



SDG IN THE REPUBLIC OF KOREA: PROGRESS REPORT 2023

SDG in the Republic of Korea: Progress Report

2023





The global crises and conflicts our world faces today are hampering progress toward the achievement of the 2030 Agenda for Sustainable Development. Since its outbreak in 2020, the COVID-19 pandemic has continued to affect our lives, and the war in Ukraine is exacerbating food, energy, humanitarian and refugee crises. Increased droughts, wildfires and floods are already affecting people all over the world and wreaking havoc on the Earth's ecosystems.

The ever-rising ocean temperature is endangering the marine ecosystem, and the impact of climate change is delaying the transition to the green economy that humanity needs to be aiming for, while continuing increases in greenhouse gas emissions are expected globally. As always, women, children and other vulnerable groups are struggling in the face of these crises. Anxiety and depression are also on the rise among adolescents and young adults.

In order to move forward against this backdrop, we must understand just where we stand. To this end, the role of an accurate data and statistical information infrastructure is crucial. Timely, high-quality, and appropriately disaggregated data can aid us in understanding the current situation, anticipating future needs, and properly designing necessary actions.

Approaches that will enable us to prevent and solve these difficulties are covered in general in the Sustainable Development Goals(SDG). In order to pursue development in the midst of a crisis and prepare for future challenges, governments and the international community must make a greater investment in developing new statistics.

Last year, to create a stronger base for SDGs, Statistics Korea expanded its legal and institutional foundation for SDG implementation monitoring by establishing its new role in the implementation of the Framework Act on Sustainable Development, and strengthened its status as the national agency responsible for SDG data.

In addition, we have established a foundation for joint research among national research institutes, employing the latest technology, to produce innovative SDG indicator data,

for example, by developing indicators. This year, in order to actively respond to policy demands in such SDG sectors as climate, environment, and cities, we plan to promote indicator development research using new technologies such as grid-based statistics and satellite image data.

Solidarity and cooperation between countries is vital for achieving the SDG. In addition, the status of each country's implementation of the 17 SDGs must be continuously monitored. To achieve sustainable development, we must find ways to reduce carbon emissions, conserve natural resources and create good quality jobs.

We must pursue low-carbon policies that will push forward the transition to a greener and more just economy, and we must find development methods that can restore resilience. The roadmap presented in the SDGs is clear. All of us must address the root causes of growing inequality, environmental degradation and climate change.

For humanity to attain sustainable prosperity, it is imperative that no one is left behind and that we all coexist peacefully. The time given to achieve the SDG is running out. It is my hope that this report will prove to be broadly helpful as a key evidence-based indicator for achieving the 2030 Agenda both here in Korea and abroad.

Hoon Han

Commissioner of Statistics Korea



It has been eight years since the Sustainable Development Goals (SDG) were adopted at the UN General Assembly, and nations began to work toward achieving them. Now we are halfway through the 2030 target period. As an authorized national focal point of SDG data, the Statistics Research Institute has been publishing a 『Sustainable Development Goals in the Republic of Korea: Progress Report』 annually, in keeping with their vision of providing support for ‘evidence-based decision-making’.

This report is provided to UN SDG follow-up and review mechanisms such as the High Level Political Forum (HLPF), to be used as a discussion material for global common development. At the same time, they are disseminated to related government ministries, academic and research institutions and civil society organizations in Korea, contributing to an enhanced understanding of the SDGs and the employment of policies related to them.

『SDG in the Republic of Korea: Progress Report 2023』, released this, was designed as a compass identifying goals to be prioritized in policy implementation during the remaining period until 2030 to keep pace for achieving the SDGs. It is hoped that the report will help to point out the direction for policies responding to the crises and changes we are facing amid the COVID pandemic, the climate crisis, and war, through relevant indicators.

A point to note regarding this report is that, **first**, COVID-19 as a threat to health, has gone beyond being an economic crisis and is proving to be a longer-lasting social crisis. The educational gap caused by school closures and virtual classes has led to a decline in academic achievement for a substantial number of students. As an example, the portion of high school sophomores attaining a standard level of achievement in Korean language arts fell from 77.5% in 2019 to 64.3% in 2021.

Secondly, negative signs confirming the acceleration of the climate crisis can be seen through various indicators. Since 2000, both forest area and the Red List Index have continuously decreased, threatening biodiversity. Despite

the declaration of a commitment to net zero, actual progress to reduce greenhouse gases is slow, and Korea’s Renewable energy consumption rate is 4.7%, at around 3%. It is a time to fiercely contemplate the mid- to long-term impact of COVID-19 on all walks of life and develop strategies for responding to the climate crisis.

