and discontinued operations

The Group classifies non-current assets and disposal groups classified as held for sale or for distribution to equity holders of the parent if their carrying amounts will be recovered principally through a sale or distribution rather than through continuing use. Such non-current assets and disposal groups classified as held for sale or as held for distribution are measured at the lower of their carrying amount and fair value less costs to sell or to distribute. Costs to sell are the incremental costs directly attributable to the sales, excluding the finance costs and income tax expense.

The criteria for held for sale classification is regarded as met only when the sale is highly probable and the asset or disposal group is available for immediate sale in its present condition. Actions required to complete the sale should indicate that it is unlikely that significant changes to the sale will be made or that the sale will be withdrawn. The sale should be expected to be completed within one year from the date of the classification.

Property, plant and equipment and intangible assets are not depreciated or amortized once classified as held for sale or as held for distribution.

Assets and liabilities classified as held for sale or for distribution are presented separately as current items in the statement of financial position.

A disposal group qualifies as discontinued operation if it is:

- Represents a separate major line of business or geographical area of operations, or
- Is part of a single coordinated plan to dispose of a separate major line of business or geographical area of operations, or
- Is a subsidiary acquired exclusively with a view to resale

Discontinued operations are excluded from the results of continuing operations and are presented as a single amount as profit or loss after tax from discontinued operations in the statement of comprehensive income.

2.2.10 Property, plant and equipment

Property, plant and equipment is stated at cost, net of accumulated depreciation and/or accumulated impairment losses, if any. These costs include alternative costs that meet the asset recognition criteria and borrowing costs for long-term construction projects. If a major part of an item of property, plant and equipment needs to be replaced periodically, the Group recognizes that part as an individual asset and depreciates it over its useful life. In addition, if an asset meets the recognition criteria, such as comprehensive inspection costs, it is included in the carrying amount of the property, plant and equipment, and all repair and maintenance costs are reflected in profit or loss when incurred. The present value of the expenditure is included in the acquisition cost of the property, plant and equipment if the estimated cost of removing, dismantling, or restoring the property to its original state after the economic use is terminated meets the recognition criteria of the provisions.

Land among property, plant and equipment is not depreciated, and property, plant and equipment other than land is estimated by individual assets and then depreciated using a straight-line method over the useful life.

	Useful life (years)
Buildings	40 ~ 50
Structures	8 ~ 30
Machinery	4 ~ 25
Others	4 ~ 5

Property, plant and equipment is derecognized on disposal (i.e., the date the acquirer obtains control of the asset) or when future economic benefits are not expected through use or disposal. The gain or loss arising from the removal of property, plant and equipment is determined by the difference between the net selling amount and the carrying amount and is recognized in profit or loss when the asset is derecognized.

The depreciation method, residual value, and useful life of property, plant and equipment are reviewed at the end of each fiscal year and are accounted for as a change in accounting estimates if appropriate.

2.2.11 Investment properties

Investment property is measured at the acquisition cost added to the related transaction cost and includes alternative costs that meet the asset recognition criteria when incurred. However, the costs incurred in daily management activities are recognized as expenses when incurred. Subsequent to initial recognition, investment properties are stated at cost, net of accumulated depreciation and/or accumulated impairment losses.

The Group derecognizes the investment property from its financial statements when it is expected that it will no longer be able to obtain future economic benefits through disposal (i.e., the date the acquirer obtains control of the asset) or use, and the resulting difference between the net disposal amount and the carrying amount is reflected in profit or loss at the time of derecognition. The amount of consideration to be included in the gain or loss arising from the derecognition of investment property is determined in accordance with the requirements in KIFRS 1115 for determining the transaction price.

In addition, only if the purpose of use of the asset has been changed, it is replaced by another account or investment property in another account.

2.2.12 Leases

The Group assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

2.2.12.1 Group as a lessee

The Group applies single recognition and measurement approach for all leases except for short-term leases and leases of low-value assets. The Group recognizes lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

(1) Right-of-use assets

The Group recognizes the right-of-use asset at the inception of the lease (i.e., when the underlying asset is available). The right-of-use assets are measured at cost and the cost model is applied for subsequent measurement. To apply the cost model, the accumulated depreciation and accumulated impairment losses are deducted, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the shorter of the lease term and the estimated useful lives of the assets.

If ownership of the leased asset transfers to the Group at the end of the lease term or the cost reflects the exercise of a purchase option, depreciation is calculated using the estimated useful life of the asset.

Right-of-use assets are also subject to impairment and are described in the accounting policy for impairment of non-financial assets in Note 2-2-16.

(2) Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating the lease, if the lease term reflects the Group exercising the option to terminate.

Variable lease payments that do not depend on an index or a rate are recognized as expenses (unless they are incurred to produce inventories) in the period in which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments) or a change in the assessment of an option to purchase the underlying asset.

The Group's lease liabilities are included in the interest-bearing borrowings.

(3) Short-term leases and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of machinery and equipment (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office supplies that are considered to be low value. Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

2.2.12.2 Group as a lessor

Leases in which the Group does not transfer substantially all the risks and rewards incidental to ownership of an asset are classified as operating leases. Rental income arising is accounted for on a straight-line basis over the lease terms and is included in revenue in the statement of profit or loss due to its operating nature. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized over the lease term on the same basis as rental income. Contingent rents are recognized as revenue in the period in which they are earned.

2.2.13 Intangible assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and accumulated impairment losses. Internally generated intangible assets, excluding development costs, are reflected in profit or loss in the period in which the expenditure is incurred.

Intangible assets are divided into intangible assets with finite useful lives and intangible assets with indefinite useful lives, and intangible assets with finite useful lives are amortized over the relevant useful life and are considered for impairment if an indication of impairment is identified. In addition, the useful life and amortization method is reviewed at least at the end of each fiscal year and is accounted for as a change in accounting estimates if changes are needed due to changes in the expected period of use or changes in the expected pattern of consumption of economic benefits. The amortization cost of an intangible asset is reflected in profit or loss as an expense cost item consistent with the function of intangible asset.

On the other hand, intangible assets with indefinite useful lives are not amortized but are carrying out impairment testing individually or in the cash-generating unit each year. In addition, whether it is appropriate to apply indefinite useful lives to such intangible assets is reviewed each year and, if not, those are changed to finite useful lives in a forward-looking manner.

An intangible asset is derecognized when it is disposed of (i.e., when the acquirer obtains control of the asset) or when no future economic benefits are expected from use or disposal. The Group shall reflect the profit or loss due to the difference between the net selling amount and the carrying amount when the intangible asset is derecognized in profit or loss at the time of derecognition.

2.2.14 Exploration and evaluation assets, development assets, and mining rights

The Group engages in the development of natural resources either by entering into contracts for sharing the extracted natural resources or by acquiring interests in the related projects. Expenditures related to natural resources are recognized as exploration and evaluation assets, development assets or mining rights. The nature of these intangible assets is as follows:

2.2.14.1 Exploration and evaluation assets

Exploration and evaluation assets consist of expenditures for topographical and geophysical studies and drilling and appraisal of oil fields. These assets are reclassified into development assets when the reserves are proven successful.

2.2.14.2 Development assets

Development assets consist of expenditures for fields, construction of production facilities, and others. These development assets are reclassified as mining rights at the inception of the commercial production.

2.2.14.3 Mining rights

Mining rights (production fields) consist of expenditure for improving productivity, oil reservoir management for prediction of oil output and production optimization, and increasing the return rate from crude oil. Mining rights are amortized using the unit of production method.

2.2.15 Biological assets

Consumable biological assets are measured at fair value less costs to sell. The fair value of consumable biological assets is measured by taking into account the expected fruit yield during the evaluation period based on the purchase price of the crop disclosed by the state, and the change in fair value is recognized as sales for the year. Cash flows over the life cycle of consumable biological assets are determined by taking into account the estimated production of agricultural crops and the published prices and estimated cultivation costs of the region in the main market for the crop. For bearer biological assets, it is measured at acquisition cost less accumulated depreciation and accumulated impairment losses.

2.2.16 Impairment of non-financial assets

The Group assesses, at each reporting date, whether there is an indication that an asset may be impaired. If any indication exists or an annual impairment test of the asset is required, the Group estimates the recoverable amount of the asset. The recoverable amount of an asset is the larger of the net fair value of the asset or cash-generating unit, and is determined by individual assets, but is determined by the cash-generating unit to which the individual asset belongs if the cash inflows are not generated almost independently of those of other assets or groups of assets. If the carrying amount of the asset exceeds the recoverable amount, the asset is deemed impaired and the carrying amount of the asset is reduced to recoverable amount.

The value of use is assessed as the present value of the estimate of the expected future cash flows of the asset discounted at a pre-tax discount rate that reflects the time value of the currency and the market's assessment of the risk of the asset. Net fair value takes into consideration the latest transaction price. If no such transaction is identified, the decision is made using the appropriate evaluation model. These calculations use valuation multiples, market prices of listed shares, or other fair value indicators.

Impairment losses are reflected in profit or loss as a cost item consistent with the function of the impaired asset. However, if there is previously recognized revaluation surplus as an asset subject to the revaluation model, the impairment loss is offset with the revaluation surplus with the limit of the previous revaluation amount.

For assets other than goodwill, the Group assesses whether there are any indications at each reporting date that the impairment loss on previously recognized assets no longer exists or has decreased, and estimates recoverable amount if there are any such indications.

Impairment losses on assets other than previously recognized goodwill increase the carrying amount of the asset to the amount recoverable with the limit of amortized carrying amount of the asset that does not recognize the impairment losses, only if there is a change in the estimate used to determine the recoverable amount of the asset since the date of recognition of the impairment loss, and those reversal of Impairment Losses is reflected in profit or loss. However, in the case of assets subject to the revaluation model, the amount of the reversal is treated as an increase in the revaluation surplus.

2.2.17 Foreign currency translation

The Group's consolidated financial statements are presented in Korean won, which is also the parent company's functional currency. Each entity in the Group determines its own functional currency and items included in the financial statements of each entity are measured using that functional currency.

The Group uses the direct consolidation method and reclassifies gains and losses reflecting the amount according to use of the direct consolidation method to profit or loss when disposing of overseas operations.

2.2.17.1 Transactions and balances

In the preparation of financial statements of each entity in the Group, transactions made in currencies other than functional currencies are recorded by applying the exchange rate at the transaction date.

Monetary foreign currency assets and liabilities are translated to the functional currency exchange rate as of each reporting date.

The resulting translation differences are reflected in profit or loss. However, the translation differences arising from items for net investment hedges in overseas operations are directly reflected in equity by the time of disposal of the net investment and reflected in profit or loss at the time of disposal. The related tax effects are also treated as capital items.

On the other hand, non-monetary items denominated in foreign currency measured at historical cost are recognized by applying the exchange rate on the date of initial transaction and non-monetary items denominated in foreign currency at fair value are recognized by applying the exchange rate on the date of fair value measurement. Any gain or loss arising from the translation of non-monetary items is recognized in OCI or profit or loss in the same way as recognition item of gain or loss due to changes in the fair value of the item.

The transaction date for determining the exchange rate to be applied to the initial recognition of related assets, expenses, and revenues (or portions thereof) is the date on which the Group first recognizes a non-monetary asset or non-monetary liability by prepayment or advance receipt of the consideration. In the event of multiple prepayments or advance receipts, the Group shall determine the date of the transaction due to prepayment or advance receipt of the consideration respectively.

Any foreign exchange differences arising from monetary items that are part of the Group's net investment in overseas operations are recognized in OCI and reclassified from equity to profit or loss at the time of disposal of the net investment.

2.2.17.2 Translation in overseas operations

The assets and liabilities of the overseas operations are translated to KRW by applying the average exchange rate for the year and the statement of comprehensive income items are translated to KRW, and the foreign exchange difference arising from such translation is recognized as a separate item of capital. On the other hand, the cumulative foreign exchange differences recognized in such capital are reflected in profit or loss at the time of disposal of the overseas operations.

The fair value adjustment for the carrying amount of goodwill, assets and liabilities arising from the acquisition of overseas operations is considered assets and liabilities of overseas operations and translated to a closing exchange rate.

2.2.18 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that necessarily takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets. All other borrowing costs are expensed in the period they occur. Borrowing costs consist of interest and other costs incurred in relation to the borrowing of interest funds.

2.2.19 Government grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all attached conditions will be complied with. Income-related grant is recognized as revenue according to systematic standards over the period necessary to respond to the related costs to be compensated with the grant, and asset-related grant is recognized as deferred income and the same amount is recognized as revenue each year for the useful life of the related assets.

When a non-monetary asset is received as a grant, the Group records the asset and grant as nominal amount and recognizes them as revenue in the income statement at a fixed amount over the estimated useful life of the related asset. The benefits of lower interest rates are recognized as additional government grant when loans with lower interest rates or similar support are provided.

2.2.20 Pension benefits

The Group operates a defined benefit pension plan, which requires contributions to be made.

The cost of providing benefits under the defined benefit plan is determined using the projected unit credit method. Re-measurements, comprising of changes in actuarial gains and losses, the effect of the asset ceiling excluding net interest and the return on plan assets excluding net interest, are recognized immediately through OCI in the period in which they occur. Re-measurements are not reclassified to profit or loss in subsequent periods.

Past service costs are recognized in profit or loss on the earlier of:

- The date of the plan amendment or curtailment, and
- The date that the Group recognizes restructuring-related costs

Net interest is calculated by applying the discount rate to the net defined benefit liability or asset. The Group recognizes the net interest on the service cost and net defined benefit liability as selling and administrative expenses in profit or loss:

2.2.21 Taxes

2.2.21.1 Current tax

Current tax liabilities (assets) for the current and past periods are measured at the amount expected to be paid to or recovered from the tax authorities using the tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Current tax on items directly reflected in equity is reflected in equity and not in the income statement. The management periodically evaluates the recoverability of tax refunds in relation to the interpretation of the relevant tax code regulations and sets provisions if necessary.

2.2.21.2 Deferred tax

Deferred tax assets and liabilities are recognized for all temporary differences, which is the difference between the carrying amount and the tax base for the purpose of financial reporting of assets and liabilities.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- When deferred tax liability arises from the initial recognition of goodwill
- When an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss
- In respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, where the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future

2.2.21.2 Deferred tax (cont'd)

Deferred income tax assets are recognized to the extent that it is probable that taxable profit will be available against which deductible temporary differences, unused tax credits and tax losses can be utilized, except:

- When deferred tax assets relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss
- In respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint ventures, when temporary differences are improbable to reverse in the foreseeable future or taxable profit against which the temporary differences can be utilized is improbable to be available.

The carrying amount of deferred tax assets is reviewed at then each reporting date and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred tax asset to be utilized. Unrecognized deferred tax assets are reassessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

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

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction either in OCI or directly in equity.

Tax benefits acquired as part of a business combination, but not satisfying the criteria for separate recognition at that date, would be recognized subsequently if the results of new information on the facts and circumstances existing at the acquisition date are recognized during the measurement period. The recognized deferred tax benefit is applied to reduce the carrying amount of goodwill related to the acquisition and, if the carrying amount of goodwill is zero, the remaining deferred tax benefit is recognized in profit or loss.

Deferred tax assets and deferred tax liabilities are offset; if the Group has a legally enforceable right to set off current tax assets against current tax liabilities; or if the taxable entity is the same; or if the taxable entity is different, but current tax liabilities and assets are intended to be settled net or a significant amount of deferred tax liabilities is settled or assets and liabilities are intended to be settled for each future accounting period in which the deferred tax assets are recovered, and the deferred tax assets and the deferred tax liabilities are related to the same taxation authority.

2.2.22 Provisions and contingent liabilities

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The amount of reimbursement is recognized and accounted for as a separate asset only when some or all of the expenditure required to settle the provision is expected to be paid by a third party and it is almost certain that Group will be reimbursed if it fulfills its obligations. Expenses recognized in the consolidated statement of comprehensive income related to provisions are offset against the amount recognized in relation to the third party's reimbursement.

If the time value of money is important, provisions are discounted at the current pre-tax rate reflecting the specific risk of debt. When a provision is valued at its present value, an increase in the carrying amount over the period is recognized as a finance cost.

2.2.22 Provisions and contingent liabilities (cont'd)

(1) Provisions related to post-processing (restoration)

A provision related to post-processing is recognized as the acquisition cost of assets related to resource development, if the project is obliged to be restored at the end of the project. Post-processing costs are calculated as the present value of the expected cost to fulfill the obligation using future expected cash flows, and the future expected cash flows are measured at a pre-tax rate that reflects the inherent risks of the relevant post-processing. The estimated cost of post-processing is reviewed and adjusted at each reporting date, and changes in the estimated cost or the discount rate to be applied are either added to or deducted from the cost of the asset.

(2) Onerous contract

If the Group has entered into an onerous contract, the related present obligation is recognized and measured as a provision. Before recognizing a provision for an onerous contract, an impairment loss arising from the asset used to fulfill the onerous contract is recognized first.

An onerous contract is a contract in which the non-avoidable cost of fulfilling the contractual obligations exceeds the economic benefits expected to be received in that contract. The non-avoidable cost is the minimum net cost existing in the contract, which is the lower of the costs required to fulfill the contract and the compensation or penalty to be paid when the contract is not fulfilled.

2.3 Significant accounting judgments, estimates and assumptions

The preparation of the Group's financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent liabilities, as of the reporting date. However, uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of the asset or liability affected in future periods.

Other disclosures relating to the Group's exposure to risks and uncertainties are disclosed in Capital management (Note 31-1) and financial risk management (Note 31-2)

2.3.1 Accounting judgments

In the course of applying the accounting policies of the Group, the management's decisions that had the most significant impact on the amounts recognized in the financial statements are as follows;

2.3.1.1 Calculation of the lease term for contracts with options for extension and termination - accounting as a lessee

The Group determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised.

The Group has lease agreements that include the option for extension and termination. The Group applies judgement when assessing whether it is probable whether it will exercise the option to extend or terminate a lease. In other words, it considers all relevant facts and circumstances that create an economic incentive not to exercise the option for extension or exercise the option for termination. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise or not to exercise the option to renew or to terminate (for example, significant lease improvements or significant customer customization of the leased asset).

2.3.1.1 Calculation of the lease term for contracts with options for extension and termination - accounting as a lessee (cont'd)

The Group includes the renewal period as part of the lease term for the lease of facilities and machinery with a short non-cancellable period (e.g., 3 to 5 years). If alternative assets are not readily available, it has a significant negative effect on production. Therefore, the Group typically exercises the option to extend the lease. The extended term for a lease of facilities and machinery with a longer non-cancellable term (e.g., 10 to 15 years) is not part of the lease term because it is probable that the option for extension will not be exercised. In addition, the Group generally leases vehicles and transportation equipment for less than 5 years and does not exercise the option for extension, so the option for extension for leases of vehicles and transportation equipment is not included as part of the lease term. Furthermore, the term during which the termination option is applied is included as part of the lease term only if it is probable that it will not be exercised.

2.3.2 Accounting estimates and changes

Other key sources of uncertainty in important assumptions and estimates for the future as of the end of the reporting period that pose significant risks that could lead to significant adjustments to the carrying amounts of assets and liabilities within the following fiscal year are. Assumptions and estimates are based on available variables at the time of preparation of financial statement. Assumptions on present and future conditions may change due to changes in the market or any conditions out of the control of the Group. When such changes occur, they are reflected in the assumption.

2.3.2.1 Impairment of non-financial assets

The Group assesses at each reporting date whether there is any indication that non-financial assets may be impaired. For goodwill and indefinite-lived intangibles, an impairment test is performed annually or if there is any indication of impairment. For other non-financial assets, an impairment test is performed when there is any indication that the carrying amount will not be recoverable. To calculate the value in use, the management shall estimate the expected future cash flows from the asset or the cash-generating unit and select an appropriate discount rate to calculate the present value of the expected cash flows.

2.3.2.2 Provision for expected credit losses of trade receivables and contract assets

The Group uses a provision matrix to calculate expected credit losses (ECL) for trade receivables and contract assets. The provision setting rate is based on the number of overdue days for a bundle of different customer segments (e.g., regional location, product type, customer type and credit rating, collateral or transaction credit insurance) with similar loss patterns.

The provision matrix is based on the Group's historical observed default rates. The Group will calibrate the matrix to adjust the historical credit loss experience with forward-looking information. For instance, if forecast economic conditions (i.e., gross domestic product) are expected to deteriorate in the future which can lead to an increased number of defaults in the manufacturing sector, the historical default rates are adjusted. At every reporting date, the historical observed default rates are updated and changes in the forward-looking estimates are analyzed.