Third, as we pursue this goals, it is also crucial to reflect the SDG principle of ‘Leave No One Behind’ and establish policies of inclusion that embrace vulnerable groups and least developed countries. An increase in public social expenditure, continuous investment in research and development, and the expansion of official development assistance(ODA) demonstrate the Korean government’s will to do so.

『SDG in the Republic of Korea: Progress Report 2023』 is the product of a collaboration between national research institutes. I would also like to express my sincere gratitude to Woo-hyun Jeong, director of the Sustainable Development Division of the Korea Environment Institute, who led the entire process, and to the scholars from the Korea Educational Development Institute, the Korea Rural Economic Institute, the Korea Institute for Health and Social Affairs, the Korea Development Institute, the Korea Maritime Institute, the Korea Environmental Institute and the Korea Institute for International Economic Policy who wrote up each goals, as well as the advisors from each field who supported this work. We also cannot forget the hard work of deputy director Youngshil Park and assistant director Minhee Yun of the Statistics Research Institute who planned and edited this report.

It is our hope that this report will become the basis for evidence-based decision-making and be widely used in achieving the SDG here in Korea and abroad.

Joonhyuk Song
Direct General

Statistics Research Institute, Statistics Korea



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Executive Summary

Purpose and Use

Every and each country in the world has to cooperate, in order to achieve the sustainable development goals (SDG) set forth as a global agenda under the leadership of the United Nations, and it is necessary to engage in continuous monitoring on the global and country-specific progress of the 17 SDGs. Addressing the entire sectors such as economy, society and the environment, the SDG consist of 17 goals, 169 targets and 231 indicators. It is also necessary continuously track progress and major issues in Korea, using the reliable data for each indicator.

Serving as the state-run think tank of data management in Korea, Statistics Korea has published 『SDG in the Republic of Korea: Progress Report』 each year since 2019 regarding the nation's implementation of UN SDG. The report contains policy data for policy makers and researchers in respective field, and it can be also used by the press and media as well as the civic society as materials for policy publicity, education and communications for the public. In parallel, its English version is also published for overseas organizations and researchers.

Analysis Methods

Statistical data from 『Korea SDG data platform』 established by Statistics Korea (<https://kostat.go.kr/sdg/en>) was utilized to analyze indicators. In addition, reliable data including nationally approved statistics and policy data were collected depending on needs. A series of methods were deployed such as time-series analysis, comparison with overseas countries using international data, and analysis by disaggregated group according to domestic population groups or regions, so as to accomplish relevant and abundant analysis of indicator-specific progress within a possible range. Statistical data include visualized materials (i.e., graphs) as many as possible to enhance usability and visibility.

Selection of Indicators

For the analysis of each goal, about three to five indicators were first selected to be analyzed in this report. Indicators to be analyzed were evenly selected including those not addressed in the previous report, to make sure that all indicators are addressed at least once until 2030, the target year

for the SDG. They were reviewed in perspective, including availability and available interval of data and the meaning of the respective indicator in the Korean context.

In particular, this report includes a number of non-statistical indicator analyses. The SDG indicators are divided into statistical and non-statistical. The latter is to measure whether relevant Acts and legal systems have been put in place. For example, whether global citizenship and sustainable development education are mainstreamed into relevant laws(SDG4), citizen participation is institutionalized in urban planning processes(SDG11), and marine areas are managed using an ecosystem approach(SDG14). It is possible to assess policy directions for sustainable development on a national level by analyzing these indicators.

Key Findings

『SDG in the Republic of Korea: Progress Report in 2023』 captures huge tsunamis such as COVID-19, wars and climate change that can go down in the world history. It has been assessed that there are signs of recovery of the economy which weakened due to the social distancing and national lockdown caused by COVID-19, but the pace of recovery varied by demographic group. The most vulnerable groups in the society have been hit hardest by relentless virus variants, wars occurring in succession and aggregating climate change. It is worth noting that cooperation and consolidation among the international organizations, the government and civic society are crucial than ever in a sense of crisis that the break of the weakest link could trigger a chain reaction of catastrophes.