The assessment of the correlation between historical observed default rates, forecast economic conditions and ECLs is a significant estimate. The amount of ECLs is sensitive to changes in circumstances and of forecast economic conditions. The Group's historical credit loss experience and forecast of economic conditions is not representative of customer's actual default in the future.

2.3.2.3 Pension benefits

The cost and present value of the defined benefit obligation is determined using actuarial valuations. An actuarial valuation involves making various assumptions. It includes the determination of the discount rate, future salary growth rate, mortality rate and future pension increase rate. Due to the complexity of the valuation, the underlying assumptions and its long-term nature, a defined benefit obligation is highly sensitive to changes in these assumptions. All assumptions are reviewed at each reporting date.

2.3.2.4 Fair value of financial instruments

Where the fair value of financial assets and financial liabilities recorded in the statement of financial position cannot be derived from active markets, they are determined using valuation techniques including the discounted cash flow (DCF) model. The inputs to these models are taken from observable markets where possible, but where this is not feasible, a degree of judgment is required in establishing fair values. The judgments include considerations of inputs such as liquidity risk, credit risk and volatility. Changes in assumptions about these factors could affect the reported fair value of financial instruments.

2.3.2.5 Provisions for restoration

The Group accounts for the provisions for restoration related to resource development. This provision was calculated by applying the cost of removal and discount rates of resource development facilities based on management assumptions and estimates.

2.3.2.6 Lease - Calculation of the incremental borrowing interest rate

The Group cannot readily determine the implicit interest rate of the lease, so it uses the incremental borrowing rate to measure the lease liability. The incremental borrowing interest rate is the interest rate that the Group would have to pay to borrow the funds required to acquire assets of similar value to those of right-of-use assets with similar collateral over a similar period of time in a similar economic environment. Thus, the incremental borrowing interest rate reflects the items that “would have to pay”, which requires estimation when there is no observable rate available (for subsidiaries that do not enter into financing transactions) or when the incremental borrowing interest rate must be adjusted to reflect the lease conditions (for example, if the lease is not in a functional currency of the subsidiary).

The Group shall, if possible, estimate the incremental borrowing interest rate using observable inputs (such as market interest rates) when available and make certain entity-specific estimates (such as the subsidiary’s stand-alone credit rating).

2.4. New and amended standards and interpretations

The Group applied for the first-time certain standards and amendments, which are effective for annual periods beginning on or after January 1, 2022.

2.4.1 Onerous Contracts – Costs of Fulfilling a Contract – Amendments to KIFRS 1037

An onerous contract is a contract under which the unavoidable of meeting the obligations under the contract costs (i.e., the costs that the Group cannot avoid because it has the contract) exceed the economic benefits expected to be received under it.

The amendments specify that when assessing whether a contract is onerous or loss-making, an entity needs to include costs that relate directly to a contract to provide goods or services including both incremental costs (e.g., the costs of direct labor and materials) and an allocation of costs directly related to contract activities (e.g., depreciation of equipment used to fulfil the contract and costs of contract management and supervision). General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract.

The Group had not identified any contracts as being onerous as the unavoidable costs under the contracts, which were the costs of fulfilling them, comprised only incremental costs directly related to the contracts.

2.4. New and amended standards and interpretations (cont'd)

2.4.2 Reference to the Conceptual Framework – Amendments to KIFRS 1103

The amendments replace a reference to a previous version of the International Accounting Standards Board (IASB)'s *Conceptual Framework* with a reference to the current version issued in March 2018 without significantly changing its requirements.

The amendments add an exception to the recognition principle of KIFRS 1103 *Business Combinations* to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* or KIFRS Interpretation 2121 *Levies*, if incurred separately. The exception requires entities to apply the criteria in KIFRS 1037 or KIFRS Interpretation 2121, respectively, instead of the Conceptual Framework, to determine whether a present obligation exists at the acquisition date.

The amendments also add a new paragraph to KIFRS 1103 to clarify that contingent assets do not qualify for recognition at the acquisition date.

In accordance with the transitional provisions, the Group applies the amendments prospectively, i.e., to business combinations occurring after the beginning of the annual reporting period in which it first applies the amendments (the date of initial application).

These amendments had no impact on the consolidated financial statements of the Group as there were no contingent assets, liabilities or contingent liabilities within the scope of these amendments that arose during the period.

2.4.3 Property, Plant and Equipment: Proceeds before Intended Use – Amendments to KIFRS 1016 Property, Plant and Equipment

The amendment prohibits entities from deducting from the cost of an item of property, plant and equipment, any proceeds of the sale of items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss.

In accordance with the transitional provisions, the Group applies the amendments retrospectively only to items of PP&E made available for use on or after the beginning of the earliest period presented when the entity first applies the amendment (the date of initial application).

These amendments had no impact on the consolidated financial statements of the Group as there were no sales of such items produced by property, plant and equipment made available for use on or after the beginning of the earliest period presented.

2.4.4 KIFRS 1101 First-time Adoption of International Financial Reporting Standards – Subsidiary as a first-time adopter

The amendment permits a subsidiary that elects to apply paragraph D16(1) of KIFRS 1101 to measure cumulative translation differences using the amounts reported in the parent's consolidated financial statements, based on the parent's date of transition to KIFRS, if no adjustments were made for consolidation procedures and for the effects of the business combination in which the parent acquired the subsidiary. This amendment is also applied to an associate or joint venture that elects to apply paragraph D16(1) of KIFRS 1101. These amendments had no impact on the consolidated financial statements of the Group as it is not a first-time adopter.

2.4. New and amended standards and interpretations (cont'd)

2.4.5 KIFRS 1109 Financial Instruments – Fees in the '10 per cent' test for derecognition of financial liabilities

The amendment clarifies the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. These fees include only those paid or received between the borrower and the lender, including fees paid or received by either the borrower or lender on the other's behalf. There is no similar amendment proposed for KIFRS 1039 *Financial Instruments: Recognition and Measurement*. In accordance with the transitional provisions, the Group applies the amendment to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment (the date of initial application).

These amendments had no impact on the consolidated financial statements of the Group as there were no modifications of the Group's financial instruments during the period.

2.4.6 KIFRS 1041 Agriculture – Taxation in fair value measurements

The amendment removes the requirement in paragraph 22 of KIFRS 1041 that entities exclude cash flows for taxation when measuring the fair value of assets within the scope of KIFRS 1041. These amendments had no impact on the consolidated financial statements of the Group as it did not have assets in scope of KIFRS 1041 as of the reporting date.

2.5 Accounting standards published but not yet implemented

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's consolidated financial statements are disclosed below.

Amendments to KIFRS 1001 Presentation of Financial Statements - Classification of Liabilities as Current or Non-current

The amendments to paragraphs 69 to 76 of KIFRS 1001 specify the requirements for classifying liabilities as current or non-current. The amendments clarify:

- What is meant by a right to defer settlement
- That a right to defer must exist at the end of the reporting period
- That classification is unaffected by the likelihood that an entity will exercise its deferral right; and
- That only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification

The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and must be applied retrospectively. The Group is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

Definition of Accounting Estimates - Amendments to KIFRS 1008

The amendments clarify the distinction between changes in accounting estimates and changes in accounting policies and the correction of errors. Also, they clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and apply to changes in accounting policies and changes in accounting estimates that occur on or after the start of that period. Earlier application is permitted as long as this fact is disclosed. The amendments are not expected to have a material impact on the Group's financial statements.

2.5 Accounting standards published but not yet implemented (cont'd)

Disclosure of Accounting Policies - Amendments to KIFRS 1001

The amendments provide guidance and examples to help entities apply materiality judgements to accounting policy disclosures. The amendments aim to help entities provide accounting policy disclosures that are more useful by replacing the requirement for entities to disclose their 'significant' accounting policies with a requirement to disclose their 'material' accounting policies and adding guidance on how entities apply the concept of materiality in making decisions about accounting policy disclosures. The amendments are applicable for annual periods beginning on or after January 1, 2023 with earlier application permitted. The amendments are not expected to have a material impact on the Group's financial statements.

Deferred Tax related to Assets and Liabilities arising from a Single Transaction - Amendments to KIFRS 1012

The amendments narrow the scope of the initial recognition exception under KIFRS 1012, so that it no longer applies to transactions that give rise to equal taxable and deductible temporary differences. The amendments should be applied to transactions that occur on or after the beginning of the earliest comparative period presented. In addition, at the beginning of the earliest comparative period presented, a deferred tax asset (provided that sufficient taxable profit is available) and a deferred tax liability should also be recognized for all deductible and taxable temporary differences associated with leases and decommissioning obligations. The amendments are not expected to have a material impact on the Group's financial statements.

2.6 Approval of consolidated financial statements

The consolidated financial statements of the Group are scheduled to be approved at the Group's general shareholders' meeting to be held on March 20, 2023.

3. Segment information

3.1 Operating segment

For management purposes, the Group has three reportable operating segments (trading, natural resource development and others). Accounting policies of each segment are the same as those of the Group mentioned in Note 2.

3.1.1 The financial performance of each segment for the years ended December 31, 2022 and 2021 is as follows:

	Korean won in millions					U.S. dollar in
	2022					Thousands
	Trading	National Resource Development	Others	Consolidation adjustment	Total	Total
Sales	₩ 45,783,840	₩ 1,371,641	₩ 2,639,801	₩ -	₩ 49,795,282	\$ 39,292,419
Inter-segment sales	(11,652,517)	-	(153,177)	-	(11,805,694)	(9,315,627)
Net sales	34,131,323	1,371,641	2,486,624	-	37,989,588	29,976,792
Profit (loss) for the year before tax	95,641	402,594	227,140	16,772	742,147	585,613

	Korean won in millions					U.S. dollar in
	2021					Thousands
	Trading	National Resource Development	Others	Consolidation adjustment	Total	Total
Sales	₩ 40,291,258	₩ 1,447,642	₩ 1,752,555	₩ -	₩ 43,491,455	\$ 34,318,200
Inter-segment sales	(9,339,866)	-	(202,724)	-	(9,542,590)	(7,529,859)
Net sales	30,951,392	1,447,642	1,549,831	-	33,948,865	26,788,341
Profit (loss) for the year before tax	195,449	126,363	64,688	102,200	488,700	385,623

3.1.2 The financial positions of each segment as of December 31, 2022 and 2021 are as follows:

	Korean won in millions					U.S. dollar in Thousands
	2022					2022
	Trading	National Resource Development	Others	Consolidation adjustment	Total	Total
Total assets	₩ 8,692,137	₩ 2,667,204	₩ 4,461,664	₩ (3,659,837)	₩ 12,161,168	\$ 9,596,124
Total liabilities	5,884,970	475,024	2,273,442	(2,402,603)	6,230,833	4,916,620

	Korean won in millions					U.S. dollar in Thousands
	2021					2021
	Trading	National Resource Development	Others	Consolidation adjustment	Total	Total
Total assets	₩ 8,894,944	₩ 2,168,301	₩ 2,637,426	₩ (3,189,524)	₩ 10,511,147	\$ 8,294,127
Total liabilities	6,065,098	562,811	1,394,020	(2,428,912)	5,593,017	4,413,333

3.1.3 Adjustments and eliminations

Current taxes, deferred taxes and certain financial assets and financial liabilities are not allocated to individual segments as they are accounted for at the group level.

3.1.3.1 The reconciliation of assets as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Segment operating assets	₩ 12,161,168	₩ 10,511,147	\$ 9,596,124
Current tax assets	6,763	4,722	5,337
Deferred tax assets	348,406	254,865	274,920
Total assets	₩ 12,516,337	₩ 10,770,734	\$ 9,876,381

3.1.3.2 The reconciliation of liabilities as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Segment operating liabilities	₩ 6,230,833	₩ 5,593,017	\$ 4,916,620
Current tax liabilities	102,866	89,692	81,169
Deferred tax liabilities	21,077	23,430	16,631
Current portion of bonds	399,841	408,877	315,506
Non-current bonds	1,363,593	1,143,578	1,075,983
Total liabilities	₩ 8,118,210	₩ 7,258,594	\$ 6,405,909

3.2 Revenue from the contract with customers

Details of classification of sales except for rental revenue from investment properties of ₩10,810 million (₩7,234 million in 2021) for the year ended December 31, 2022 and 2021 are as follows:

3.2.1 Sales categorization based on the geographical locations

	Korean won in millions			U.S. dollar in thousands
	2022			2022
	Total sales	Inter-Segment sales	Net sales	Net sales
Domestic	₩ 6,492,402	₩ (910,420)	₩ 5,581,982	₩ 4,404,626
Asia (excluding China)	23,680,062	(6,734,457)	16,945,605	13,371,423
China	4,920,999	(302,447)	4,618,552	3,644,403
North America	5,099,765	(1,896,700)	3,203,065	2,527,472
Europe	5,264,172	(1,799,790)	3,464,382	2,733,672
Others	4,327,072	(161,880)	4,165,192	3,286,666
Total sales	₩ 49,784,472	₩ (11,805,694)	₩ 37,978,778	₩ 29,968,262
U.S. dollar in thousands	\$ 39,283,889	\$ (9,315,627)	\$ 29,968,262	

	Korean won in millions			U.S. dollar in thousands
	2021			2021
	Total sales	Inter-Segment sales	Net sales	Net sales
Domestic	₩ 6,290,773	₩ (1,098,564)	₩ 5,192,209	₩ 4,097,064
Asia (excluding China)	19,521,246	(4,318,466)	15,202,780	11,996,196
China	5,136,980	(305,019)	4,831,961	3,812,800
North America	4,806,948	(2,013,757)	2,793,191	2,204,049
Europe	3,773,930	(358,435)	3,415,495	2,695,096
Others	3,954,344	(1,448,349)	2,505,995	1,977,428
Total sales	₩ 43,484,221	₩ (9,542,590)	₩ 33,941,631	₩ 26,782,633
U.S. dollar in thousands	\$ 34,312,492	\$ (7,529,859)	\$ 26,782,633	

3.2.2 Sales categorization based on the major product and services

	Korean won in millions		U.S. dollar in thousands	
	2022		2022	
Steel	₩	38,491,457	\$	30,372,806
Energy		1,371,641		1,082,333
Food material		7,296,117		5,757,214
Others		2,625,257		2,071,536
Total sales	₩	49,784,472	\$	39,283,889
Inter-segment sales		(11,805,694)		(9,315,627)
Total	₩	37,978,778	\$	29,968,262

	Korean won in millions		U.S. dollar in thousands	
	2021		2021	
Steel	₩	29,263,419	\$	23,091,154
Energy		1,508,594		1,190,400
Food material		11,388,201		8,986,192
Others		1,324,007		1,044,746
Total sales	₩	43,484,221	\$	34,312,492
Inter-segment sales		(9,542,590)		(7,529,859)
Total	₩	33,941,631	\$	26,782,633

3.2.3 Sales categorization based on occurrence

	Korean won in millions		U.S. dollar in thousands	
	2022		2022	
Triangular	₩	30,010,239	\$	23,680,454
Export		14,142,605		11,159,635
Domestic		5,631,628		4,443,800
Total sales	₩	49,784,472	\$	39,283,889
Inter-segment sales		(11,805,694)		(9,315,627)
Net sales	₩	37,978,778	\$	29,968,262

	Korean won in millions		U.S. dollar in thousands	
	2021		2021	
Triangular	₩	27,223,552	\$	21,481,537
Export		10,715,106		8,455,067
Domestic		5,545,563		4,375,888
Total sales	₩	43,484,221	\$	34,312,492
Inter-segment sales		(9,542,590)		(7,529,859)
Net sales	₩	33,941,631	\$	26,782,633

3.2.4 Sales categorization based on revenue recognition period

	Korean won in millions		U.S. dollar in thousands	
	2022		2022	
Temporary Sales	₩	48,139,187	\$	37,985,629
Period sales		1,645,285		1,298,260
Total sales	₩	49,784,472	\$	39,283,889
Inter-segment sales		(11,805,694)		(9,315,627)
Net sales	₩	37,978,778	\$	29,968,262

	Korean won in millions		U.S. dollar in thousands	
	2021		2021	
Temporary Sales	₩	42,063,490	\$	33,191,423
Period sales		1,420,731		1,121,069
Total sales	₩	43,484,221	\$	34,312,492
Inter-segment sales		(9,542,590)		(7,529,859)
Net sales	₩	33,941,631	\$	26,782,633

3.3 Contract balance

Details of contract assets and liabilities arising from revenue from contracts with customers for the year ended December 31, 2022 and 2021 are as follows:

		Korean won in millions				U.S. dollar in thousands	
		2022				2022	
		Beginning balance	Increase	Decrease	Ending balance	Ending balance	
Contract assets	Due from customers	₩ 46,755	₩ 5,025	₩ (22,339)	₩ 29,441	\$ 23,231	
Contract liabilities	Advances received	160,657	301,518	(337,399)	124,776	98,458	
	Long-term advances received	-	1,890	-	1,890	1,491	
	Unearned revenues	77,516	94,067	(103,268)	68,315	53,906	

		Korean won in millions				U.S. dollar in thousands	
		2021				2021	
		Beginning balance	Increase	Decrease	Ending balance	Ending balance	
Contract assets	Due from customers	₩ 49,586	₩ 11,100	₩ (13,931)	₩ 46,755	\$ 36,893	
Contract liabilities	Advances received	124,127	5,996,078	(5,959,548)	160,657	126,771	
	Unearned revenues	48,222	53,932	(24,638)	77,516	61,166	

4. Cash and cash equivalents

4.1 Details of cash and cash equivalents

The Group's cash and cash equivalents are managed to be carried at the same amount in both the consolidated statement of financial position and the consolidated statement of cash flows. Cash and cash equivalents as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Cash	₩ 2,773	₩ 6,672	\$ 2,188
Savings account and checking account	1,228,985	442,096	969,766
Other cash equivalents	65,948	72,392	52,038
Total	₩ 1,297,706	₩ 521,160	\$ 1,023,992

4.2 Restricted deposits

As of December 31, 2022 and 2021, the Group has ₩28,544 million (\$22,523 thousand) and ₩21,038 million (\$16,601 thousand) of deposits with restriction on use, respectively, under contractual terms and conditions due to contracts such as financial agreements and collateral provisions, which are included in cash and cash equivalents.

5. Trade and other receivables

5.1 Trade and other receivables as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Current			
Trade receivables	₩ 3,545,815	₩ 4,092,530	\$ 2,797,929
Allowance for doubtful accounts	(65,776)	(45,874)	(51,902)
Other receivables	240,733	199,215	189,957
Allowance for doubtful accounts	(6,069)	(3,771)	(4,789)
Accrued income	627	167	495
Guarantee deposits	14,530	3,701	11,465
Short-term loans	1,411	1,522	1,113
Current portion of lease bonds	46,109	63,568	36,384
Current portion of long-term loans	-	47,431	-
	₩ 3,777,380	₩ 4,358,489	\$ 2,980,652
Non-current			
Long-term trade receivables	8,606	9,047	6,791
Allowance for doubtful accounts	(6,491)	(6,717)	(5,122)
Long-term loans	1,819	1,772	1,435
Allowance for doubtful accounts	(502)	(273)	(396)
Long-term other receivables	137,954	127,716	108,857
Allowance for doubtful accounts	(91,229)	(81,607)	(71,987)
Long-term finance lease receivables	45,607	80,318	35,988
Long-term guarantee	16,212	14,390	12,793
	₩ 111,976	₩ 144,646	\$ 88,359
	₩ 3,889,356	₩ 4,503,135	\$ 3,069,011

5.2 Changes in allowance for doubtful accounts related to trade receivables for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Beginning balance	₩ 52,591	₩ 28,570	\$ 41,498
Increase due to business combination	25	-	20
Bad debt expenses	25,460	20,162	20,090
Write-off	(1,106)	(553)	(873)
Foreign exchange translation loss(profit)	(6,213)	852	(4,903)
Others	1,510	3,560	1,192
Ending balance	₩ 72,267	₩ 52,591	\$ 57,024

5.3 Financial assets transferred but not derecognized

As of December 31, 2022, the Group has continued to recognize the book value of trade receivables of ₩167,709 million (\$132,336 thousand) (2021: ₩258,284 million (\$203,807 thousand) that was disposed of by the Group but was not derecognized. The cash proceeds received from factoring of such receivables are accounted for as short-term borrowings.

The Group factored the above trade receivables to financial institutions with recourse and, accordingly, the Group retains the risk of ownership arising from credit risk, such as default by the debtors. The fair values of the above receivables transferred and the related borrowings are not significantly different from their book values.

6. Other financial assets

6.1 Other current financial assets as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Financial assets at FVPL (*)	₩ 134,507	₩ -	\$ 106,137
Deposits in financial institutions	93,873	80,978	74,073
Total	₩ 228,380	₩ 80,978	\$ 180,210

(*) The Group classifies assets with a maturity of more than 3 months among constituent assets such as MMW as financial assets at FVPL.