① The number of the employed and sales have been on a rise thanks to the economic recovery. Especially, the number of new hires which had plummeted in 2020 under the influence of the COVID-19 pandemic rose throughout industries. This can be translated into a jump in employment and a reduction in unemployment. In 2021, sales also saw a big increase mainly in the manufacturing sector. Still, prudent observation is needed to make sure that no class or group is excluded from the benefits during the course of economic recovery. Small-scale workplaces with less than 50 em-

ployees showed high accident fatalities. In addition, the loan balance of the self-employed largely soared in 2020 when the nation was hit hard by the pandemic, and the number of the self-employed who took out a loan also increased. As these SMEs take up an absolutely large proportion of the labor market, it is necessary to foster a sound industrial ecosystem to help growth of SMEs.

② The loss caused by COVID-19 is not confined to the economic aspects. The education vacuum due to the school closure led to a decline in academic accomplishment. The national assessment of educational achievement showed that there was a noticeable drop in the proportion of students archiving the average academic level or above compared to 2019 and the participation in lifelong learning also heavily declined in 2021. The percentage of the poorly nourished population has also continued to rise since 2015. It is due to a price fluctuation in agricultural, livestock and fishery products caused by a combination of the war and climate change. Korea was praised for its excellent capacities to respond to a health crisis; however, the human resources in the public health sector are far less than the OECD average.

③ The range of inequality has spread and its gap is not shallow. Although the income and inequality from the perspective of Gini's coefficient seems to have been improved, asset inequality has deepened in terms of real estate other than income. The income inequality is a truly urgent issue that has to be solved immediately given that it could thrive inequality in other areas like education, residential and nutrition which is also directly connected to health. Gender inequality was also observed in various realms. Above all, the very low rate of female representation in decision-making positions whether it be politics, administration and economy is a gloomy sign that the glass ceiling is still concrete in the Korean society. Comprehensive measures should be in place to protect the entire vulnerable classes including the disabled, children and the elderly.

④ It has been reaffirmed that there was no stop to a cur-

tailment in forest areas, biodiversity reduction and growing threat to the endangered species. Forest area and biodiversity continue to decline, livestock extinction risk is not showing any significant improvement. Droughts and floods are impacting available water resources and agriculture water use efficiency is declining. It is also urgent to come up with countermeasures as climate crisis which tends to manifest itself as natural disasters has caused a direct loss to life and property. To this end, efforts on multiple levels are required, ranging from establishment of terrestrial and freshwater protection areas on a global level; government's enactment of the Carbon Neutrality-Green Growth Framework Act; countermeasures devised by upper-level local governments, municipalities, public institutes and the private sector; and citizens' efforts to cut back the use of plastic.

⑤ The transition from fossil energy to renewable energy and greenhouse gas mitigation is slow. The share of renewable is about one-seventh of the average for OECD countries. Although, there has been a slight decline in greenhouse gas emissions since COVID-19, it is still higher than in 1990. Waste generated is also on the rise. Expanding contactless consumption has led to an increase in the generation of foam resins and waste synthetic resins, etc. due to the expansion of non-face-to-face consumption. The recycling rate is more than double the average for OECD countries, but the actual recycling rate and the quality of the recyclables that are brought to recycling sorting plants remains an issue.

⑥ Continued attention is needed to the domestic institutional framework and international cooperation to achieve the SDGs. There has been a marked improvement in government sector corruption. An increase in the volume of ODA to fulfill international commitments, as well as an increase in the proportion of bilateral aid to least developed countries, albeit still at low levels. What is encouraging is that the investments in the R&D have continued on a global scale. These serve as basic resources for the transition to the digital society.



Key Findings of Korea's SDG Progress Report 2023



As seen from a rise in the take-up rate of public income transfers and the share of public social expenditures out of GDP, Korea has expanded its social security. However, poverty reduction which had occurred at a rapid pace since 2017 slowed down.



In 2020, the rate of undernourished population rose to 14.4%, up 1.0%p from the previous year. High price fluctuations of agricultural, livestock and fishery products and insufficient diversity of fauna and flora have been steadily regarded as a threat. In particular, the rate of local livestock breeds at risk has continued to hover over 80% since 2011.



Korea has maintained a high level of health emergency preparedness; however, the number of health care resources is lower than OECD average. Despite a steady reduction in the smoking among adults since 2001, the smoking rate among male adults was ranked high (8th) out of OECD countries.



The enrollment rate of young children and academic achievement of elementary/middle schoolers are high by global standards, but COVID-19 has put a damp on the academic achievement and participation in lifelong education among adults. In particular, attention needs to be paid to a gap in different classes.