6.2 Other non-current financial assets as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Financial assets at FVOCI (equity)	₩ 44,044	₩ 36,749	\$ 34,754
Financial assets at FVPL (long-term investment)	467	467	368
Financial assets at FVPL (other securities)	4,861	27,258	3,836
Deposits in financial institutions	253	10	200
Total	₩ 49,625	₩ 64,484	\$ 39,158

6.2.1 Financial instruments at fair value

Details of financial instruments measured at fair value as of December 31, 2022 and 2021 are as follows:

	Number of shares	Equity ownership (%)	Korean won in million				U.S. Dollar
			Acquisition cost	2022		2021	in thousand
				Fair value or net asset value	book value	book value	2022
						book value	
FVOCI securities							
Marketable securities							
Maruichi Steel Tube Ltd.	120,000	0.14	₩ 2,933	₩ 3,092	₩ 3,092	₩ 3,155	\$ 2,440
Kumho Petro Chemical Co., Ltd.	37,000	0.13	8,063	4,662	4,662	6,142	3,679
Northwest Copper Corp. (*1)	18,358,439	11.12	10,145	3,606	3,606	-	2,845
			₩ 21,141	₩ 11,360	₩ 11,360	₩ 9,297	\$ 8,964
Non-marketable securities							
Daewoo Songdo development	285	-	₩ 26	₩ -	₩ -	₩ -	\$ -
Zyle Daewoo Motor Sales Corp.	401	-	3	2	2	2	2
DW Development Co., Ltd. - Engineering & Construction (Common Share)	70	-	1	1	1	1	1
DW Development Co., Ltd. - Engineering & Construction (Preferred Share)	70	-	1	1	1	1	1
N.I. CO., LTD. (*4)	-	50.00	3,099	-	-	-	-
The Korea Economic Daily	178,881	0.96	1,952	974	974	974	769
Central Corporation (*2)	-	-	-	-	-	-	-
Hanmi ADM Co., Ltd.	10,000	12.57	1,000	1,000	1,000	1,000	789
S&S INC	8,149	0.17	113	113	113	113	89
POSCO Humans Co., Ltd.	88,000	3.29	454	454	454	454	358
Innovated Technology Inc.	111,111	10.00	5,000	5,000	5,000	5,000	3,945
BioaApplications Inc. (*1)	450,000	4.44	4,950	4,950	4,950	-	3,906
Down SF	607	1.26	-	-	-	-	-
FOSTEC	43,877	0.24	-	-	-	-	-
Hangang Steel	1,232	1.97	-	-	-	-	-
CJ PHILIPPINES, INC.	109,200	10.00	349	349	349	349	275
DONGJIN VIETNAM Co., Ltd	20,000	10.00	803	803	803	803	634
POSCO ASSAN TST STEEL INDUSTRY A.S.	24,096,526	10.00	15,460	11,951	11,951	11,951	9,430
DAEWOO EL SALVADOR S.A. DE C.V. (*5)	31,262	88.00	3,021	-	-	-	-
TES MI s.r.o.	750	3.00	523	523	523	523	413
Kiho Co., Ltd. (*1)	200	10.00	377	377	377	-	297
K. K. KOREA KAMCHATKA CO., LTD.	328	10.00	-	-	-	-	-
KNOC INAM LTD.	10	10.00	-	-	-	-	-
POSCO AAPC, LLC.	-	13.10	4,712	6,186	6,186	6,281	4,881
			₩ 41,844	₩ 32,684	₩ 32,684	₩ 27,452	\$ 25,790
FVPL other securities							
Korea Investment Private Placement KEXIM Carbon Credit Special Asset Fund No.1	-	2.13	₩ 182	₩ 17	₩ 17	₩ 17	\$ 13
Exchangeable bonds of Erae cs Co.,Ltd. (*3)	-	-	-	-	-	27,229	-
Convertible bonds of HARDT (*1)	-	-	4,832	4,832	4,832	-	3,813
Hansung Steel Co., Ltd.	-	-	12	12	12	12	9
			₩ 5,026	₩ 4,861	₩ 4,861	₩ 27,258	\$ 3,835
FVPL investments							
POSCO Agricultural Products Export Fund	-	10	₩ 300	₩ 300	₩ 300	₩ 300	\$ 237
Korea Dic & Mold Industry Cooperative	-	-	1	1	1	1	1
Korea Speciality Contractor Financial Cooperative	-	-	166	166	166	166	131
			₩ 467	₩ 467	₩ 467	₩ 467	\$ 369
			₩ 68,478	₩ 49,372	₩ 49,372	₩ 64,474	\$ 38,958

(*1) The Group newly invested the shares for the year ended December 31, 2022.

(*2) The Group disposed the shares for the year ended December 31, 2022.

(*3) Shares of Erae AMS Co., Ltd. were acquired as an alternative to the convertible bonds of Erae cs Co.,Ltd. and classified as investments in associates.

(*4) N.I.CO., LTD. is classified as FVOCI securities as it cannot exercise significant influence on major decision-making.

6.2.1 Financial instruments at fair value (cont'd)

(*5) DAEWOO EL SALVADOR S.A. DE C.V. is in the process of liquidation and is classified as FVOCI securities as the remaining assets and liabilities are insignificant.

Maruichi Steel Pipe Ltd. and Kumho Petro Chemical Co., Ltd., which are listed stocks among financial assets at FVOCI, were valued at their closing prices as of December 31, 2022, and the resulting loss ₩4,726 million was reflected in accumulated other comprehensive income after deducting the effect of reclassification from disposal and deferred income tax of ₩1,387 million and ₩1,991 million, respectively, from the actual ₩8,081 million and adding the effect of the change in the average tax rate of ₩23 million.

In addition, the Group has assessed using the base price as of December 31, 2022, its investments in Korea Investment Private Placement KEXIM Carbon Credit Special Asset Fund No.1 classified as financial assets at FVPL and among financial assets at FVOCI, gains of ₩ 6,819 million from the disposal of Central Co., Ltd. were reflected in retained earnings.

6.3 Restricted deposits

As of December 31, 2022 and 2021, the Group has deposits of ₩26,108 million (\$20,601 thousand) and ₩5,207 million (\$4,109 thousand), respectively, in financial institutions, all of which are restricted in use due to contracts such as financial arrangements and collateral provisions.

7. Other assets

Other current and non-current assets as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Other current assets			
Advanced payments	₩ 91,482	₩ 115,245	\$ 72,187
Allowance for doubtful accounts	(1,777)	(2,853)	(1,402)
Prepaid expenses	87,185	96,831	68,796
Allowance for doubtful accounts	(2,139)	(1,898)	(1,688)
Others (*)	30,183	21,514	23,817
	₩ 204,934	₩ 228,839	\$ 161,710
Other non-current assets			
Long-term advanced payments	₩ 1,928	₩ -	\$ 1,521
Long-term prepaid expenses	1,099	1,459	867
	₩ 3,027	₩ 1,459	\$ 2,388
Total	₩ 207,961	₩ 230,298	\$ 164,098

(*) Consumable biological assets are included. Consumable biological assets are measured at fair value less costs to sell, and changes in fair value are recognized in profit or loss. Cash flows over the life cycle of biological assets are determined by taking into account the estimated production, market prices and estimated cultivation costs of agricultural crops.

	Korean won in millions			U.S. dollar in thousands
	2021	Increase	2022	2022
Fair value less costs to sell of consumable biological assets	₩ 12,165	₩ (344)	₩ 11,821	\$ 9,328

8. Inventories

Inventories as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Merchandise	₩ 970,505	₩ 901,201	\$ 765,805
Valuation allowance	(15,654)	(477)	(12,352)
Finished goods	121,405	62,772	95,798
Valuation allowance	(10,118)	(4,086)	(7,984)
Semi-finished goods and Work-in-process	73,179	48,208	57,744
Valuation allowance	(2,950)	(1,391)	(2,328)
Raw materials	209,925	195,169	165,647
Valuation allowance	(1,364)	(2,745)	(1,076)
Materials-in-transit	390,495	688,262	308,131
Others	23,105	17,330	18,232
Valuation allowance	(289)	(64)	(228)
	₩ 1,758,239	₩ 1,904,179	\$ 1,387,389

The Group recognized a loss on valuation of inventories of ₩21,611 million (\$17,053 thousand) and ₩231 million (\$182 thousand) in cost of sales for the years ended December 31, 2022 and 2021, respectively.

9. Investments in associates

9.1 Investments in associates as of December 31, 2022 and 2021 are as follows:

	Nationality	Number of shares	Equity ownership (%)	Korean won in millions						U.S. dollar
				2022			2021			2022
				Acquisition cost	Net asset value	Book value	Book value	Book value	Book value	
Shanghai Lansheng Daewoo Corp	China	-	49.0	₩ 5,312	₩ 1,167	₩ -	₩ -	₩ -	\$ -	
Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	China	-	49.0	161	1,714	1,614	1,659	1,274		
KOREA LNG LTD.	Bermuda	2,400	20.0	-	29,124	29,124	31,340	22,981		
GENERAL MEDICINES CO., LTD.	Sudan	9,702	33.0	736	5,631	5,814	4,058	4,588		
POSCO IJPC	Indonesia	11,693,706	21.7	13,475	13,542	13,390	12,115	10,566		
DMSA/AMSA (*1)	Madagascar	-	3.9	346,880	23,735	23,740	24,144	18,733		
POSCO MEXICO PROCESSING CENTER HOLDING, LLC (*1)	Mexico	-	19.6	14,004	20,410	19,985	17,548	15,770		
POSCO-ESDC LTD.	Slovenia	-	20.0	757	2,019	1,943	1,758	1,533		
GLOBAL KOMSCO DAEWOO LLC	Uzbekistan	-	35.0	4,445	7,424	7,427	6,773	5,860		
SOUTH-EAST ASIA GAS PIPELINE COMPANY LTD	Hongkong	50,082	25.0	132,907	290,321	290,318	238,601	229,084		
Blue Ocean Recovery PEF No.1	Korea	333 units	27.5	33,300	34,159	-	-	-		
SPH Co., Ltd.	Korea	100,000	50.0	500	1,564	500	500	395		
YULCHON MEXICO S.A. DE C.V. (*1)	Mexico	18,267,000	6.2	1,349	1,132	1,500	1,132	1,184		
HyunSon Engineering & Construction (*1)	Algerie	2,369	4.9	281	34	24	468	19		
CURO CO., LTD. (*1)	Korea	1,215,863	0.5	882	743	687	682	542		
Inco tech Inc. (*1)	Korea	350,000	10.0	350	(540)	-	-	-		
KWANIKA COPPER CORP. (*2)	Canada	-	-	-	-	-	1,399	-		
Hunchun POSCO HYUNDAI International Logistics (*1)	China	-	10.0	11,488	9,329	8,943	9,263	7,057		
POSCO-MALAYSIA SDN.BHD. (*1)	Malaysia	24,128,000	13.6	7,905	(390)	5,445	5,553	4,297		
POSCO-ITPC S.p.A (*1)	Italy	-	10.0	781	2,883	2,873	2,070	2,267		
SHINPOONG DAEWOO PHARMA CO., LTD. (*1)	Vietnam	-	3.4	343	662	677	571	534		
Erae AMS Co., Ltd. (*1)	Korea	1,984,938	16.7	20,163	20,163	20,163	-	15,910		
				₩ 596,019	₩ 464,826	₩ 434,167	₩ 359,634	\$ 342,594		

(*1) These securities are classified as investments in associates even though the Group's equity ownership is below 20%, as the Group is able to exercise significant influence over the investee.

(*2) The investments in investees were disposed of for the year ended December 31, 2022.

(*3) Shares of Erae AMS Co., Ltd. were acquired as an alternative to the convertible bonds of Erae cs Co., Ltd. and classified as investments in associates.

9.2 Changes in the carrying amount of investments in associates for the years ended December 31, 2022 and 2021 are as follows: (Korean won in millions)

	2022							Ending balance
	Beginning balance	Acquisition and transfer	Disposal	Share of the associate's profit (loss)	Reversal (impairment)	Dividends	Others	
Shanghai Lansheng Daewoo Corp	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	1,659	-	-	-	-	-	(45)	1,614
KOREA LNG LTD. GENERAL MEDICINES CO., LTD.	31,340	-	-	21,027	-	(21,161)	(2,082)	29,124
POSCO IJPC	12,115	-	-	442	-	-	833	13,390
DMSA/AMSA POSCO MEXICO PROCESSING CENTER HOLDING, LLC	24,144	-	-	(2,109)	-	-	1,705	23,740
POSCO-ESDC LTD. GLOBAL KOMSCO DAEWOO LLC	17,548	-	-	1,247	-	-	1,190	19,985
POSCO-ESDC LTD. SOUTH-EAST ASIA GAS PIPELINE COMPANY LTD.	1,758	-	-	249	-	(75)	11	1,943
Blue Ocean Recovery PEF No. 1	6,773	-	-	264	-	-	390	7,427
SPH Co., Ltd. YULCHON MEXICO S.A. DE C.V.	238,601	-	-	50,143	-	(14,541)	16,115	290,318
HyunSon Engineering & Construction CURO CO., LTD.	-	-	-	-	-	-	-	-
Inco tech Inc. (*)	500	-	-	-	-	-	-	500
KWANIKKA COPPER CORP. Hunchun POSCO HYUNDAI International Logistics	1,132	-	-	269	-	-	99	1,500
POSCO- MALAYSIA SDN.BHD. POSCO-ITPC S.p.A. SHINPOONG DAEWOO PHARMA CO., LTD. Erae AMS Co., Ltd.	468	-	-	(475)	-	-	31	24
	682	-	-	-	-	-	5	687
	-	-	-	-	-	-	-	-
	1,399	-	(7,784)	-	6,385	-	-	-
	9,263	-	-	(74)	-	-	(246)	8,943
	5,553	-	-	(109)	-	-	1	5,445
	2,070	-	-	793	-	-	10	2,873
	571	-	-	92	-	-	14	677
	-	20,163	-	-	-	-	-	20,163
	₩ 359,634	₩ 20,163	₩ (7,784)	₩ 74,913	₩ 6,385	₩ (36,177)	₩ 17,033	₩ 434,167
U.S. dollar in thousand	\$ 283,780	\$ 15,910	\$ (6,142)	\$ 59,112	\$ 5,038	\$ (28,547)	\$ 13,440	\$ 342,592

(*) As of December 31, 2022, the cumulative unrecognized loss due to the discontinuing the use of the equity method was ₩1,465 million (\$1,156 thousand).

9.2 Changes in the carrying amount of investments in associates for the years ended December 31, 2022 and 2021 are as follows: (Korean won in millions) (cont'd)

	2021							Ending balance
	Beginning balance	Acquisition and transfer	Disposal	Share of the associate's profit (loss)	Reversal (impairment)	Dividends	Others	
Shanghai Lansheng Daewoo Corp	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Shanghai Waigaoqiao Free Trade Zone								
Lansheng Daewoo Int'l Trading Co., Ltd.	1,578	-	-	(96)	-	-	177	1,659
KOREA LNG LTD.	42,222	-	-	9,145	-	(9,178)	(10,849)	31,340
GENERAL MEDICINES CO., LTD.	5,187	-	-	6,822	-	(224)	(7,727)	4,058
POSCO IJPC	10,055	-	-	1,135	-	-	925	12,115
DMSA/AMSA POSCO MEXICO PROCESSING CENTER HOLDING, LLC	31,075	-	(14,739)	(8,734)	9,407	-	7,135	24,144
POSCO-ESDC LTD.	15,429	-	-	747	-	-	1,372	17,548
GLOBAL KOMSCO DAEWOO LLC	1,642	-	-	151	-	(38)	3	1,758
SOUTH-EAST ASIA GAS PIPELINE COMPANY LTD.	5,331	-	-	116	-	-	1,326	6,773
Blue Ocean Recovery PEF No. 1	199,341	-	-	48,158	-	(27,828)	18,930	238,601
SPH Co., Ltd. PT. BATUTUA TEMBAGA RAYA	500	-	-	-	-	-	-	500
YULCHON MEXICO S.A. DE C.V.	993	-	-	99	-	-	40	1,132
HyunSon Engineering & Construction CURO CO., LTD.	167	-	-	292	-	-	9	468
Inco tech Inc. ("1)	669	-	-	(2)	-	-	15	682
KWANIKA COPPER CORP.	-	-	-	-	-	-	-	-
Hunchun POSCO HYUNDAI International Logistics	1,236	-	-	-	-	-	163	1,399
POSCO-MALAYSIA SDN.BHD.	7,517	756	-	(433)	-	-	1,423	9,263
POSCO-ITPC S.p.A	3,897	-	-	1,709	-	-	(53)	5,553
TK-Chemical SHINPOONG DAEWOO PHARMA CO., LTD.	1,132	-	-	943	-	-	(5)	2,070
	14,350	-	(14,350)	-	-	-	-	-
	474	-	-	46	-	-	51	571
	<u>₩ 342,795</u>	<u>₩ 756</u>	<u>₩ (29,089)</u>	<u>₩ 60,098</u>	<u>₩ 9,407</u>	<u>₩ (37,268)</u>	<u>₩ 12,935</u>	<u>₩ 359,634</u>
U.S. dollar in thousand	<u>\$ 270,492</u>	<u>\$ 597</u>	<u>\$ (22,954)</u>	<u>\$ 47,422</u>	<u>\$ 7,423</u>	<u>\$ (29,407)</u>	<u>\$ 10,207</u>	<u>\$ 283,780</u>

9.3 Unrealized gains and losses reflected in gain or loss on investments in associates for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
POSCO-Malaysia	₩ 28	₩ (66)	\$ 22
POSCO-ITPC	(39)	(60)	(31)
GENERAL MEDECINES CO., LTD.	(9)	22	(7)
GLOBAL KOMSCO DAEWOO LLC	12	7	9
POSCO IJPC	(54)	(222)	(43)
POSCO MEXICO PROCESSING CENTER HOLDING, LLC	(395)	(489)	(312)
DMSA/AMSA	-	7	-
	<u>₩ (457)</u>	<u>₩ (801)</u>	<u>\$ (362)</u>

9.4 The summarized financial information of associates as of and for the year ended December 31, 2022 is as follows:

Subsidiaries	2022			
	Korean won in millions			
	Assets	Liabilities	Sales	Net profit(loss)
Shanghai Lansheng Daewoo Corp	₩ 4,276	₩ 1,893	₩ -	₩ -
Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	47,061	43,562	-	-
KOREA LNG LTD.	145,845	225	107,295	105,135
GENERAL MEDICINES CO., LTD.	24,199	7,136	33,458	9,585
POSCO IJPC	212,251	149,828	367,577	2,285
DMSA/AMSA	3,022,658	2,412,377	1,368,730	(54,212)
POSCO MEXICO PROCESSING CENTER HOLDING, LLC	546,916	442,970	881,066	8,365
POSCO-ESDC LTD.	13,131	3,036	35,226	1,245
GLOBAL KOMSCO DAEWOO LLC SOUTH-EAST ASIA GAS PIPELINE COMPANY LTD	1,705,669	546,262	447,696	200,246
Blue Ocean Recovery PEF No. 1	323,584	199,462	-	-
SPH Co., Ltd.	3,539	411	-	(4,158)
YULCHON MEXICO S.A. DE C.V.	39,566	21,412	33,582	4,316
HyunSon Engineering & Construction	216,384	215,696	-	(9,711)
CURO CO., LTD.	204,729	63,393	92,122	191
Inco tech Inc.	57,878	63,274	-	728
Hunchun POSCO HYUNDAI International Logistics	102,242	8,951	927	(744)
POSCO-MALAYSIA SDN.BHD.	72,459	75,322	141,451	(1,008)
POSCO-ITPC S.p.A	129,135	100,303	156,737	8,314
SHINPOONG DAEWOO PHARMA CO., LTD.	20,439	1,096	188,500	2,678
Erae AMS Co., Ltd.	545,135	424,112	-	-

10. Property, plant and equipment

10.1 Property, plant and equipment as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Acquisition cost	₩ 2,481,217	₩ 2,160,444	\$ 1,957,877
Accumulated depreciation	(831,055)	(726,390)	(655,768)
Accumulated impairment loss	(89,397)	(80,817)	(70,541)
Government grants	(13)	(88)	(10)
Book value	₩ 1,560,752	₩ 1,353,149	\$ 1,231,558

10.2 Changes in the carrying amount of property, plant and equipment for the years ended December 31, 2022 and 2021 are as follows:

10.2.1 Changes in the acquisition cost

	2022					
	Korean won in millions					
	Beginning balance	Business combination	Acquisition	Disposal	Transfer and others	Ending balance
Land	₩ 154,997	₩ -	₩ 5,780	₩ -	₩ 941	₩ 161,718
Buildings	644,721	-	15,013	(1,106)	34,788	693,416
Machinery	880,355	-	30,055	(8,555)	54,700	956,555
Others	225,282	40,015	28,640	(6,107)	11,764	299,594
Construction-in-progress	69,855	11,041	177,553	(205)	(68,796)	189,448
Bearer plants	185,234	-	-	-	(4,748)	180,486
	₩ 2,160,444	₩ 51,056	₩ 257,041	₩ (15,973)	₩ 28,649	₩ 2,481,217
U.S. dollar in thousands	\$ 1,704,761	\$ 40,287	\$ 202,826	\$ (12,604)	\$ 22,606	\$ 1,957,877

	2021					
	Korean won in millions					
	Beginning balance	Business combination	Acquisition	Disposal	Transfer and others	Ending balance
Land	₩ 151,915	₩ -	₩ 3,114	₩ (102)	₩ 70	₩ 154,997
Buildings	579,296	10,279	24,029	(5,002)	36,119	644,721
Machinery	776,625	33,334	87,040	(3,334)	(13,310)	880,355
Others	195,506	3,331	25,035	(8,317)	9,727	225,282
Construction-in-progress	79,647	3,621	41,502	(187)	(54,728)	69,855
Bearer plants	171,160	-	-	(26,634)	40,708	185,234
	₩ 1,954,149	₩ 50,565	₩ 180,720	₩ (43,576)	₩ 18,586	₩ 2,160,444
U.S. dollar in thousands	\$ 1,541,978	\$ 39,900	\$ 142,602	\$ (34,385)	\$ 14,666	\$ 1,704,761

10.2.2 Changes in accumulated depreciation

2022						
Korean won in millions						
	Beginning balance	Business combination	Depreciation	Disposal	Transfer and others	Ending balance
Buildings	₩ 108,049	₩ -	₩ 16,595	₩ (235)	₩ 2,983	₩ 127,392
Machinery	451,155	-	49,857	(7,817)	9,496	502,691
Bearer plants	30,553	-	9,691	-	(1,478)	38,766
Others	136,633	-	28,307	(4,881)	2,147	162,206
	₩ 726,390	₩ -	₩ 104,450	₩ (12,933)	₩ 13,148	₩ 831,055
U.S. dollar in thousands	\$ 573,179	\$ -	\$ 82,419	\$ (10,205)	\$ 10,375	\$ 655,768

2021						
Korean won in millions						
	Beginning balance	Business combination	Depreciation	Disposal	Transfer and others	Ending balance
Buildings	₩ 84,535	₩ 5,751	₩ 15,190	₩ (2,160)	₩ 4,733	₩ 108,049
Machinery	372,626	20,645	44,841	(2,109)	15,152	451,155
Bearer plants	21,195	-	9,264	(1,758)	1,852	30,553
Others	116,125	1,987	22,007	(6,754)	3,268	136,633
	₩ 594,481	₩ 28,383	₩ 91,302	₩ (12,781)	₩ 25,005	₩ 726,390
U.S. dollar in thousands	\$ 469,093	\$ 22,396	\$ 72,045	\$ (10,085)	\$ 19,731	\$ 573,179

10.2.3 Changes in accumulated impairment loss

2022						
Korean won in millions						
	Beginning balance	Business combination	Impairment loss	Disposal	Other	Ending balance
Buildings (*1)	₩ 47,052	₩ -	₩ 5,677	₩ (518)	₩ 3,163	₩ 55,374
Machinery (*2)	5,923	-	327	(208)	93	6,135
Others (*2)	27,842	-	30	(111)	127	27,888
	₩ 80,817	₩ -	₩ 6,034	₩ (837)	₩ 3,383	₩ 89,397
U.S. dollar in thousands	\$ 63,771	\$ -	\$ 4,761	\$ (660)	\$ 2,669	\$ 70,541

2021						
Korean won in millions						
	Beginning balance	Business combination	Impairment loss	Disposal	Other	Ending balance
Buildings	₩ 28,493	₩ -	₩ 15,552	₩ -	₩ 3,007	₩ 47,052
Machinery	4,144	-	2,457	(717)	39	5,923
Others (*3)	1,449	-	26,267	-	126	27,842
	₩ 34,086	₩ -	₩ 44,276	₩ (717)	₩ 3,172	₩ 80,817
U.S. dollar in thousands	\$ 26,897	\$ -	\$ 34,937	\$ (566)	\$ 2,503	\$ 63,771

(*1) For the year ended December 31, 2022, an impairment loss of ₩5,677 million (\$4,480 thousand) was recognized according to the result of the impairment test on the building of the BSPC subsidiary in Brazil (book value of ₩11,196 million (\$8,835 thousand)) owned by the consolidated company.

(*2) For the year ended December 31, 2022, impairment loss was recognized for the amount below the book value according to the impairment test result of GRAIN TERMINAL HOLDINGS PTE., LTD., a subsidiary.

(*3) For the year ended December 31, 2022 and 2021, respectively, we conducted an appraisal of the assets of POSCO International Amara, a sub-subsidiary, by an external expert, taking into consideration the case of sales in the same industry in the vicinity and the return method. For the year ended December 31, 2021, the recoverable amount of the asset was determined based on fair value calculation, and an impairment loss of ₩15,552 million (\$12,272 thousand) was recognized for the amount below the book value.

10.2.4 Changes in government grants

	2022			
	Korean won in millions			
	Beginning balance	Depreciation	Change in scope of consolidation	Ending balance
Others	₩ 88	₩ (75)	₩ -	₩ 13
U.S. dollar in thousands	\$ 69	\$ (59)	\$ -	\$ 10

	2021			
	Korean won in millions			
	Beginning balance	Depreciation	Change in scope of consolidation	Ending balance
Others	₩ 163	₩ (75)	₩ -	₩ 88
U.S. dollar in thousands	\$ 129	\$ (59)	\$ -	\$ 70

10.3 The details of property, plant and equipment pledged as collateral for the Group's borrowings are as follows.

Collateral provided by	Creditor	Pledged assets	Description	Korean won in millions, U.S. dollar in thousands			
				Borrowing amount	Maximum pledge amount		
					2022	2021	
POSCO MOBILITY SOLUTION	Woori bank	Land and Buildings	Borrowings	KRW 158,000	KRW 60,000	KRW 60,000	
	Kookmin Bank	Land and Buildings			KRW 120,000	KRW 60,000	
	Hana Bank	Land and Buildings			KRW 24,000	KRW -	
	Shinhan Bank	Land and Buildings			KRW 48,000	KRW -	
Mykolaiv Milling Works PJSC.	Kexim Bank	Buildings and Machinery	Borrowings	USD 36,000	USD 44,630	USD -	
POSCO International Textile LLC	Hamkor bank	Buildings and Machinery	Trade payables	USD -	USD -	USD 6,644	

11. Leases

11.1 Accounting as a lessee

11.1.1 The carrying amount and changes in right-of-use assets and lease liabilities for the year ended December 31, 2022 and 2021 are as follows:

	2022						
	Right-of-use assets					Lease receivables	Lease liabilities
	Land	Building and structure	Aircraft	Others	Total		
Beginning balance	₩ 45,911	₩ 21,643	₩ 4,828	₩ 18,798	₩ 91,180	₩ 143,886	₩ 185,262
Acquisition	4,436	24,859	-	3,432	32,727	1,474	34,949
Contract termination or cancel	-	(1,685)	-	(7,333)	(9,018)	(8,082)	(17,583)
Depreciation	(1,166)	(14,692)	(4,244)	(21,986)	(42,088)	-	-
Interest income	-	-	-	-	-	6,308	-
Interest expense	-	-	-	-	-	-	14,230
Translation	-	-	-	-	-	2,745	(4,385)
Lease payment	-	-	-	-	-	-	(94,217)
Lease receipt	-	-	-	-	-	(54,614)	-
Impairment loss	-	-	-	-	-	-	-
Increase in business combination	-	6,714	-	186,288	193,002	-	193,002
Others	2,006	1,125	-	(9,576)	(6,445)	-	(3,548)
Ending balance	<u>₩ 51,187</u>	<u>₩ 37,964</u>	<u>₩ 584</u>	<u>₩ 169,623</u>	<u>₩ 259,358</u>	<u>₩ 91,717</u>	<u>₩ 307,710</u>
U.S. dollar in thousands	<u>\$ 40,391</u>	<u>\$ 29,957</u>	<u>\$ 461</u>	<u>\$ 133,846</u>	<u>\$ 204,654</u>	<u>\$ 72,372</u>	<u>\$ 242,808</u>
Current						<u>₩ 46,109</u>	<u>₩ 66,305</u>
U.S. dollar in thousands						<u>\$ 36,384</u>	<u>\$ 52,320</u>
Non-current						<u>₩ 45,608</u>	<u>₩ 241,405</u>
U.S. dollar in thousands						<u>\$ 35,988</u>	<u>\$ 190,488</u>
	2021						
	Right-of-use assets					Lease receivables	Lease liabilities
	Land	Building and structure	Aircraft	Others	Total		
Beginning balance	₩ 37,646	₩ 24,105	₩ 7,845	₩ 21,997	₩ 91,593	₩ 196,565	₩ 265,703
Acquisition	5,459	10,528	2,194	22,278	40,459	82,445	54,990
Contract termination or cancel	-	(2,378)	-	(34)	(2,412)	(53,045)	(44,163)
Depreciation	(857)	(11,407)	(5,211)	(25,260)	(42,735)	-	-
Interest income	-	-	-	-	-	6,514	-
Interest expense	-	-	-	-	-	-	9,739
Translation	-	-	-	-	-	9,109	11,386
Lease payment	-	-	-	-	-	-	(108,068)
Lease receipt	-	-	-	-	-	(97,702)	-
Impairment loss	(793)	-	-	-	(793)	-	-
Change in the scope of consolidation	1,906	-	-	-	1,906	-	-
Others	2,550	795	-	(183)	3,162	-	(4,325)
Ending balance	<u>₩ 45,911</u>	<u>₩ 21,643</u>	<u>₩ 4,828</u>	<u>₩ 18,798</u>	<u>₩ 91,180</u>	<u>₩ 143,886</u>	<u>₩ 185,262</u>
U.S. dollar in thousands	<u>\$ 36,227</u>	<u>\$ 17,078</u>	<u>\$ 3,810</u>	<u>\$ 14,833</u>	<u>\$ 71,948</u>	<u>\$ 113,537</u>	<u>\$ 146,186</u>
Current						<u>₩ 63,568</u>	<u>₩ 91,392</u>
U.S. dollar in thousands						<u>\$ 50,160</u>	<u>\$ 72,116</u>
Non-current						<u>₩ 80,318</u>	<u>₩ 93,870</u>
U.S. dollar in thousands						<u>\$ 63,377</u>	<u>\$ 74,070</u>

11.1.2 The amount recognized in profit or loss for the year ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Revenues>			
Interest on lease receivables	₩ 6,308	₩ 6,514	\$ 4,978
<Expenses>			
Depreciation of right-of-use assets	₩ (42,088)	₩ (42,735)	\$ (33,211)
Interest of lease liabilities	(14,230)	(9,739)	(11,229)
Short-term lease	(1,297)	(1,601)	(1,023)
Leases of low-value assets	(2,161)	(1,198)	(1,705)
	₩ (59,776)	₩ (55,273)	\$ (47,168)
Net loss	₩ (53,468)	₩ (48,759)	\$ (42,190)

11.2 Accounting as a lessor

11.2.1. Details of finance lease receivables as of December 31, 2022 and 2021 are as follows:

	2022	
	Current	Non-current
Finance lease receivables	₩ 46,109	₩ 45,608
Allowance for doubtful accounts	-	-
	₩ 46,109	₩ 45,608
U.S. dollar in thousands	\$ 36,384	\$ 35,988

	2021	
	Current	Non-current
Finance lease receivables	₩ 63,568	₩ 80,318
Allowance for doubtful accounts	-	-
	₩ 63,568	₩ 80,318
U.S. dollar in thousands	\$ 50,160	\$ 63,377

11.2.2 Details of maturity profile of finance lease receivables for the year ended December 31, 2022 and 2021 are as follows. The maturity amount is an undiscounted contractual cash flow that includes interest receipt.

	2022	
	Korean won in millions	U.S. dollar in thousands
Within 1year	₩ 47,116	\$ 37,178
More than 1year and within 5years	21,334	16,834
More than 5years	54,665	43,135
	₩ 123,115	\$ 97,147

	2021	
	Korean won in millions	U.S. dollar in thousands
Within 1year	₩ 64,779	\$ 51,116
More than 1year and within 5years	60,658	47,864
More than 5years	52,634	41,532
	₩ 178,071	\$ 140,512

11.2.3 The Group recognized rental income of ₩10,876 million (\$8,582 thousand) and ₩7,234 million (\$5,708 thousand) in relation to operating lease arrangements for the years ended December 31, 2022 and 2021, respectively.

12. Intangible assets

12.1 Changes in the net book value of intangible assets for the years ended December 31, 2022 and 2021 are as follows:

		2022							
		Korean won in million							
	Beginning balance	Business combination	Acquisition	Disposal and transfer	Amortization	Impairment	Others	Ending balance	
Goodwill (*1)	₩ 29,658	₩ -	₩ -	₩ -	₩ -	₩ (24,167)	₩ 1,779	₩ 7,270	
Industrial property rights	1,642	-	324	(6)	(433)	-	(42)	1,485	
Mining rights (*2)	1,088,726	909,934	351,940	-	(246,196)	-	(45,705)	2,058,699	
Exploration and evaluation assets	38,847	19,104	6,013	-	-	-	(5,982)	57,982	
Development block intangible assets	-	76,592	6,607	-	-	-	(4,229)	78,970	
Membership	14,455	-	835	(9)	(84)	-	3	15,200	
Development assets	691	-	4,836	-	-	-	(1,247)	4,280	
Software	8,725	5,886	1,465	-	(4,540)	-	831	12,367	
Land use right (*1)	2,615	-	-	-	-	(2,849)	234	-	
Harbor policy usage rights (*1)	4,010	-	-	-	-	(4,367)	357	-	
	₩ 1,189,369	₩ 1,011,516	₩ 372,020	₩ (15)	₩ (251,253)	₩ (31,383)	₩ (54,001)	₩ 2,236,253	
U.S. dollar in thousand	\$ 938,506	\$ 798,166	\$ 293,553	\$ (12)	\$ (198,259)	\$ (24,764)	\$ (42,611)	\$ 1,764,581	

		2021							
		Korean won in million							
	Beginning balance	Business combination	Acquisition	Disposal and transfer	Amortization	Impairment	Others	Ending balance	
Goodwill	₩ 31,356	₩ -	₩ -	₩ -	₩ -	₩ (4,397)	₩ 2,699	₩ 29,658	
Industrial property rights	1,539	-	539	-	(483)	-	47	1,642	
Mining rights (*3)	1,029,053	-	280,046	-	(201,668)	(20,006)	1,301	1,088,726	
Exploration and evaluation assets	39,494	-	-	-	-	(374)	(273)	38,847	
Membership	12,903	163	1,604	(9)	(68)	(212)	74	14,455	
Development assets	-	-	691	-	-	-	-	691	
Software	8,959	289	2,936	-	(4,588)	-	1,129	8,725	
Land use right	2,401	-	-	-	-	-	214	2,615	
Harbor policy usage rights	3,680	-	-	-	-	-	330	4,010	
	₩ 1,129,385	₩ 452	₩ 285,816	₩ (9)	₩ (206,807)	₩ (24,989)	₩ 5,521	₩ 1,189,369	
U.S. dollar in thousand	\$ 891,174	\$ 357	\$ 225,531	\$ (7)	\$ (163,187)	\$ (19,718)	\$ 4,357	\$ 938,506	

(*1) According to the impairment evaluation result of GRAIN TERMINAL HOLDINGS PTE., LTD., ₩31,383 million (\$24,764 thousand) was recognized as an impairment loss. Details are listed in Note 12-2.

(*2) Decrease in Mining rights amounting to ₩1,080 million (\$852 thousand) was incurred, due to early termination of lease contracts for drilling vessels related to Myanmar gas fields for the year ended December 31, 2022.

(*3) As the price of bituminous coal fell for the year ended December 31, 2021, there were signs indicating impairment to the mining rights of POSCO INTERNATIONAL AUSTRALIA HOLDINGS PTY, and impairment testing was conducted through internal and external experts. The recoverable amount of the mining rights was determined based on the calculation of the value in use, and the value in use was calculated as the present value obtained by applying a discount rate of 8.25% to the expected future cash flows from the base date of the impairment test, and an impairment loss was recognized.

12.2 Book value of goodwill allocated to Group's CGU as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
	PT. Bio Inti Agrindo (*1)	₩ 7,270	₩ 7,468
GRAIN TERMINAL HOLDINGS PTE., LTD. (*2)	-	22,190	-
	₩ 7,270	₩ 29,658	\$ 5,737

(*1) Recoverable amount of PT. Bio Inti Agrindo is determined based on a value in use calculation by the independent valuers. The value in use is measured by using the future cash flows for the period from 2022 to 2043 based on the management's future business plans. The discount rate applied to the future cash flows is 13.0%. As of December 31, 2022, although the assessed recoverable amount of CGU exceeds the carrying amount, the excess amount may be offset as a result of reasonable changes in key assumptions used in value in use calculation.

(*2) The recoverable amount of subsidiary GRAIN TERMINAL HOLDINGS PTE., LTD. is determined based on the calculation of value in use with the help of independent external experts. The value in use is calculated based on the management's business plan, and the future cash flows from October 2022 to 2027 are applied at a discount rate of 18.19%, the business structure of 2027 is maintained and perpetual growth rate of 1% applied to operating profit for the last year of the estimated period. ₩24,167 million (\$19,070 thousand) was recognized as an impairment loss by comparing the carrying amount and the recoverable amount of the cash-generating unit evaluated as of December 31, 2022, and there is a possibility that the excess will be offset by reasonable changes in key assumptions.

12.3 Joint arrangement

The mining rights of intangible assets and the machinery of property, plant and equipment include the Group's share of the jointly held assets held under joint arrangements. The major joint arrangements of the Group as of December 31, 2022 are as follows:

	Activities	Equity interest (%)	Location
Myanmar A-1/A-3 area	Development and production for gas area	51	Myanmar
Offshore midstream	Gas transmission facilities	51	Myanmar

13. Investment properties

13.1 Acquisition costs of investment properties as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Acquisition cost	₩ 164,026	₩ 164,026	\$ 129,429
Accumulated depreciation	(23,877)	(21,035)	(18,841)
Book value	₩ 140,149	₩ 142,991	\$ 110,588

13.2 Changes in the book value of investment properties for the years ended December 31, 2022 and 2021 are as follows:

13.2.1 Changes in the acquisition cost

	2022			Ending balance
	Beginning balance	Acquisition	Disposal	
Land	₩ 50,368	₩ -	₩ -	\$ 50,368
Building	113,658	-	-	113,658
	₩ 164,026	₩ -	₩ -	\$ 164,026
U.S. dollar in thousands	\$ 129,429	\$ -	\$ -	\$ 129,429

	2021			Ending balance
	Beginning balance	Acquisition	Disposal	
Land	₩ 50,368	₩ -	₩ -	\$ 50,368
Building	115,662	-	(2,004)	113,658
	₩ 166,030	₩ -	₩ (2,004)	\$ 164,026
U.S. dollar in thousands	\$ 131,011	\$ -	\$ (1,581)	\$ 129,430

13.2.2 Changes in accumulated depreciation

	2022			Ending balance
	Beginning balance	Depreciation	Disposal	
Building	₩ 21,035	₩ 2,842	₩ -	₩ 23,877
U.S. dollar in thousands	\$ 16,598	\$ 2,243	\$ -	\$ 18,841

	2021			Ending balance
	Beginning balance	Depreciation	Disposal	
Building	₩ 18,437	₩ 3,066	₩ (468)	₩ 21,035
U.S. dollar in thousands	\$ 14,548	\$ 2,419	\$ (369)	\$ 16,598

13.3 The fair value of investment properties

The fair value of investment property amount to ₩182,751 million (\$144,206 thousand) as of December 31, 2022.

13.4 The income and expense arising from investment properties for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Rental income	₩ 10,810	₩ 7,234	\$ 8,530
Rental expense	(5,884)	(3,438)	(4,643)
	₩ 4,926	₩ 3,796	\$ 3,887

13.5 Joint arrangement

The Group owns POSCO Tower Songdo, a real estate property, located in Yeonsu-gu, Incheon, under a joint arrangement. As of December 31, 2022, the Group owns 60% of the real estate property and has classified the asset as property, plant and equipment and investment properties. Such joint arrangements are accounted for as joint operations, and rental income generated and expenses incurred as a result of the joint operation are recognized as income and expenses in proportion to the Group's shares.