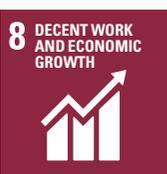
Although participation of women in sectors like administration, local politics and economy, women are still under-represented in managerial positions. Women accounted for 30.3% out local councils in 2022, but there has been not a single women elected as the head of a upper-level local government. Only 3.1% of municipality heads are women.



The no water supply rate nationwide reduced from 5.9% in 2002 to 0.6% in 2021, alleviating the imbalance of drinking water supply between urban and rural areas. However, continuous monitoring is needed on water use efficiency and freshwater resources due to climate change.



Despite a steady increase in the rate of renewable energy to 3.36% in 2019 out of final energy consumption, Korea was ranked the bottom among OECD countries. Energy intensity has seen a reduction, contributing to overall improvement of energy efficiency.



The unemployment rate reduced to 2.9% in 2022, down 0.8%p from the previous year. The per capita real GDP has seen a positive growth for the nine consecutive quarters since 3Q 2020. The number of deaths due to industrial accidents in 2022 stood at 874.



There is clear recovery of the number of the employed and sales mainly in the manufacturing sector. A sound industrial ecosystem is needed to promote growth of SMEs. Korea is one of OECD countries with a high share of R&D investments out of GDP (4.8%).



The Gini coefficient of net asset on a rise since 2018 and stood at 0.606 in 2022. Inequality has deepened as the bottom 40%'s share of assets has gone down to 4.9%. It is necessary to pay attention to a loan increase of the self-employed in the aftermath of COVID-19.



Despite improved quality of life such as a reduction in households living below the minimum housing standards and a rise in the per capita urban park area, it is necessary to further make improvements in housing of the vulnerable such as low-income class and youth households and areas with little access to public transit.



It has been confirmed that the patterns of consumption and waste generation have changed due to COVID-19. In 2020, Out of recyclable domestic waste, the generation of vinyl and waste synthetic resins has increased by 21.6% compared to 2019. Other inflammable waste including food take-out containers that cannot be recycled has also increased.



Greenhouse gas (GHG) emissions in Korea saw a decrease in 2020 and 2021 for two consecutive years. Among OECD countries as of 2019, Korea was ranked 6th in terms of per capita GHG emissions and 4th together with the United States in GHG emissions per USD 1,000 of GDP.



The amount of marine waste collected in 2021 amounted to about 120,000 tons, posting a reduction for the first time in seven years. The illegal fishing activities by deep-sea fishing vessels have reduced, but plastic has emerged as a big challenge since it takes up the largest share of the marine waste.



The forest area out of the total national territory stood at 64.4% in 2020. Recorded at 0.69 in 2022, the Red List Index has worsened since 2000. The size of biodiversity protection areas has got bigger, but the increase has been stagnant.



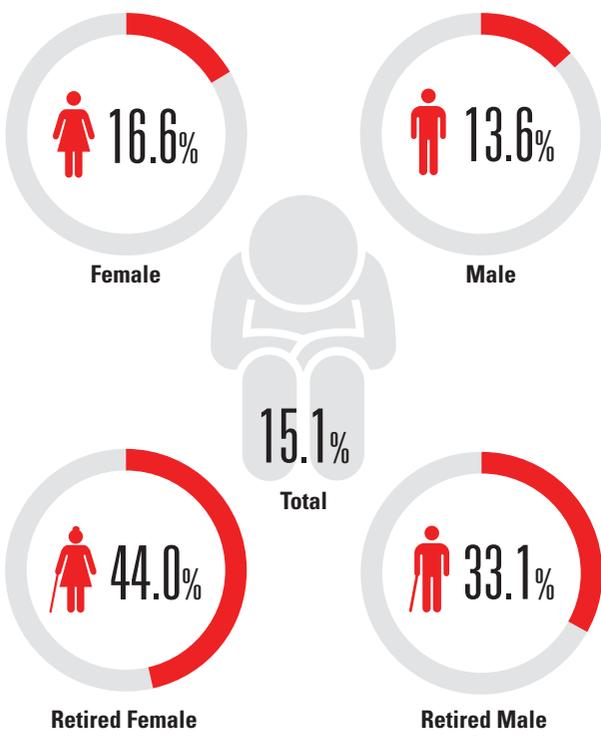
With 270 cases in 2021, the number of homicides committed has been on a decrease. The reporting rate of violent crimes such as violence and sexual assault has increased, but the reporting to the police took up a mere 19% in 2020. Meanwhile, there has been clear improvement in corruption in the government.