14. Trade and other payables

Trade and other payables as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Current>			
Trade payables	₩ 2,070,930	₩ 2,512,974	\$ 1,634,128
Other payables	440,811	261,560	347,835
Accrued expenses	65,107	37,448	51,375
Guarantee deposits received	3,510	10,555	2,770
Current portion of lease liabilities	66,305	91,392	52,320
	₩ 2,646,663	₩ 2,913,929	\$ 2,088,428
<Non-current>			
Long-term Other payables	₩ 965	₩ 2,216	\$ 761
Long-term accrued expenses	1,774	1,692	1,400
Guarantee deposits received	7,776	7,272	6,136
Long-term financial guarantee liabilities	106	104	84
Long-term lease liabilities	241,405	93,871	190,488
	₩ 252,026	₩ 105,155	\$ 198,869
Total	₩ 2,898,689	₩ 3,019,084	\$ 2,287,297

15. Borrowings

15.1 Borrowings as of December 31, 2022 and 2021 are as follows:

	Creditor	Annual interest rates	The longest maturity	Korean won in millions		U.S. dollar in thousands
				2022	2021	2022
<Current borrowings>						
Short-term borrowings:						
Banker's usance and others	Wooribank and others	Libor (by period) + 0.30% and others	-	₩ 12,061	₩ 183,418	\$ 9,517
General borrowings (income)	CCB and others	TERM SOFR + 1.05% and others	-	675,694	205,132	533,176
Korean won-denominated borrowings	Wooribank and others	3.01-5.55% 3M TERM SOFR +	-	101,500	-	80,092
NEGO borrowings	Wooribank and others	0.75% and others	-	723,010	1,019,289	570,512
Other borrowings	SMBC Bank and others	Tibor + 0.43% and others	-	364,896	135,747	287,932
				₩ 1,877,161	₩ 1,543,586	\$ 1,481,229
Current-portion of long-term borrowings:						
Energy special account financing loan	Korea Energy Agency and others	3year government bond yield- 2.25% and others	2023.12.31	3,848	4,949	3,036
Forgivable borrowings	Korea Energy Agency	3year government bond yield- 2.25% and others	2023.12.31	1,749	1,465	1,380
Facility borrowings	ANZ Bank and others	BBSY + 2.75% and others	2023.12.31	49,197	128,387	38,820
Other borrowings	Korea Rural Community Corporation and others	2.12% and others	2023.12.31	66,415	216,202	52,407
Less: present value discount				-	(204)	-
				₩ 121,209	₩ 350,799	\$ 95,643
				₩ 1,998,370	₩ 1,894,385	\$ 1,576,872

15.1 Borrowings as of December 31, 2022 and 2021 are as follows: (cont'd)

	Creditor	Annual interest rates	The longest maturity	Korean won in millions		U.S. dollar in thousands
				2022	2021	2022
<Non-current borrowings>						
Long-term borrowings denominated in Korean won:						
Energy special account financing loan	Korea Energy Agency	3year government bond yield-2.25% and others	2027.12.15	₩ 2,588	3,643	\$ 2,042
Forgivable borrowings	Korea Energy Agency	-	-	-	38,547	-
Facility borrowings	KB Bank	3.16%	2024.11.11	90,000	-	71,017
Other borrowings	Korea Rural Community Cooperation and others	2.00% and others	2035.9.15	32,827	35,877	25,903
				₩ 125,415	₩ 78,067	\$ 98,962
Long-term borrowings denominated in foreign currency:						
Energy special account	Korea Energy Agency	3year government bond yield-2.25% and others	2027.12.15	4,435	6,761	3,500
Forgivable borrowings	Korea Energy Agency	3year government bond yield-2.25%	Undecided	58,340	60,925	46,035
Facility borrowings	Korea Development Bank and others	3M Libor + 3.05% and others	2027.08.19	194,004	51,375	153,085
Other borrowings	Korea EXIM Bank	2.12%	2027.03.23	411,872	49,015	325,000
				₩ 668,651	₩ 168,076	\$ 527,620
				₩ 794,066	₩ 246,143	\$ 626,582
Less: present value discount				(1,510)	(32)	(1,192)
				₩ 792,556	₩ 246,111	\$ 625,390
Total borrowings				₩ 2,790,926	₩ 2,140,496	\$ 2,202,262

15.2 Details of bonds as of December 31, 2022 and 2021 are as follows:

	Annual interest rates	Maturity	Korean won in millions		U.S. dollar in thousands			
			2022	2021	2022			
Current Portion of bonds:								
16-2nd unsecured bond	-	2022.07.17	₩	-	₩	70,000	\$	-
18-2nd unsecured bond	3.08%	2023.03.02		70,000		-		55,236
19-2nd unsecured bond	2.53%	2023.09.13		80,000		-		63,126
21-1st unsecured bond	-	2022.03.07		-		120,000		-
22-1st unsecured bond	-	2022.07.04		-		70,000		-
23th unsecured bond	-	2022.10.25		-		149,114		-
24-1st unsecured bond	1.75%	2023.05.26		250,000		-		197,270
			₩	400,000	₩	409,114	\$	315,632
Less: present value discount on bonds				(159)		(237)		(125)
			₩	399,841	₩	408,877	\$	315,507
Non-current bonds:								
18-2nd unsecured bond	3.08%	2023.03.02	₩	-	₩	70,000	\$	-
19-2nd unsecured bond	2.53%	2023.09.13		-		80,000		-
21-2nd unsecured bond	2.27%	2024.03.07		130,000		130,000		102,580
22-2nd unsecured bond	1.73%	2024.07.04		80,000		80,000		63,126
22-3rd unsecured bond	1.95%	2026.07.04		50,000		50,000		39,454
24-1st unsecured bond	1.75%	2023.05.26		-		250,000		-
24-2nd unsecured bond	1.94%	2025.05.28		50,000		50,000		39,454
25-1st unsecured bond	1.51%	2024.03.19		70,000		70,000		55,236
25-2nd unsecured bond	2.18%	2026.03.19		80,000		80,000		63,126
25-3rd unsecured bond	2.47%	2028.03.17		50,000		50,000		39,454
26th unsecured bond	1.68%	2024.10.14		253,460		237,100		200,000
27th unsecured bond	Daily SOFR + 1.3%p.a.	2025.03.17		316,825		-		250,000
28th unsecured bond	3M SOFR + 1.5%p.a.	2025.07.26		126,730		-		100,000
29th unsecured bond	Daily SOFR + 1.55%p.a.	2025.10.25		160,328		-		126,511
			₩	1,367,343	₩	1,147,100	\$	1,078,941
Less: present value discount on bonds				(3,750)		(3,522)		(2,959)
			₩	1,363,593	₩	1,143,578	\$	1,075,982
			₩	1,763,434	₩	1,552,455	\$	1,391,489

16. Other liabilities

Other liabilities as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands			
	2022	2021	2022			
Current:						
Advances received	₩	124,776	₩	160,657	\$	98,458
Unearned revenue		68,315		77,516		53,906
Withholdings		39,504		23,636		31,172
Others		16,309		-		12,869
	₩	248,904	₩	261,809	\$	196,405
Non-current:						
Long-term withholdings		38,847		1,538		30,653
Long-term advances received		1,890		-		1,491
Others		54,805		-		43,245
		95,542		1,538		75,389
Total	₩	344,446	₩	263,347	\$	271,794

17. Retirement benefits

The Group operates a defined benefit pension plan and a defined contribution pension plan for its employees and uses the projected unit credit method in the actuarial valuation of plan assets and the defined benefit obligation.

17.1 The amount recognized as an expense under the defined contribution pension plan for the years ended at December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands	
	2022	2021	2022	
Defined contribution retirement benefit expense	₩ 423	₩ 347	\$	334

17.2 The amounts recognized in the consolidated statement of financial position related to net defined benefit liabilities (assets) as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands	
	2022	2021	2022	
Present value of defined benefit obligation	₩ 173,224	₩ 184,553	\$	136,687
Fair value of plan assets	(210,536)	(188,194)		(166,130)
Net defined benefit liabilities	7,903	5,411		6,236
Net defined benefit assets	(45,215)	(9,052)		(35,678)

17.3 Changes in the present value of the defined benefit obligation for the years ended at December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands	
	2022	2021	2022	
Beginning balance	₩ 184,553	₩ 187,185	\$	145,627
Current service cost	22,878	20,851		18,053
Past service cost	-	-		-
Interest cost	4,683	2,655		3,695
Benefits paid	(13,024)	(14,631)		(10,277)
Re-measurement loss(gain) in OCI:				
- Actuarial changes arising from changes in demographic assumptions	(71)	(235)		(56)
- Actuarial changes arising from changes in financial assumptions	(34,682)	(10,395)		(27,367)
- Others	9,707	(839)		7,660
Others	(820)	(38)		(647)
Ending balance	₩ 173,224	₩ 184,553	\$	136,688

17.4 Changes in fair value of plan assets for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Beginning balance	₩ 188,194	₩ 175,931	\$ 148,500
Contribution by the employer	31,700	15,528	25,014
Interest income	4,474	2,924	3,530
Benefits paid	(12,643)	(14,068)	(9,976)
Re-measurement gain (loss) in OCI:			
- Actuarial changes arising from changes in financial assumptions	(1,520)	496	(1,199)
Others	331	7,383	261
Ending balance	₩ 210,536	₩ 188,194	\$ 166,130

17.5 The Gains and losses recognized in relation to defined benefit plans for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Current service cost	₩ 22,878	₩ 20,851	\$ 18,053
Net interest on net defined benefit	209	(269)	165
	₩ 23,087	₩ 20,582	\$ 18,218

17.6 Details of re-measurement gain (loss) recorded in other comprehensive income for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Re-measurement of defined benefit obligation	₩ 25,046	₩ 11,469	\$ 23,020
Re-measurement of plan assets	(1,520)	496	(1,397)
	₩ 23,526	₩ 11,965	\$ 21,623
Income tax effect	(5,766)	(3,052)	(5,300)
Other comprehensive income	₩ 17,760	₩ 8,913	\$ 16,323

17.7 Principal assumptions used in actuarial valuation as of December 31, 2022 and 2021 are as follows:

	<u>2022</u>	<u>2021</u>
Discount rate	5.18 ~ 5.20%	2.60 ~ 2.62%
Expected future salary growth rate	3.83 ~ 5.00%	3.82 ~ 5.00%

The sensitivity analysis of defined benefit obligation arising from changes in principal assumptions as of December 31, 2022 is as follows:

	<u>Discount rate</u>		<u>Expected future salary growth rate</u>	
	<u>1% point increase</u>	<u>1% point decrease</u>	<u>1% point increase</u>	<u>1% point decrease</u>
Amount (Korean won in millions)	₩ (9,683)	₩ 10,981	₩ 10,929	₩ (9,788)
Amount (U.S. dollar in thousands)	\$ (7,641)	\$ 8,665	\$ 8,624	\$ (7,724)
Rate	(5.59%)	6.34%	6.31%	(5.65%)

17.8 Details of impact on defined benefit plans for future cash flows are as follows:

There are no additional estimated contributions for the fiscal year ending December 31, 2023. The maturity profile of the Group's un-discounted pension benefit payments for the year ended December 31, 2022 is as follows:

	<u>Korean won in millions</u>			
	<u>Less than 1year</u>	<u>1year to 5years</u>	<u>Over 5years</u>	<u>Total</u>
Benefits paid	₩ 12,849	₩ 50,858	₩ 194,464	₩ 258,171
U.S. dollar in thousands	\$ 10,139	\$ 40,131	\$ 153,447	\$ 203,717

The weighted average maturity of the Group's defined benefit obligations is 8.14 years.

18. Provisions

18.1 Provisions as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Current:			
Current portion of provisions	₩ 33,208	₩ 24,343	\$ 26,204
Non-current:			
Provision for contingent loss	₩ 19,976	₩ 25,379	\$ 15,763
Provision for restoration	74,969	34,959	59,156
Provision for sales guarantee	1,011	1,338	798
Other long-term provisions	-	2,357	-
	₩ 95,956	₩ 64,033	\$ 75,717
Total: Provisions	₩ 129,164	₩ 88,376	\$ 101,921

18.2 Changes in provisions for the year ended December 31, 2022 and 2021 are as follows:

	2022					
	Korean won in millions					
	Current portion of provisions	Provision for contingency	Provision for restoration	Provision for sales guarantee	Other long-term provisions	Total
Beginning balance	₩ 24,343	₩ 25,379	₩ 34,959	₩ 1,338	₩ 2,357	₩ 88,376
Increase	35,267	3,969	14,329	90	599	54,254
Reversal	(494)	(1,169)	-	(417)	-	(2,080)
Used	(26,102)	(8,749)	(1,849)	-	(2,806)	(39,506)
Business combination	339	-	23,806	-	-	24,145
Foreign currency translation	(145)	546	3,724	-	(150)	3,975
Ending balance	₩ 33,208	₩ 19,976	₩ 74,969	₩ 1,011	₩ -	₩ 129,164
U.S. dollar in thousands	\$ 26,204	\$ 15,763	\$ 59,156	\$ 798	\$ -	\$ 101,921

	2021					
	Korean won in millions					
	Current portion of provisions	Provision for contingency	Provision for restoration	Provision for sales guarantee	Other long-term provisions	Total
Beginning balance	₩ 13,083	₩ 41,485	₩ 28,680	₩ 594	₩ 1,549	₩ 85,391
Increase	24,332	10,497	4,453	-	1,244	40,526
Reversal	-	(25,758)	-	-	-	(25,758)
Used	(19,238)	(1,939)	(801)	744	(443)	(21,677)
Foreign currency translation	6,166	1,094	2,627	-	7	9,894
Ending balance	₩ 24,343	₩ 25,379	₩ 34,959	₩ 1,338	₩ 2,357	₩ 88,376
U.S. dollar in thousands	\$ 19,209	\$ 20,026	\$ 27,585	\$ 1,056	\$ 1,860	\$ 69,736

19. Commitments and contingencies

19.1 Provision for contingencies

Changes in provision for contingencies for the year ended December 31, 2022 are as follows:

	Beginning balance	Increase	Reversal	Used	Translation	Ending balance	Principal debt amount
Daewoo Corp. (EXIM India, etc.)	₩ 2,619	₩ 862	₩ (2)	₩ -	₩ (163)	₩ 3,316	₩ 280,129
Legal proceeding provisions, etc.	1,360	317	(599)	(762)	-	316	-
Provision for loss	21,273	2,790	(568)	(7,860)	709	16,344	-
Provisions for construction warranties	127	-	-	(127)	-	-	-
	<u>₩ 25,379</u>	<u>₩ 3,969</u>	<u>₩ (1,169)</u>	<u>₩ (8,749)</u>	<u>₩ 546</u>	<u>₩ 19,976</u>	<u>₩ 280,129</u>
U.S. dollar in thousands	<u>\$ 20,026</u>	<u>\$ 3,132</u>	<u>\$ (922)</u>	<u>\$ (6,904)</u>	<u>\$ 431</u>	<u>\$ 15,763</u>	<u>\$ 221,044</u>

19.1.1 Contingent liabilities carried over from Daewoo Corporation prior to the spin-off

On July 22, 2000, Daewoo Corporation, prior to the spin-off, approved a proposal to divide the company into one surviving company and two newly incorporated companies, which each company engages in the trade and construction sector, respectively. On December 27, 2000, the Group was newly incorporated as Daewoo International Corporation through a spin-off of Daewoo Corporation's trade sector.

IDBI, a creditor of Daewoo Motor India (DMIL), to which Daewoo Corporation provided debt guarantees, filed a lawsuit against DMIL, Daewoo Corporation, Daewoo Engineering & Construction and the Group in Delhi in May 2002 with regards to the disposition of assets and confirmation of the debt.

As of December 31, 2022, the Group has recorded ₩3,316 million (\$2,617 thousand) as provision for contingent losses by reasonably estimating the enforceability and amount of the lawsuit.

19.2 Pending litigations

As of December 31, 2022, the Group is a defendant in pending lawsuits involving 24 claims (domestic: 7 claims and overseas: 17 claims). The total claim amount of the lawsuits is ₩15,122 million, USD 140,506 thousand, INR 4,469,396 thousand, CAD 79,000 thousand, PKR 124,775 thousand, BRL 328 thousand, VND 579,407 thousand and IDR 50,000,000 thousand. As of December 31, 2022, the Group has recognized contingent liabilities of ₩3,316 million related to Daewoo Co., Ltd., provision for litigation of ₩316 million, and allowance for bad debts of ₩9,099 million. The Group is involved in 26 pending lawsuits as a plaintiff as of December 31, 2022. As the ultimate outcome of these lawsuits could not be determined as of December 31, 2022, the Group has not reflected the potential impact that may arise as a result of the above litigations in the consolidated financial statements.

19.3 Credit facilities

As of December 31, 2022, the Group has letter of credit facilities (“L/C”) with Woori Bank and others, document against acceptance facilities (“D/A”) and other trading facilities as follows (Korean won in millions, USD in thousands):

Description	Bank	Currency	Credit line amount
Local L/C	Woori bank and others	KRW	180,000
L/C	Woori bank and others	USD	1,487,478
D/A	Woori bank and others	USD	3,117,269
Credit line in foreign currency	Woori bank and others	USD	1,483,968
Credit line in Korean currency	Woori bank and others	KRW	140,000
P bond and others	Woori bank and others	USD	435,178
Overdraft and others	Woori bank and others	KRW	7,000

19.4 Collateral

The Group has pledged 30 blank promissory notes and 23 blank checks as collateral to Korea Energy Agency and others for the contract performance guarantees and other purposes as of December 31, 2022.

19.5 Derivatives

As of December 31, 2022, the Group has entered into currency forward contracts and commodity futures contracts with financial institutions for the purpose of hedging foreign exchange risks related to foreign currency debt obligations and fair value risks associated with the purchase and sale of inventories.

19.5.1 Details of unsettled derivatives (Korean won in millions):

Contract	Currency unit	Unsettled contractual amount		Accumulated valuation gain(loss)
		Long position	Short position	
Currency forwards	USD	254,216	695,498	9,049
	EUR	38,485	698,270	(1,770)
	JPY	567,053	273,607	(1,422)
	CNY	247,163	43,808	(1,285)
	THB	1,680	4,583	(21)
	CAD	-	5,903	(43)
	GBP	6,647	26,213	(123)
	AUD	2,396	89,722	(999)
	SGD	199	-	1
	PLN	1,840	8,010	(150)
				3,237
Commodity futures	Aluminum	3,036	2,946	(90)
	Copper	57,321	147,930	(4,583)
	Nickel	30,313	57,523	(9,595)
	Soybean	83,906	-	6,008
	Gasoil	699	73	17
	Marine fuel oil (ICE)	8,728	610	204
	Brent oil	5,769	3,723	-
				(8,039)

Unsettled currency swap for the year ended December 31, 2022 are as follows: (Korean won in millions, and USD in thousands)

Bank	Unsettled Contractual Amount		Expiration date	Interest swap	Accumulated valuation gain (loss)
	Payment	Receipt			
Woori Bank	KRW 131,100	USD 100,000	Jul.28, 2025	Receive 3M TERM SOFR + 1.50%	₩ (2,165)

Unsettled interest rate swap for the year ended December 31, 2022 are as follows: (Korean won in millions and AUD in thousands)

Bank	Amount	Expiration date	Interest swap	Accumulated valuation gain (loss)
ANZ Bank	AUD 215	Jun. 30, 2023	Receive 3M AUD BBSY + 0.75% Pay 0.97%	₩ 489
ANZ Bank	AUD 149	Jun. 28, 2024	Receive 3M AUD BBSY + 0.75% Pay 0.6247%	746
ANZ Bank	AUD 101	Jun. 30, 2024	Receive 3M AUD BBSY + 0.75% Pay 0.6197%	427
				1,662
U. S. dollar in thousands				\$ 1,311

19.5.2 Derivatives trading and valuation gains and losses

Changes in the book value of derivative financial assets (liabilities) for the year ended December 31, 2022 are as follows:

	Korean won in millions					
	Beginning balance	Business combination	Settlement	Valuation gain	Valuation loss	Ending balance
Currency forwards	₩ 1,107	₩ -	₩ (1,107)	₩ 32,804	₩ (29,567)	₩ 3,237
Commodity futures	(16,585)	(1,553)	15,534	9,865	(17,905)	(10,644)
Firm commitment contracts	(529)	-	(22,721)	181,645	(156,183)	2,212
Currency and interest rate swap	1,243	1,257	(415)	-	(2,589)	(504)
	<u>₩ (14,764)</u>	<u>₩ (296)</u>	<u>₩ (8,709)</u>	<u>₩ 224,314</u>	<u>₩ (206,244)</u>	<u>₩ (5,699)</u>
U.S. dollar in thousands	<u>\$ (11,650)</u>	<u>\$ (234)</u>	<u>\$ (6,872)</u>	<u>\$ 177,001</u>	<u>\$ (162,743)</u>	<u>\$ (4,497)</u>

The Group has entered into product futures and other commitments for fair value hedges when hedging the exposure to changes in the fair value of firm sales and purchase contracts arising from fluctuations in product price, and applied fair value hedges using firm commitments as hedging methods and product futures and other commitments as hedging targets.

19.6 Guarantee obligations

Guarantees provided by the Group to certain creditors on behalf of associates/debtors as of December 31, 2022 are as follows: (Korean won in millions, Foreign currency in thousands)

Debtor	Creditor	Limit amount		outstanding balance		Year of expiration
		Foreign currency amounts	Korean won equivalent	Foreign currency amounts	Korean won equivalent	
GLOBAL						
KOMSOO	Hana Bank					
Daewoo LLC	(Bahrain)	USD 6,650	8,428	USD 6,300	7,984	2025
AMBATOVOY						
HOLDINGS II	Korea EXIM					
LIMITED	Bank	USD 21,818	27,650	USD 861	1,091	2023
POSCO ASSAN						
TST STEEL	ING (Seoul)					
INDUSTRY	and others	USD 14,653	18,569	USD 14,653	18,569	2023
KSU Mandob	Bank					
Sejatera	Muamalat	IDR 80,000,000	6,472	IDR 80,000,000	6,472	2026
			<u>61,119</u>		<u>34,116</u>	

As of December 31, 2022, assets provided as collateral in relation to the borrowings of DMSA/AMSA, an associate, are as follows:

Debtor	Collateralized Assets	Korean won in millions	U.S. dollar in thousands	Creditor	Details
		Book value	Book value		
DMSA/AMSA	DMSA/AMSA shares	23,740	18,733	PF major shareholder	PF collateral

19.7 Other commitments

19.7.1 Commitments to supplement funds for Korea Ambatovy Consortium (KAC)

The Group invested in the Ambatovy Nickel Project (DMSA / ASMA) in Madagascar through Korea Ambatovy Consortium (KAC), which is composed of Korea Mine Rehabilitation and Mineral Resources Corporation (KOMIR) and STX Co., Ltd. Sherritt International Corp., the operator, has partially transferred the shares in the project Sumitomo and AHL (Ambatovy Holdings Limited) in November 2017 and transferred the remaining shares to Sumitomo and AHL2 (Ambatovy Holdings II Limited) in August 2020. KAC holds 15.33% of interests in the project held by AHL and AHL2.

19.7.2 Environmental restoration expenses of Peru Block 8 and termination of mining contract

The Operator entered into a contract on the ratio of paying for environmental restoration cost with former operators. However, as the cost of environment restoration is expected to increase due to the revision of the local environmental law, the former operator refused to pay, and the Group applied for an arbitration. As a result of the arbitration in June 2018, the former operator is obligated for 94% of the cost for the pollution-prone areas where the responsibility of the former operator has already been proven and areas where the responsibility for pollution is proven in the future. As the procedure to obtain approval from the Peruvian government is in progress, the environmental restoration cost to be borne by the Group, the other participant and the former operator has not yet been determined.

The Peruvian Environmental Supervision Authority (El Organismo de Evaluación y Fiscalización Ambiental, OEFA) has been imposing fines for environmental pollution on operators from 2020, and the fines imposed are shared by the participating companies if the operator makes a claim to the participating companies in proportion to their shares. The operator is not responsible for the pollution and is taking legal action arguing that the Environmental Supervision Administration unreasonably demands restoration and imposes a fine, but the fine continues to be imposed.

The operator notified the start of liquidation in December 2020 due to deterioration of business feasibility and the imposition of unreasonable fines by the Environmental Supervision Administration, and insisted on automatic termination of the mining rights contract in Peru Block 8. Perupetro, a mining rights management agency under the Peruvian government, opposed the termination of the mining rights contract and filed an international arbitration with the International Chamber of Commerce (ICC) against the mining companies. Korean participants are responding by jointly appointing arbitration agents.

19.7.3 Transfer of contract status on ship purchase agreement

The Group operates the chartered ship. The Group, the ship owner, and the shipping company have entered into a ship purchase agreement, under which, the shipping company is obliged to pay the contract amount to the ship owner and take over the ownership of the ship from the ship owner at the end of the contract period due to the expiration or termination of the agreement. If the shipping company fails to fulfill its obligation to purchase ships, such as payment of the acquisition price of ships, the Group is obliged to take over the ship with the transfer of the shipping company's contractual obligations and rights. The details of the ship purchase arrangement concluded as of December 31, 2022 as follows.

19.7.3 Transfer of contract status on ship purchase agreement (cont'd)

Ship	Ship owner	Shipping company	Arrangement period	U.S. dollar in thousands
				Book value
Containership Heung-A Janice	D&G Shipping SA	Heung A Line Co., Ltd.	2014.10.28 ~ 2025.03.16	\$ 7,700
Containership Heung-A Haiphong	D&M Shipping SA	Heung A Line Co., Ltd.	2014.12.29 ~ 2025.03.16	7,700
Containership Heung-A Xiamen	D&F Shipping SA	Heung A Line Co., Ltd.	2015.02.05 ~ 2025.05.16	7,700
Containership Heung-A Akita	D&S Shipping SA	Heung A Line Co., Ltd.	2015.03.05 ~ 2025.05.16	7,700
Containership MSC Paloma	HDM No.1 SA	MSC	2013.12.23 ~ 2023.12.20	69,500
Containership MSC Melatilde	HDM No.2 SA	MSC	2013.12.23 ~ 2023.12.20	69,500
				\$ 169,800

20. Issued capital and capital surplus

20.1 Issued capital as of December 31, 2022 is as follows (Korean won in millions, Korean won for Par Value amount):

	Number of shares authorized	Maturity	Par value	Issued capital	Paid-in capital in excess of par value (capital surplus)
Ordinary shares	500,000,000	123,375,149	₩ 5,000	₩ 616,876	₩ 518,848
U.S. dollar in thousands				\$ 486,764	\$ 409,412

20.2 Capital surplus as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Paid-in capital in excess of par value	₩ 518,848	₩ 518,848	\$ 409,412
Other capital surplus	21,679	39,394	17,106
	₩ 540,527	₩ 558,242	\$ 426,518

20.3 Other capital components as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Treasury stock	₩ (423)	₩ (6)	\$ (334)
Other capital adjustments	805	(2)	635
	₩ 382	₩ (8)	\$ 301

21. Other components of equity and accumulated other comprehensive income

Accumulated other comprehensive income as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Loss on equity financial assets at fair value through OCI	₩ (11,666)	₩ (6,940)	\$ (9,205)
Change in equity adjustment in equity method	50,726	38,322	40,027
Negative change in equity adjustment in equity method	(25,812)	(26,337)	(20,368)
Cumulative exchange differences on translations of foreign operations	3,316	13,730	2,617
Loss on valuation of derivatives	410	-	324
	₩ 16,974	₩ 18,775	\$ 13,395

22. Retained earnings

22.1 Details of retained earnings as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Legal appropriated retained earnings (*1)	₩ 80,764	₩ 70,894	\$ 63,729
Discretionary appropriated related earnings (*2)	1,810,400	1,710,400	1,428,549
Unappropriated retained earnings	916,941	511,223	723,539
	₩ 2,808,105	₩ 2,292,517	\$ 2,215,817

(*1) In accordance with the Commercial law, the Group is required to accumulate at least 10% of the dividend from cash dividends at each balance sheet as reserve for profits until the balance reaches 50% of the paid-in capital. It can be used to transfer capital or to protect deficits.

(*2) The voluntary reserve for the Group is the full amount of the business expansion reserves.

22.2 Details of dividends declared for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Dividends per share (Korean won and %)	₩ 1,000(20%)	₩ 800(16%)	\$ 0.79(20%)
Number of shares	123,354,631	123,374,891	123,374,891
Dividends	₩ 123,354,631	₩ 98,699,913	\$ 97,352,553

23. Expenses by nature

Expenses by the nature (cost of sales and selling and administrative expense) for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Cost of goods sold	₩ 33,882,403	₩ 30,968,559	\$ 26,735,898
Material costs	1,090,143	817,275	860,209
Changes in inventories	1,471	43,043	1,161
Employee benefits	389,342	325,511	307,222
Depreciation of property, plant and equipment	104,375	91,227	82,360
Amortization of intangible assets	251,253	206,807	198,259
Depreciation of investment properties	2,843	3,066	2,243
Others	1,365,251	907,991	1,077,291
	₩ 37,087,081	₩ 33,363,479	\$ 29,264,643

24. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Salaries	₩ 270,616	₩ 228,106	\$ 213,537
Retirement benefits	19,541	16,564	15,419
Employee welfare	51,667	49,408	40,769
Travel	10,895	3,857	8,597
Communication	5,615	4,915	4,431
Utilities	4,712	3,315	3,718
Taxes and dues	10,305	5,963	8,131
Rents	10,448	8,996	8,244
Depreciation	20,799	19,571	16,412
Amortization	5,072	6,390	4,002
Depreciation of right-of-use assets	15,609	11,819	12,317
Repairs	2,127	1,560	1,678
Insurance	33,505	36,106	26,438
Entertainment	2,887	1,790	2,278
Advertising	1,733	1,576	1,367
Shipping	59,220	61,440	46,729
Commissions	97,857	56,229	77,217
Bad debt expenses	25,460	20,162	20,090
Supplies expenses	2,982	2,054	2,353
Vehicles maintenance	2,026	1,597	1,599
Publication expenses	458	418	361
Training expenses	2,989	2,477	2,359
Development expenses	955	737	754
Sales promotional expenses	5,102	2,555	4,026
Miscellaneous expenses	608	739	480
Others	1,943	989	1,533
	₩ 665,131	₩ 549,333	\$ 524,839

25. Finance income and costs

25.1 Details of finance income for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Finance income>			
Interest income	₩ 34,342	₩ 24,218	\$ 27,099
Financial guarantee income	75	77	59
Dividends income	553	706	436
Gains on foreign currency transactions	1,216,104	512,314	959,602
Gains on foreign currency translation	235,004	102,368	185,437
Gains on valuation of derivatives	224,314	218,768	177,001
Gains on settlement of derivatives	672,651	370,839	530,775
Gains on valuation of trade payable	4,066	23	3,208
Gains on valuation of trade receivables	14,065	14,185	11,098
Gains on valuation of financial assets at FVPL	-	229	-
Gains on disposal of financial assets at FVPL	4,161	-	3,283
	₩ 2,405,335	₩ 1,243,727	\$ 1,897,998

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Finance cost>			
Losses on disposal of trade receivables	₩ 58,207	₩ 15,182	45,930
Interest expenses	145,707	82,451	114,974
Financial guarantee expenses	301	302	238
Losses on foreign currency transactions	1,227,449	452,016	968,554
Losses on foreign currency translation	266,662	130,164	210,417
Losses on valuation of derivatives	207,063	178,698	163,389
Losses on settlement of derivatives	623,306	457,490	491,838
Losses on valuation on trade payables	4,871	1,027	3,844
Losses on valuation on trade receivables	21,190	1,548	16,721
Losses on valuation on financial assets at FVPL	14,357	138	11,329
Losses on disposal of financial assets at FVPL	2,890	66	2,280
	₩ 2,572,003	₩ 1,319,082	\$ 2,029,514

25.2 Details of interest income for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Interest income on cash equivalents	₩ 13,950	₩ 2,199	\$ 11,008
Other interest income	20,392	22,019	16,091
	₩ 34,342	₩ 24,218	\$ 27,099

25.3 Details of interest expenses for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Interest on borrowings and bonds	₩ 145,707	₩ 82,451	\$ 114,974

26. Other income and expenses

Details of other income for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Other income>			
Gain on disposal of property, plant and equipment	₩ 700	₩ 682	\$ 552
Gain on disposal of intangible assets	61	96	48
Reversal of loss on impairment of intangible assets	-	496	-
Gain on disposal of other investment properties	-	38	-
Gain on termination of lease contract	-	26,598	-
Reversal of provisions for contingencies	1,169	27,891	922
Reversal of other allowance for doubtful accounts	-	2,146	-
Gain on disposal of investments in associates	2,347	3,868	1,852
Reversal of impairment loss on investment in associates	6,385	9,407	5,038
Rental income	152	63	120
Insurance benefits	16	10	13
Gain on exemption of debt	-	669	-
Miscellaneous income	8,172	14,084	6,448
	₩ 19,002	₩ 86,048	\$ 14,993

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
<Other expenses>			
Contribution to provisions for restoration	₩ 12,373	₩ 4,193	\$ 9,763
Other bad debt expenses	5,151	7,535	4,065
Loss on disposal of property, plant and equipment	1,060	3,440	836
Loss on impairment of property, plant and equipment	6,035	44,276	4,762
Loss on disposal of intangible assets	100	-	79
Loss on impairment of intangible assets	31,383	25,485	24,764
Loss on disposal of other investment properties	-	4	-
Loss on termination of lease contract	-	27,422	-
Loss on impairment of right-of-use assets	-	793	-
Donations	15,658	32,503	12,355
Contingencies	3,969	10,497	3,132
Loss on disposal of investments in associates	-	1,513	-
Miscellaneous expenses	11,878	9,815	9,373
	₩ 87,607	₩ 167,476	\$ 69,129

27. Impairment loss on financial instruments

Details of impairment loss on financial instruments for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Bad debt expenses	₩ 25,460	₩ 20,162	\$ 20,090
Other bad debt expenses	5,151	7,535	4,065
Less: reversal of allowance for doubtful accounts	-	(2,146)	-
	<u>₩ 30,611</u>	<u>₩ 25,551</u>	<u>\$ 24,155</u>

28. Income taxes

28.1 The major components of income tax expenses for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Current income taxes	₩ 229,994	₩ 129,718	\$ 181,483
Changes in deferred income tax arising from temporary differences and others	(93,786)	18,056	(74,005)
Carryover tax deduction and others	(2,108)	(7,589)	(1,663)
Income tax charged directly to equity	3,134	(7,973)	2,473
Income tax expenses	<u>₩ 137,234</u>	<u>₩ 132,212</u>	<u>\$ 108,288</u>

28.2 A reconciliation between income tax expenses at the effective income tax rates of the Group and income before income taxes at the Korea statutory tax rate for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Accounting profit before income tax	₩ 742,147	₩ 488,700	\$ 585,613
Tax at the statutory income tax rate	₩ 193,728	₩ 124,031	\$ 152,867
Adjustments:			
Non-taxable income	(59)	(38)	(47)
Non-deductible expenses	141	732	111
Tax credits	(96,150)	(46,458)	(75,870)
Others	39,574	53,945	31,227
Income tax expense	<u>₩ 137,234</u>	<u>₩ 132,212</u>	<u>\$ 108,288</u>
Effective income tax rates	<u>18.49%</u>	<u>27.05%</u>	<u>18.49%</u>

28.3 Income tax charged directly to equity for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Loss (gain) on financial asset valuation at FVOCI	₩ 1,495	₩ 391	\$ 1,180
Re-measurement gain on defined benefit liabilities	(5,766)	(3,008)	(4,550)
Equity adjustments in equity method	(3,636)	(3,223)	(2,869)
Exchange differences on translation of foreign operations	5,762	(2,120)	4,547
Reclassification arising from disposal of financial asset at FVOCI	(2,320)	(13)	(1,831)
Acquisition of business under common control	7,599	-	5,996
	₩ 3,134	₩ (7,973)	\$ 2,473

28.4 Changes in deferred tax assets and liabilities for the years ended December 31, 2022 and 2021 are as follows:

	2022				
	Beginning balance	Business combination	Recognized in profit or loss	Recognized directly to equity	Ending balance
Valuation of derivatives	₩ 1,222	₩ -	₩ (1,005)	₩ -	₩ 217
Loss on impairment of investments	51,355	-	(2,987)	-	48,368
Equity in equality methods	26,733	-	98,000	(3,636)	121,097
Provisions for retirement liability	46,207	-	2,045	(5,766)	42,486
Severance insurance deposits	(44,816)	-	1,751	-	(43,065)
Debt restructuring	(4,061)	-	54	-	(4,007)
Extraordinary loss	6,305	-	(1,414)	-	4,891
Allowance for doubtful accounts	17,760	-	14,078	-	31,838
Depreciation	66,794	-	7,528	-	74,322
Capitalized borrowing costs	(12,126)	-	1,224	-	(10,902)
Accrued expenses	17,261	-	(183)	-	17,078
Foreign currency translation	586	-	29	-	615
Equity instruments valuation at FVOCI	2,789	-	-	1,495	4,284
Financial guarantee liabilities	2,216	-	(329)	-	1,887
Borrowings with low interest rates	(61)	-	1	-	(60)
Forgivable borrowings	9,002	-	5,804	-	14,806
Others	75,902	48,067	(33,718)	11,041	101,292
	₩ 263,068	₩ 48,067	₩ 90,878	₩ 3,134	₩ 405,147
Tax credit carryforwards (*)	(31,633)	(48,067)	1,882	-	(77,818)
	₩ 231,435	₩ -	₩ 92,760	₩ 3,134	₩ 327,329
U.S. dollar in thousands	\$ 182,621	\$ -	\$ 73,195	\$ 2,473	\$ 258,288

28.4 Changes in deferred tax assets and liabilities for the years ended December 31, 2022 and 2021 are as follows: (cont'd)

	2021				
	Beginning balance	Business combination	Recognized in profit or loss	Recognized directly to equity	Ending balance
Valuation of derivatives	₩ 1,521	₩ -	₩ (299)	₩ -	₩ 1,222
Loss on impairment of investments	52,818	-	(1,463)	-	51,355
Equity in equality methods	60,317	-	(30,361)	(3,223)	26,733
Provisions for retirement liability	44,931	-	4,284	(3,008)	46,207
Severance insurance deposits	(41,107)	-	(3,709)	-	(44,816)
Debt restructuring	(4,103)	-	42	-	(4,061)
Extraordinary loss	4,883	-	1,422	-	6,305
Allowance for doubtful accounts	27,284	-	(9,524)	-	17,760
Depreciation	57,288	-	9,506	-	66,794
Capitalized borrowing costs	(14,769)	-	2,643	-	(12,126)
Accrued expenses	11,810	-	5,451	-	17,261
Foreign currency translation	569	-	17	-	586
Equity instruments valuation at FVOCI	2,398	-	-	391	2,789
Financial guarantee liabilities	3,137	-	(921)	-	2,216
Borrowings with low interest rates	(166)	-	105	-	(61)
Forgivable borrowings	4,582	-	4,420	-	9,002
Others	66,533	(666)	12,168	(2,133)	75,902
	₩ 277,926	₩ (666)	₩ (6,219)	₩ (7,973)	₩ 263,068
Tax credit carryforwards (*)	(35,358)	-	3,725	-	(31,633)
	<u>₩ 242,568</u>	<u>₩ (666)</u>	<u>₩ (2,494)</u>	<u>₩ (7,973)</u>	<u>₩ 231,435</u>
U.S. dollar in thousands	\$ 191,405	\$ (526)	\$ (1,968)	\$ (6,291)	\$ 182,621

(*) As of December 31, 2022 and 2021, the amounts related to investments in subsidiaries and associates that are not recognized as deferred tax assets and liabilities are deductible temporary differences of ₩175,592 million (\$138,556 thousand) and ₩126,681 million (\$99,961 thousand), respectively.

29. Earnings per share

29.1 Earnings per share

Details of earnings per share for the years ended December 31, 2022 and 2021 are as follows (Korean won in millions, except for per share amounts):

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Profit for the year attributable to ordinary equity holders of the parent	₩ 589,750	₩ 360,789	\$ 465,359
Weighted average number of ordinary shares outstanding	123,373,395	123,374,891	123,374,891
Basic earnings per share (Korean won, U.S dollar)	4,780	2,924	3.7

29.2 Diluted earnings per share

Diluted earnings per share are consistent with basic earnings per share because there is no potential common stock that can be converted into common stock for the years ended December 31, 2022 and 2021.