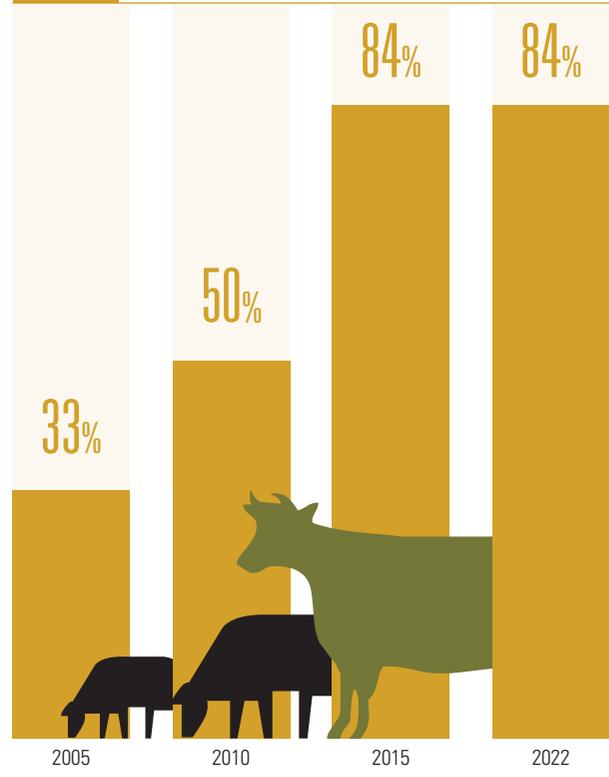
Despite a steady rise in ODA, its rate out of GNI was 0.16% in 2021. Korea was ranked 25th out of DAC members. Although there is a high rate of bilateral aid for the least developed countries, the direct investment has been heavily reduced since the outbreak of COVID-19. More active efforts are needed.