30. Fair value measurement

30.1 Carrying amount and fair value of financial instruments

The book value and fair value of financial instruments of the Group as of December 31, 2022 and 2021 are as follows:

	2022			
	Korean won in million		U.S. dollar in thousand	
	Book value	Fair value	Book value	Fair value
<Financial assets>				
Financial asset at amortized costs				
- Cash and Cash equivalents	₩ 1,297,706	₩ 1,297,706	\$ 1,023,993	\$ 1,023,993
- Trade and other receivables (*1)	3,762,004	3,762,004	2,968,519	2,968,519
- Other current financial assets	93,873	93,873	74,073	74,073
- Long-term trade and other receivables (*1)	111,976	111,976	88,358	88,358
- Other non-current financial assets	253	253	200	200
	<u>₩ 5,265,812</u>	<u>₩ 5,265,812</u>	<u>\$ 4,155,143</u>	<u>\$ 4,155,143</u>
Financial asset at fair value				
- Trade and other receivables	₩ 15,376	₩ 15,376	\$ 12,133	\$ 12,133
- Derivative financial assets	52,832	52,832	41,689	41,689
- Long-term derivative financial assets	1,172	1,172	925	925
- Financial assets at FVOCI (equity instruments)	44,044	44,044	34,754	34,754
- Financial assets at FVPL (long-term investment)	467	467	368	368
- Financial assets at FVPL (other securities)	4,861	4,861	3,836	3,836
- Financial assets at FVPL (others)	134,507	134,507	106,137	106,137
	<u>₩ 253,259</u>	<u>₩ 253,259</u>	<u>\$ 199,842</u>	<u>\$ 199,842</u>
Total: Financial assets	<u>₩ 5,519,071</u>	<u>₩ 5,519,071</u>	<u>\$ 4,354,985</u>	<u>\$ 4,354,985</u>
<Financial liabilities>				
Financial liabilities amortized cost				
- Trade and other payables (*2)	₩ 2,646,663	₩ 2,646,663	\$ 2,088,427	\$ 2,088,427
- Borrowings	1,998,370	1,998,370	1,576,872	1,576,872
- Current-portion of bonds	399,841	391,573	315,506	308,982
- Long-term trade and other payables (*2)	252,026	252,026	198,868	198,868
- Long-term borrowings	792,556	792,556	625,389	625,389
- Bonds	1,363,593	1,320,525	1,075,983	1,041,999
	<u>₩ 7,453,049</u>	<u>₩ 7,401,713</u>	<u>\$ 5,881,045</u>	<u>\$ 5,840,537</u>
Financial liabilities at fair value				
- Derivative financial liabilities	₩ 57,587	₩ 57,587	\$ 45,441	\$ 45,441
- Long-term derivative financial liabilities	₩ 2,117	₩ 2,117	\$ 1,670	\$ 1,670
	<u>₩ 59,704</u>	<u>₩ 59,704</u>	<u>\$ 47,111</u>	<u>\$ 47,111</u>
Total: Financial liabilities	<u>₩ 7,512,753</u>	<u>₩ 7,461,417</u>	<u>\$ 5,928,156</u>	<u>\$ 5,887,648</u>

(*1) Trade and other receivables and long-term trade and other receivables include ₩46,109 million (\$36,384 thousand) of current portion of lease receivables and ₩45,608 million (\$35,988 thousand) of long-term lease receivables, respectively.

(*2) Trade and other payables and long-term trade and other payables include ₩66,305 million (\$52,320 thousand) of current portion of lease liabilities and ₩241,405 million (\$190,488 thousand) of long-term lease liabilities, respectively.

30.1 Carrying amount and fair value of financial instruments (cont'd)

	2021			
	Korean won in million		U.S. dollar in thousand	
	Book value	Fair value	Book value	Fair value
<Financial assets>				
Financial asset at amortized costs				
- Cash and Cash equivalents	₩ 521,160	₩ 521,160	\$ 411,236	\$ 411,236
- Trade and other receivables (*1)	4,159,799	4,159,799	3,282,411	3,282,411
- Other current financial assets	80,978	80,978	63,898	63,898
- Long-term trade and other receivables (*1)	144,646	144,646	114,137	114,137
- Other non-current financial assets	10	10	8	8
	₩ 4,906,593	₩ 4,906,593	\$ 3,871,690	\$ 3,871,690
Financial asset at fair value				
- Trade and other receivables	₩ 198,690	₩ 198,690	\$ 156,782	\$ 156,782
- Derivative financial assets	61,539	61,539	48,559	48,559
- Financial assets at FVOCI (equity instruments)	36,749	36,762	28,998	29,008
- Financial assets at FVPL (long-term investment)	467	467	368	368
- Financial assets at FVPL(other securities)	27,258	27,246	21,509	21,499
	₩ 324,703	₩ 324,704	\$ 256,216	\$ 256,216
Total: Financial assets	₩ 5,231,296	₩ 5,231,297	\$ 4,127,906	\$ 4,127,906
<Financial liabilities>				
Financial liabilities amortized cost				
- Trade and other payables (*2)	₩ 2,895,244	₩ 2,895,244	\$ 2,284,577	\$ 2,284,577
- Borrowings	1,894,385	1,894,385	1,494,820	1,494,820
- Current-portion of bonds	408,877	410,073	322,636	323,580
- Long-term trade and other payables (*2)	105,155	105,155	82,976	82,976
- Long-term borrowings	246,111	246,111	194,201	194,201
- Bonds	1,143,578	1,138,280	902,374	898,193
	₩ 6,693,350	₩ 6,689,248	\$ 5,281,584	\$ 5,278,347
Financial liabilities at fair value				
- Trade and other payables	₩ 18,685	₩ 18,685	\$ 14,744	\$ 14,744
- Derivative financial liabilities	₩ 76,303	₩ 76,303	\$ 60,209	\$ 60,209
	₩ 94,988	₩ 94,988	\$ 74,953	\$ 74,953
Total: Financial liabilities	₩ 6,788,338	₩ 6,784,236	\$ 5,356,537	\$ 5,353,300

30.2 Fair value hierarchy

The following are the criteria for classifying fair value from Level 1 to Level 3, depending on how observable it is in the market.

- Level1 - Quoted (unadjusted) prices in active markets for identical assets or liabilities
- Level2 - Input variables for assets or liabilities observable either directly (e.g., price) or indirectly (e.g., derived from the price), except for the quoted prices included in Level
- Level3 - Input variables for assets or liabilities that are not based on observable market data (unobservable inputs)

The measurements according to the above hierarchy of assets and liabilities that are measured at fair value or for which fair values are disclosed as of December 31, 2022 and 2021 are as follows:

2022							
	Korean won in millions				U.S. dollar in thousand		
	Level 1	Level 2	Level 3	Total	Total		
Financial assets							
Trade and other receivables	₩ -	₩ -	₩ 15,376	₩ 15,376	\$	12,133	
Financial assets at FVOCI	11,360	-	-	11,360		8,964	
Financial assets at FVPL	-	134,524	-	134,524		106,150	
Derivative financial assets	-	52,832	-	52,832		41,689	
Long-term derivative financial assets		1,172	-	1,172		925	
Financial liabilities							
Derivative financial liabilities	₩ -	₩ 52,587	₩ -	₩ 52,587	\$	41,495	
Long-term derivative financial liabilities	-	2,117	-	2,117		1,670	
Other assets							
Biological assets	₩ -	₩ -	₩ 11,821	₩ 11,821	\$	9,328	
2021							
	Korean won in millions				U.S. dollar in thousand		
	Level 1	Level 2	Level 3	Total	Total		
Financial assets							
Trade and other receivables	₩ -	₩ -	₩ 198,690	₩ 198,690	\$	156,782	
Financial assets at FVOCI	9,297	-	-	9,297		7,336	
Financial assets at FVPL	-	17	27,229	27,246		21,499	
Derivative financial assets	-	61,539	-	61,539		48,559	
Financial liabilities							
Trade and other payables	₩ -	₩ -	₩ 18,685	₩ 18,685	\$	14,744	
Derivative financial liabilities	-	76,303	-	76,303		60,209	
Other assets							
Biological assets	₩ -	₩ -	₩ 12,165	₩ 12,165	\$	9,599	

30.3 Assumption used for fair value valuation technique

The fair value of financial instruments that are traded in active markets is determined based on quoted market prices at the end of reporting period. These instruments are included in Level 1, mostly are classified into financial assets at fair value which are listed stocks.

For financial instruments not traded in an active market, the fair value is determined using appropriate valuation techniques. This valuation technique fully makes use of observable market information as possible and internal information at minimum. When every significant input variable required for measuring fair value of the instrument is observable, the instrument is classified into Level 2.

30.3 Assumption used for fair value valuation technique (cont'd)

When one or more significant input variables are not based on observable market information, the instrument is classified into Level 3.

Valuation techniques used to measure fair values of instruments are:

- Quoted prices or dealer price of similar instrument
- Present value discounted by forward exchange rate as the end of reporting period is used for fair value of derivative instrument
- Discounted cash flow and other techniques are used for other instruments

Book values of instruments which are classified into same category with trade and other receivables are estimated as reasonable approximate values of fair value.

The Group considered the maturity interest rate of the Group in determining the fair value of the derivative financial assets, liabilities and bonds valued at Level 2 hierarchy

31. Financial instruments risk management

31.1 Capital risk management

The purpose of the Group's capital management is to maintain an optimal capital structure to protect the ability to continue to provide benefits to shareholders and stakeholders as a continuing entity and to reduce capital costs. In order to maintain or adjust the capital structure, the Group applies policies such as adjusting dividends.

Capital structure of the Group is composed of net borrowings, which are borrowings less cash and cash equivalents and equity. The Group maintains the same capital risk management policies as 2021. Details of the capital components managed by the Group as of December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Total borrowings	₩ 4,554,361	₩ 3,692,951	\$ 3,593,751
Less: cash and cash equivalents	(1,297,706)	(521,160)	(1,023,993)
Net borrowings	₩ 3,256,655	₩ 3,171,791	\$ 2,569,758
Total equity	₩ 4,398,127	₩ 3,512,140	\$ 3,470,470
Gearing ratio	74.05%	90.31%	74.05%

31.2 Financial risk management

The Group is exposed to market risk (foreign currency risk and interest rate risk), credit risk, and liquidity risk. The purpose of Group's financial risk management is to detect potential risk which could decrease the Group's profit and to eliminate, reduce and hedge such risk to an acceptable level. The Group uses derivative financial instruments for hedging special risk such as foreign currency risk. Financial risk management policy of the Group has been consistent with the policy of 2021.

31.2.1 Market risk

Market risk is the risk that the fair value of financial instrument will fluctuate because of changes in market prices. Market prices comprise three types of risk: foreign currency risk, interest rate risk and other price risk.

31.2.1.1 Foreign currency risk

The Group is exposed to the risk of exchange rate fluctuations because it has transactions denominated in foreign currency. The book values of monetary assets and liabilities denominated in major foreign currencies other than functional currencies as of December 31, 2022 and 2021 are as follows:

	Korean won in million				U.S. dollar in thousand	
	2022		2021		2022	
	Asset	Liability	Asset	Liability	Asset	Liability
USD	₩ 2,741,379	₩ 3,058,545	₩ 3,160,388	₩ 2,512,137	\$ 2,163,165	\$ 2,413,434
JPY	429,927	277,909	131,343	112,569	339,246	219,292
EUR	527,567	251,667	592,988	363,486	416,292	198,585
CNY	66,064	267,369	192,095	288,631	52,130	210,975

The effect that fluctuation in the exchange rate of 10% of the functional currency on each foreign currency has on profit or loss as of December 31, 2022 is as follows:

	Korean won in million		U.S. dollar in thousand	
	Increase by 10%	Decrease by 10%	Increase by 10%	Decrease by 10%
USD	₩ (31,717)	₩ 31,717	\$ (25,027)	\$ 25,027
JPY	15,202	(15,202)	11,996	(11,996)
EUR	27,590	(27,590)	21,771	(21,771)
CNY	(20,131)	20,131	(15,885)	15,885

31.2.1.2 Interest rate risk

The interest rate risk of the Group arises from borrowings and bonds. Due to short-term borrowings issued at floating interest rates, the Group is exposed to cash flow interest rate risk.

As of December 31, 2022, with all other variables remain constant, a change of 1% in the floating interest rate on borrowings will have an effect of ₩19,290 million (\$15,221 thousand) decrease or increase in the Group's income before income taxes.

31.2.2 Credit risk

Credit risk is the risk that counterparties will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. The Group's exposure to the credit risk relates to operating and financial activities.

31.2.2.1 Trade and other receivables

It is the principle for the Group to conduct transactions only with those with sound financial status by performing credit verification procedures for all counterparties that desire credit transactions with the Group. In addition, the Group manages the balance of accounts receivable by continuously reevaluating credit ratings so that the level of the Group's exposure to the credit risk is maintained at an insignificant level.

31.2.2.2 Other assets

Credit risks associated with the Group's other assets which consist of cash, short-term deposits and short-term and long-term loans arise from the default by the counterparties. Maximum exposure to credit risks will be the book value of the other assets. The Group deposits cash and cash equivalents and short-term financial products at financial institutions such as Woori Bank, and deals with financial institutions with excellent credit ratings. So, credit risk from financial institutions is limited.

31.2.2.3 Maximum exposure to credit risk

The book value of a financial asset represents the maximum exposure to a credit risk. If a financial guarantee is provided, the maximum exposure to credit risk is the maximum amount due on the claims of the assured. For borrowing arrangements, the maximum exposure to credit risk is the total commitment amount. In addition, in the case of a borrowing agreement, the maximum exposure amount of credit risk is the balance of the applicable borrowing as of the end of the current year, and the limit of the agreement amount is detailed in Note 19.

The maximum exposure to credit risk of the Group as of December 31, 2022 and 2021 is as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Trade and other receivables (*)	₩ 3,747,939	₩ 4,311,733	\$ 2,957,421
Other current financial assets	228,380	80,978	180,210
Derivative financial assets	52,832	61,539	41,689
Long-term derivative financial assets	1,172		925
Long-term trade and other receivables (*)	111,976	144,646	88,358
Other non-current financial assets	49,625	64,484	39,158
Financial guarantee contract	34,116	34,362	26,920
	<u>₩ 4,226,040</u>	<u>₩ 4,697,742</u>	<u>\$ 3,334,681</u>

(*) Trade and other receivables and long-term trade and other receivables include ₩46,109 million (\$36,384 thousand) of current lease receivables and ₩45,608 million (\$35,988 thousand) of long-term lease receivables before allowance for bad debts, respectively.

31.2.2.4 Aging analysis of non-derivative financial instruments

Aging analysis of non-derivative financial instruments as of December 31, 2022 is as follows:

	Not Past due	Past due				Total
		Within 1 month	1 to 3 months	3 to 12 months	Over 12 months	
Trade and other receivables	₩ 2,631,311	₩ 513,640	₩ 260,054	₩ 177,125	₩ 165,809	₩ 3,747,939
Other current financial assets	228,380	-	-	-	-	228,380
Long-term trade and other receivables	111,842	9	-	28	97	111,976
Other non-current financial assets	49,625	-	-	-	-	49,625
	<u>₩ 3,021,158</u>	<u>₩ 513,649</u>	<u>₩ 260,054</u>	<u>₩ 177,153</u>	<u>₩ 165,906</u>	<u>₩ 4,137,920</u>
U.S. dollar in thousand	<u>\$ 2,383,933</u>	<u>\$ 405,310</u>	<u>\$ 205,203</u>	<u>\$ 139,788</u>	<u>\$ 130,913</u>	<u>\$ 3,265,146</u>

31.2.3 Liquidity risk

The Group establishes short and long-term capital management plans and analyzes and reviews cash flow budgets against actual cash outflows in order to match the maturity of financial liabilities and financial assets. The Group believes that it has sufficient cash inflows from operating activities and financial assets to redeem financial liabilities that become due.

31.2.3.1 The maturity analysis based on the maturity of the remaining contract of the financial liability outstanding as of December 31, 2022 is as follows. The maturity amount is an undiscounted contractual cash flow that includes interest payments.

	<u>Within 1 year</u>	<u>1 to 5 years</u>	<u>Over 5 years</u>	<u>Total</u>
Trade and other payables (*)	₩ 2,646,663	₩ -	₩ -	₩ 2,646,663
Derivative financial liabilities	57,587	-	-	57,587
Borrowings	2,007,441	868,291	56,310	2,932,042
Bonds	439,712	1,367,927	50,309	1,857,948
Long-term trade and other payables (*)	-	251,517	403	251,920
Long-term derivative financial liabilities	-	2,117	-	2,117
	<u>₩ 5,151,403</u>	<u>₩ 2,489,852</u>	<u>₩ 107,022</u>	<u>₩ 7,748,277</u>
U.S. dollar in thousand	<u>\$ 4,064,865</u>	<u>\$ 1,964,690</u>	<u>\$ 84,449</u>	<u>\$ 6,114,004</u>

(*) As of December 31, 2022, trade and other payables and the long-term trade and other payables include ₩67,536 million (\$53,291 thousand) of current portion of lease liabilities and ₩243,509 million (\$192,148 thousand) of long-term lease liabilities, respectively.

31.2.3.2 The maturity analysis based on the guarantee period of the financial guarantee contract as of December 31, 2022 is as follows:

	<u>Within 1 year</u>	<u>1 to 5 years</u>	<u>Over 5 years</u>	<u>Total</u>
Financial guarantee contract (*)	₩ 34,116	₩ 14,456	₩ -	₩ 48,572
U.S. dollar in thousand	<u>\$ 26,920</u>	<u>\$ 11,407</u>	<u>\$ -</u>	<u>\$ 38,327</u>

(*) The Group provides arrangements of guarantee obligations and fund supplementary to the associate and other related parties, and for further information, see Note 19 of contingent liabilities and commitments.

32. Related party transactions

32.1 Details of related parties as of December 31, 2022 and 2021 are as follows:

	2022	2021
Parent	POSCO Holdings Inc. (*1)	POSCO Co., Ltd.
Associates	Blue Ocean Corporate's Financial Stabilization Private Equity Fund No. 1 POSCO MEXICO PROCESSING CENTER HOLDING, LLC. POSCO-ESDC LTD. POSCO IJPC Shanghai Lansheng DAEWOO Corp Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd. GENERAL MEDICINES CO., LTD. KOREA LNG LTD. - (*4) GLOBAL KOMSCO DAEWOO LLC SOUTH-EAST ASIA GAS PIPELINE CO., LTD. HyunSon Engineering & Construction SPH Co, Ltd. YULCHON MEXICO S. A. DE C. V. DMSA/AMSA Inco tech Inc. SHINPOONG DAEWOO PHARMA CO., LTD. POSCO-MALAYSIA SDN.BHD. POSCO-ITPC S.p.A Hunchun POSCO HYUNDAI International Logistics CURO CO., LTD. Erae AMS Co., Ltd. (*5)	Blue Ocean Corporate's Financial Stabilization Private Equity Fund No. 1 POSCO MEXICO PROCESSING CENTER HOLDING, LLC. POSCO-ESDC LTD. POSCO IJPC Shanghai Lansheng DAEWOO Corp Shanghai Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd. GENERAL MEDICINES CO., LTD. KOREA LNG LTD. KWANIKA COPPER CORP. GLOBAL KOMSCO DAEWOO LLC SOUTH-EAST ASIA GAS PIPELINE CO., LTD. HyunSon Engineering & Construction SPH Co, Ltd. YULCHON MEXICO S. A. DE C. V. DMSA/AMSA Inco tech Inc. SHINPOONG DAEWOO PHARMA CO., LTD. POSCO-MALAYSIA SDN.BHD. POSCO-ITPC S.p.A Hunchun POSCO HYUNDAI International Logistics CURO CO., LTD.
Others	POSCO Co., Ltd. (*2) POSCO STEELEON Co., Ltd. (*3) POSCO AMERICA CORP. POSCO ASIA CO., LTD. ZHANGJIAGANG POHANG STAINLESS STEEL CO., LTD. POSCO ENERGY CO., LTD POSCO-Foshan Steel Processing Center CO., LTD. POSCO-VIETNAM CO., LTD. COMPANHIA SIDERURGICA DO PECEM POSCO-THAINOX POSCO VST CO., LTD. POSCO Maharashtra Steel PVT. LTD. POSCO HUMANS CO., LTD POSCO-AAPC POSCO YAMATO VINA STEEL JOINT PT. KRAKATAU POSCO POSCO ASSAN TST STEEL INDUSTRY DAEWOO LOGISTICS CORP. etc.	- POSCO C&C POSCO AMERICA CORP. POSCO ASIA CO., LTD. ZHANGJIAGANG POHANG STAINLESS STEEL CO., LTD. POSCO ENERGY CO., LTD POSCO-Foshan Steel Processing Center CO., LTD. POSCO-VIETNAM CO., LTD. COMPANHIA SIDERURGICA DO PECEM POSCO-THAINOX POSCO VST CO., LTD. POSCO Maharashtra Steel PVT. LTD. POSCO HUMANS CO., LTD POSCO-AAPC POSCO SS-VINA PT. KRAKATAU POSCO POSCO ASSAN TST STEEL INDUSTRY DAEWOO LOGISTICS CORP. etc.

(*1) For the year ended December 31, 2022, the holding company of the consolidated company was changed from POSCO Co., Ltd. to POSCO Holdings Co., Ltd. due to the establishment of the POSCO holding company.

(*2) The classification of POSCO Co., Ltd. was changed from a holding company to other related parties.

(*3) For the year ended December 31, 2022, the company name was changed from POSCO C&C to POSCO STEELEON Co., Ltd.

(*4) It was sold for the year ended December 31, 2022.

(*5) Shares of Erae AMS Co., Ltd. were acquired as an alternative to the convertible bonds of Erae cs Co.,Ltd. and classified as investments in associates.

32.2 Significant transactions with related parties for the years ended December 31, 2022 and 2021 are as follows:

	2022					
	Sales and others			Purchase and others		
	Sales	Others	Total	Purchase	Others	Total
Parent company						
POSCO Holdings Inc. (*)	₩ 253,942	₩ 237	₩ 254,179	₩ 2,172,433	₩ 110,152	₩ 2,282,585
Associates						
POSCO MEXICO PROCESSING CENTER HOLDING, LLC.	₩ 698,079	₩ -	₩ 698,079	₩ 2,247	₩ 3,145	₩ 5,392
SPH CO., LTD	134	9	143	-	-	-
POSCO-ESDC LTD.	-	75	75	897	11,395	12,292
POSCO IJPC GENERAL MEDICINES CO., LTD.	333,978	-	333,978	9	-	9
KOREA LNG LTD.	11,385	400	11,785	-	-	-
SOUTH-EAST ASIA GAS PIPELINE CO., LTD.	-	21,161	21,161	-	-	-
GLOBAL KOMSCO DAEWOO LLC YULCHON MEXICO S.A. DE C.V.	-	17,458	17,458	-	-	-
POSCO-Malaysia SDN. BHD.	-	26	26	21,582	-	21,582
POSCO-ITPC S.p.A	1,050	-	1,050	-	-	-
CURO CO., LTD.	111,127	-	111,127	7,534	-	7,534
Erae AMS Co., Ltd.	152,344	-	152,344	1,585	-	1,585
Others	-	-	-	65	-	65
POSCO Co., Ltd.	-	-	-	177,648	-	177,648
POSCO Co., Ltd.	₩ 3,480,008	₩ 854	₩ 3,480,862	₩ 11,167,892	₩ 492,574	₩ 11,660,466
POSCO-THAINOX	-	-	-	-	4,564	4,564
POSCO ASSAN TST STEEL INDUSTRY	326,431	-	326,431	125,431	-	125,431
POSCO-AAPC	498,883	-	498,883	282,841	-	282,841
POSCO STEELEON Co., Ltd.	505,750	1,134	506,884	220,178	-	220,178
POSCO AMERICA CORP.	147,009	-	147,009	121	50	171
ZHANGJIAGANG POHANG STAINLESS STEEL CO., LTD.	112,333	-	112,333	267,245	104	267,349
POSCO-Foshan Steel Processing Center CO., LTD.	-	-	-	276	-	276
COMPANHIA SIDERURGICA DO PECEM	35,794	-	35,794	465,874	284	466,158
POSCO Energy Co., Ltd.	191,099	-	191,099	16,973	-	16,973
POSCO VST CO., LTD.	3,995	-	3,995	126,123	-	126,123
POSCO YAMATO VINA STEEL JOINT	747,590	-	747,590	-	-	-
PT. KRAKATAU POSCO	412,167	604	412,771	100,090	-	100,090
POSCO Maharashtra Steel PVT.LTD.	139,958	-	139,958	61,540	103	61,643
Others	968,007	-	968,007	276,267	658	276,925
	53	-	53	71,922	-	71,922
	2,770,426	69	2,770,495	1,164,825	491,287	1,656,112
	₩ 11,901,542	₩ 42,027	₩ 11,943,569	₩ 16,731,598	₩ 1,114,316	₩ 17,845,914
	\$ 9,391,259	\$ 33,163	\$ 9,424,422	\$ 13,202,555	\$ 879,284	\$ 14,081,839

(*) In addition to the above transactions, dividends paid to POSCO Holdings Inc. for the years ended December 31, 2022 and 2021 amounted to ₩62,093 million (\$48,996 thousand) and ₩54,331 million (\$42,871 thousand), respectively.

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32.2 Significant transactions with related parties for the years ended December 31, 2022 and 2021 are as follows: (cont'd)

	2021					
	Sales and others			Purchase and others		
	Sales	Others	Total	Purchase	Others	Total
Parent company						
POSCO	₩ 3,091,897	₩ 2,929	₩ 3,094,826	₩ 9,913,345	₩ 679,735	₩ 10,593,080
Associates						
POSCO MEXICO PROCESSING CENTER HOLDING, LLC.	₩ 491,594	₩ -	₩ 491,594	₩ 3,342	₩ 192	₩ 3,534
SPH CO., LTD	100	74	174	-	-	-
POSCO-ESDC LTD.	17	38	55	-	5,261	5,261
POSCO IJPC GENERAL MEDICINES CO., LTD.	430,055	-	430,055	18	-	18
KOREA LNG LTD.	7,513	224	7,737	-	-	-
DMSA/AMSA SOUTH-EAST ASIA GAS PIPELINE CO., LTD.	-	9,178	9,178	-	-	-
GLOBAL KOMSCO DAEWOO LLC YULCHON MEXICO S.A. DE C.V.	-	-	-	10,085	-	10,085
POSCO-Malaysia SDN. BHD.	-	35,506	35,506	-	-	-
POSCO-ITPC S.p.A	-	28	28	18,509	-	18,509
CURO CO., LTD.	1,215	-	1,215	-	-	-
Others	147,081	-	147,081	12,844	-	12,844
POSCO ASIA CO., LTD.	109,882	-	109,882	3,571	-	3,571
POSCO-VIETNAM CO., LTD.	-	-	-	100	-	100
POSCO-THAINOX	497	-	497	7,023	1,089	8,112
POSCO ASSAN TST STEEL INDUSTRY	513,301	-	513,301	189,449	-	189,449
POSCO-AAPC	404,422	-	404,422	121,840	-	121,840
POSCO C&C	536,799	49	536,848	113,048	-	113,048
POSCO AMERICA CORP.	165,497	-	165,497	6,717	5	6,722
ZHANGJIAGANG POHANG STAINLESS STEEL CO., LTD.	149,692	-	149,692	351,263	74	351,337
POSCO-Foshan Steel Processing Center CO., LTD.	-	-	-	2,627	-	2,627
COMPANHIA SIDERURGICA DO PECEM	104,444	-	104,444	262,488	-	262,488
POSCO Energy Co., Ltd.	304,749	-	304,749	5,986	-	5,986
POSCO VST CO., LTD.	2,504	-	2,504	96,179	-	96,179
POSCO SS-VINA	332,034	-	332,034	-	-	-
PT. KRAKATAU POSCO	402,918	-	402,918	58,099	1,772	59,871
POSCO Maharashtra Steel PVT.LTD.	293,675	-	293,675	35,250	102	35,352
Others	1,347,407	-	1,347,407	409,431	277	409,708
	15	-	15	95,132	-	95,132
	2,823,851	55	2,823,906	703,505	60,324	763,829
	₩ 11,661,159	₩ 48,081	₩ 11,709,240	₩ 12,419,851	₩ 748,831	₩ 13,168,682
	\$ 9,201,577	\$ 37,940	\$ 9,239,517	\$ 9,800,245	\$ 590,887	\$ 10,391,132

32.3 Significant balances of receivables and payables outstanding with related parties as of December 31, 2022 and 2021 are summarized as follows: (cont'd)

	2021					
	Receivables (*)			Payables		
	Trade receivables	Others	Total	Trade payables	Others	Total
Parent company						
POSCO	₩ 183,098	₩ 5,261	₩ 188,359	₩ 1,359,614	₩ 55,441	₩ 1,415,055
Associates						
POSCO MEXICO PROCESSING CENTER HOLDING, LLC.	₩ 76,036	₩ -	₩ 76,036	₩ 272	₩ 1,553	₩ 1,825
SPH CO., LTD	2	-	2	-	17	17
POSCO-ESDC LTD.	-	-	-	176	837	1,013
POSCO IJPC Shanghai	75,335	-	75,335	-	336	336
Lansheng DAEWOO Corp Shanghai	2,606	-	2,606	-	353	353
Waigaoqiao Free Trade Zone Lansheng Daewoo Int'l Trading Co., Ltd.	-	-	-	-	582	582
GENERAL MEDICINES CO., LTD.	340	-	340	-	131	131
KOREA LNG LTD.	-	877	877	-	-	-
DMSA/AMSA SOUTH-EAST ASIA GAS PIPELINE CO., LTD.	-	47,423	47,423	-	-	-
GLOBAL KOMSCO DAEWOO LLC YULCHON	-	1,623	1,623	806	12	818
MEXICO S.A. DE C.V.	462	-	462	-	21	21
POSCO-Malaysia SDN. BHD.	47,039	-	47,039	-	246	246
POSCO-ITPC S.p.A	19,106	-	19,106	998	55	1,053
CURO CO., LTD	-	-	-	5	-	5
Others						
POSCO ASIA CO., LTD.	₩ -	₩ 6	₩ 6	₩ -	₩ 135,918	₩ 135,918
POSCO-VIETNAM CO., LTD.	8,444	1,011	9,455	2,188	-	2,188
POSCO-THAINOX	5,816	-	5,816	16,067	269	16,336
POSCO ASSAN TST STEEL INDUSTRY	152,910	161	153,071	7,521	1,324	8,845
POSCO-AAPC	15,774	30	15,804	1	1,475	1,476
POSCO C&C	6,031	975	7,006	37,672	4	37,676
POSCO AMERICA CORP.	-	-	-	-	121	121
ZHANGJIAGANG POHANG STAINLESS STEEL CO., LTD.	5,364	28	5,392	25,101	-	25,101
POSCO-Foshan Steel Processing Center CO., LTD.	18,562	-	18,562	-	202	202
POSCO Energy Co., Ltd.	-	-	-	-	1,694	1,694
POSCO VST CO., LTD.	980	431	1,411	6,351	1,799	8,150
POSCO SS-VINA	11,249	-	11,249	1,711	12	1,723
PT. KRAKATAU POSCO	558,512	305	558,817	-	-	-
POSCO Maharashtra Steel PVT. LTD.	-	-	-	11,649	-	11,649
Others	496,124	109,016	605,140	34,342	41,193	75,535
	₩ 1,683,790	₩ 167,147	₩ 1,850,937	₩ 1,504,474	₩ 243,595	₩ 1,748,069
	\$ 1,328,644	\$ 131,892	\$ 1,460,536	\$ 1,187,149	\$ 192,216	\$ 1,379,365

32.3 Significant balances of receivables and payables outstanding with related parties as of December 31, 2022 and 2021 are summarized as follows: (cont'd)

Allowance for doubtful accounts for the above receivables as of December 31, 2022 and 2021 amount to ₩77,686 million (\$61,300 thousand) and ₩76,468 million (\$60,339 thousand), respectively.

(*) Other receivables include the amount of loan investment under the relevant agreement, and details of the changes for the year ended December 31, 2022 are as follows:

	Korean won in million			Ending balance
	Beginning balance	Reversal	Foreign exchange translation and others	
SOUTH-EAST ASIA GAS PIPELINE CO., LTD.	₩ 47,423	₩ (45,639)	₩ (1,784)	₩ -
U.S. dollar in thousand	\$ 37,421	\$ (36,013)	\$ (1,408)	\$ -

32.4 Key management personnel compensation

Compensations for key management personnel for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Salaries	₩ 16,759	₩ 12,823	\$ 13,224
Long-term employee benefits	23	1,220	18
Retirement benefits	1,412	1,358	1,114
	₩ 18,194	₩ 15,401	\$ 14,356

32.5 Guarantees provided to the related parties

Guarantees provided to the related parties as of December 31, 2022 and 2021 are disclosed in Note 19.6.

33. Statement of Cash Flows

33.1 Changes in liabilities arising from financing activities for the years ended December 31, 2022 and 2021 are as follows: (Korean won in millions)

	2022					
	Beginning balance	Cash flows arising from financing activities	Non-cash flows			Ending balance
			Reclassification	Exchange rate fluctuation	Others	
Current portion of lease liabilities	₩ 91,392	₩ (94,218)	₩ 61,686	₩ 3,030	₩ 4,415	₩ 66,305
Short-term borrowings	1,543,586	481,308	-	(147,733)	-	1,877,161
Current portion of long-term borrowings	350,799	(520,875)	150,817	68,449	72,018	121,208
Current portion of bonds	408,877	(431,824)	399,594	22,710	484	399,841
Long-term lease liabilities	93,871	-	(61,686)	(5,700)	214,920	241,405
Bonds	1,143,578	606,258	(399,594)	11,908	1,444	1,363,594
Long-term borrowings	246,111	633,021	(150,817)	40,439	23,803	792,557
	₩ 3,878,214	₩ 673,670	₩ -	₩ (6,897)	₩ 317,084	₩ 4,862,071
U.S. dollar in thousand	\$ 3,060,219	\$ 531,579	\$ -	\$ (5,442)	\$ 250,204	\$ 3,836,560

	2021					
	Beginning balance	Cash flows arising from financing activities	Non-cash flows			Ending balance
			Reclassification	Exchange rate fluctuation	Others	
Current portion of lease liabilities	₩ 99,909	₩ (108,068)	₩ 78,244	₩ 794	₩ 20,513	₩ 91,392
Short-term borrowings	540,314	992,920	-	771	9,581	1,543,586
Current portion of long-term borrowings	255,724	(537,908)	630,822	2,161	-	350,799
Current portion of bonds	417,042	(437,660)	405,527	23,200	768	408,877
Long-term lease liabilities	165,794	-	(78,244)	3,998	2,323	93,871
Bonds	1,107,420	436,321	(405,527)	4,309	1,055	1,143,578
Long-term borrowings	379,347	433,969	(630,822)	46,159	17,458	246,111
	₩ 2,965,550	₩ 779,574	₩ -	₩ 81,392	₩ 51,698	₩ 3,878,214
U.S. dollar in thousand	\$ 2,340,054	\$ 615,146	\$ -	\$ 64,225	\$ 40,794	\$ 3,060,219

33.2 Major investing activities and financing activities that are accompanied by non-cash transactions for the years ended December 31, 2022 and 2021 are as follows:

	Korean won in millions		U.S. dollar in thousands
	2022	2021	2022
Reclassification of current portion of long-term trade receivables	₩ 22,879	₩ 16,752	\$ 18,053
Write-off of trade receivables	10,883	3,471	8,588
Actuarial gains and losses remeasurement component	18,839	-	14,865
Accounts receivable when disposing of investment stocks in affiliates	10,145	-	8,005
Reclassification of current portion of long-term loans	11,246	48,750	8,874
Other accounts payable related to the acquisition of tangible and intangible assets	(7,658)	557	(6,043)
Reclassification of financial assets at FVOCI as investments in associates	25,860	-	20,406
Reclassification of current portion of long-term borrowings	150,817	630,822	119,007
Reclassification of current portion of long-term bonds	399,594	405,527	315,311
Reclassification of current portion of lease receivables	35,821	59,506	28,266
Reclassification of current portion of lease liabilities	61,686	78,244	48,675
Recognition of right-of-use assets and lease liabilities through acquisition	34,949	123	27,578

34. Uncertainty of the impact of COVID-19

Various prevention and controls, including movement restrictions, are being implemented around the world to block the spread of COVID-19, and as a result, the global economy has been widely affected. In addition, various forms of government support policies are being announced to cope with COVID-19. Items affected by COVID-19 are mainly recoverability of accounts receivable (see note 5).

The Group has prepared financial statements by reasonably estimating the impact of COVID-19 on the Group. However, the spread or end of COVID-19 in the future may affect the Group's estimates and assumptions, but the impact cannot be reasonably estimated at this time.

35. Uncertainty of the impact of the Myanmar coup

The military government of Myanmar announced the establishment of a transitional government in August 2021, and made it official both internally and externally to extend the state of emergency declaration until August 2023 and hold a general election after the state of emergency ends. In addition, the military government of Myanmar mentioned that the National League for Democracy (NLD), led by Aung San Suu Kyi, would be disbanded in the near future. However, as of December 31, 2022, the impact on the business of the Group such as Myanmar gas field in the future could not be estimated reasonably, and the impact from this was not reflected in the consolidated financial statements.

36. Uncertainty of the impact of Russia's invasion of Ukraine

On February 24, 2022, the Russian army launched an all-out invasion, starting with the bombing of major military facilities in Ukraine, and as of the end of this year, major cities are engaged in combat. Meanwhile, the West, including the United States, is in the midst of strong economic sanctions against Russia for invading Ukraine by withdrawing the SWIFT payment network from Russian banks, freezing major assets, and export controls on strategic materials/high-tech. In this regard, the Group has set aside provision for bad debts of ₩339 million (\$267 thousand) for trade receivables to customers in Russia and Ukraine and provision for inventory valuation loss of ₩13,924 million (\$10,987 thousand) for inventories to grain terminals in Ukraine. Also, an impairment loss of ₩31,710 million (\$25,022 thousand) was recognized for assets such as goodwill of Grain Terminal Holding Pte. Ltd. However, the future impact on the business of the consolidated company in this regard could not be estimated reasonably as of December 31, 2022, and the impact was not reflected in the consolidated financial statements.

37 Business transfer

For the year ended December 31, 2022, the Group acquired the steel marketing and steel equipment procurement divisions of POSCO JAPAN Co., Ltd., located in Japan, on January 1, 2022. Since the transaction was a business combination under common control, the assets/liabilities of the acquired business unit were recognized at the carrying amount in the consolidated financial statements of the parent company. The difference between the consideration transferred and the amounts recognized as identifiable assets and liabilities is reflected in capital surplus.

As of the acquisition date, assets and liabilities acquired through business transfer under common control are as follows:

	Korean won in millions	U.S. dollar in thousands
	2022	2022
Assets		-
Inventory	₩ 287,960	\$ 227,223
Liabilities		-
Trade payables	₩ 287,960	\$ 227,223
Net assets	₩ -	\$ -
Consideration transferred	₩ 25,756	\$ 20,324
Capital surplus (*)	₩ (25,756)	\$ (20,324)

(*) The difference amounting to ₩25,756 million (\$20,324 thousand) between the above consideration for transfer and the net assets transferred is the amount before corporate tax is reflected.

38. Business combination

For the year ended December 31, 2022, A subsidiary, Senex Holdings Pty Ltd (the Company's ownership: 50.1%) acquired 100% of Senex Energy Limited's shares as of April 1, 2022 to operate an onshore gas field production/development business located in Queensland, eastern Australia. The subsidiary expects to secure natural gas reserves and expand its share of the domestic market in eastern Australia as a result of the acquisition of control.

The fair values of the acquired company's identifiable assets and liabilities as of the acquisition date are as follows:

	Korean won in millions		U.S. dollar in thousands	
	2022		2022	
Current assets				
Cash and cash equivalents	₩	39,967	\$	31,537
Trade and other receivables		21,455		16,930
Other current assets		15,747		12,426
	₩	77,169	\$	60,893
Non-current assets				
Property, plant and equipment	₩	51,056	\$	40,287
Right-of-use assets		193,002		152,294
Intangible assets		1,011,517		798,167
Other non-current assets		1,257		992
	₩	1,256,832	\$	991,740
Current liabilities				
Trade and other payables	₩	78,027	\$	61,569
Borrowings		71,959		56,781
Other current liabilities		36,358		28,689
	₩	186,344	\$	147,039
Non-current liabilities				
Long-term trade and other payables	₩	181,913	\$	143,544
Long-term borrowings		68,034		53,684
Other non-current liabilities		96,650		76,264
	₩	346,597	\$	273,492
Net assets				
	₩	801,060	\$	632,102
Acquisition share ratio		100%		100%
Acquisition net assets	₩	801,060	\$	632,100
Consideration transferred	₩	801,060	\$	632,100

Assuming that Senex Energy Limited is incorporated into the consolidated entity from January 1, 2022, the sales and consolidated net income to be incorporated are ₩224,857 million (\$177,430 thousand) and ₩1,947 million (\$1,536 thousand), respectively. In addition, the sales and net income generated by Senex Energy Limited after incorporation into consolidation were ₩186,794 million (\$147,395 thousand) and ₩24,621 million (\$19,430 thousand), respectively.

In addition, for the year ended December 31, 2022 and 2021, expenses of ₩3,247 million (\$2,562 thousand) and ₩1,872 million (\$1,477 thousand), respectively, including legal advisory fees and due diligence fees, were incurred in connection with the business combination and these expenses were recognized as selling and administrative expenses in the consolidated statement of comprehensive income.