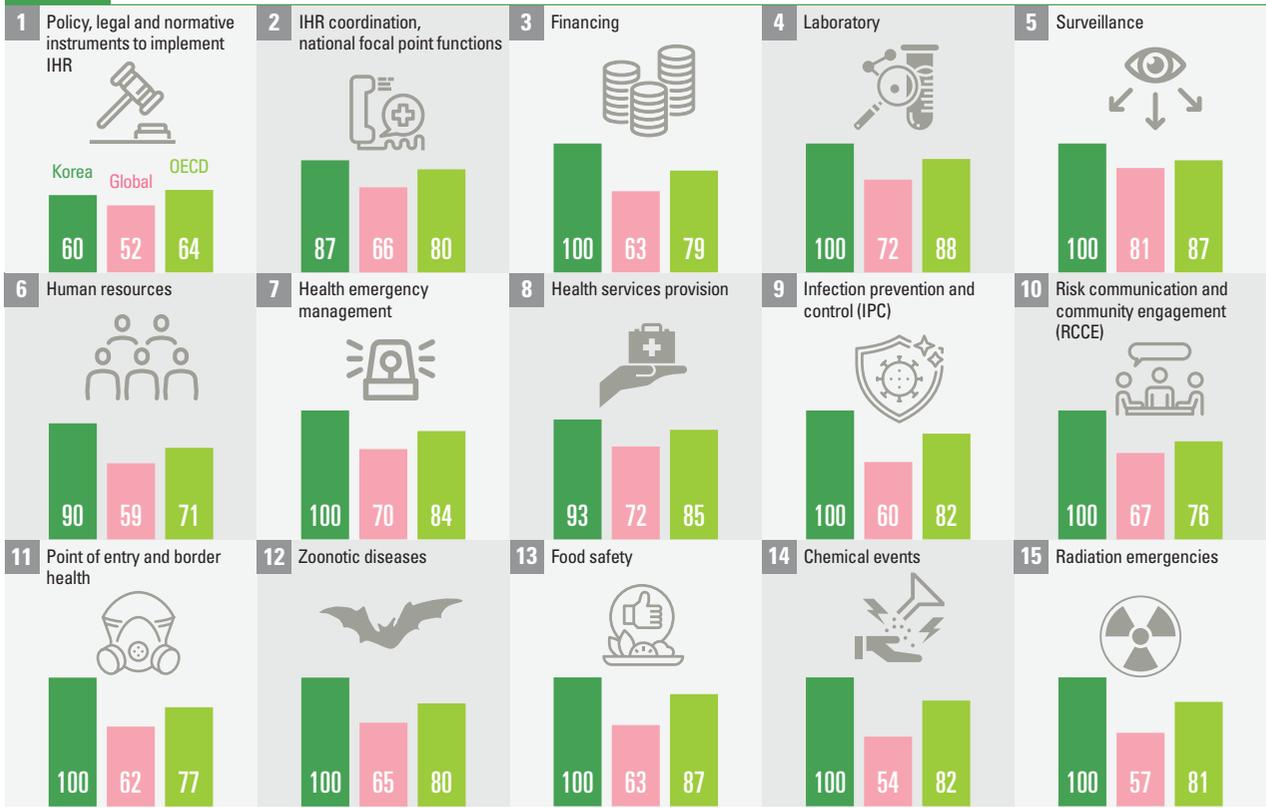
Relative Poverty Rate, 2021



Rate of Local Livestock Breeds at Risk



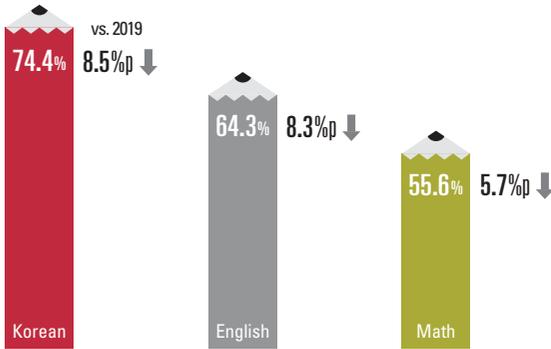
Health Emergency Preparedness by IHR, 2021



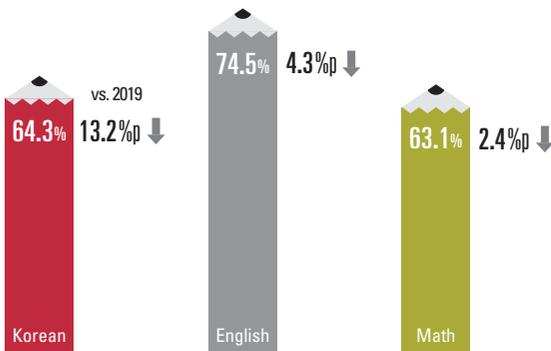


Proportion of Students Achieving Average or Higher Scores and Participation Rate of Lifelong Learning, 2021

Proportion of Middle School Seniors Achieving 'Average or Higher'



Proportion of High School Sophomores Achieving 'Average or Higher'



Participation Rate of Lifelong Learning among Adults

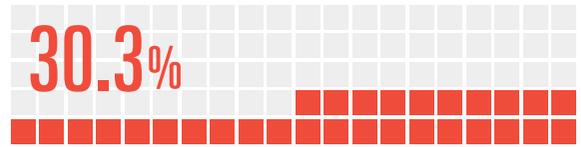


Watermark Areas in Artificial Reservoirs



Women's Representation in Local Politics, 2022

Seats Held by Women in Local Council



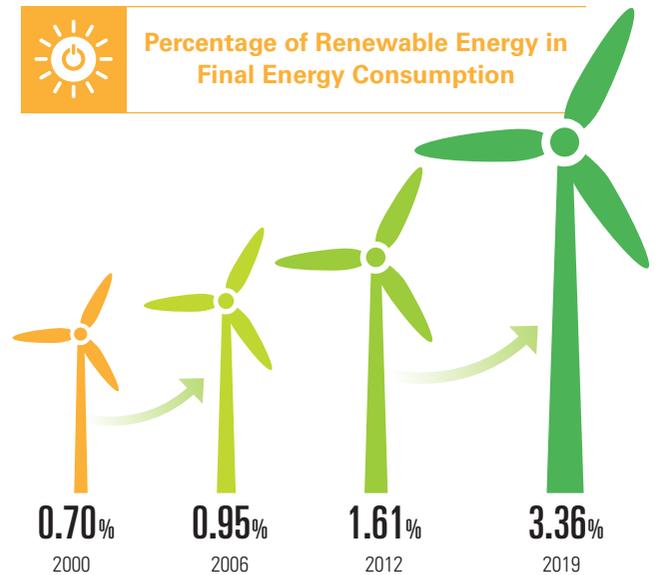
Women among Heads of Upper level-Local Government



Women among Heads of Municipal level-Local Government



Percentage of Renewable Energy in Final Energy Consumption



Iceland

81.1%



OECD

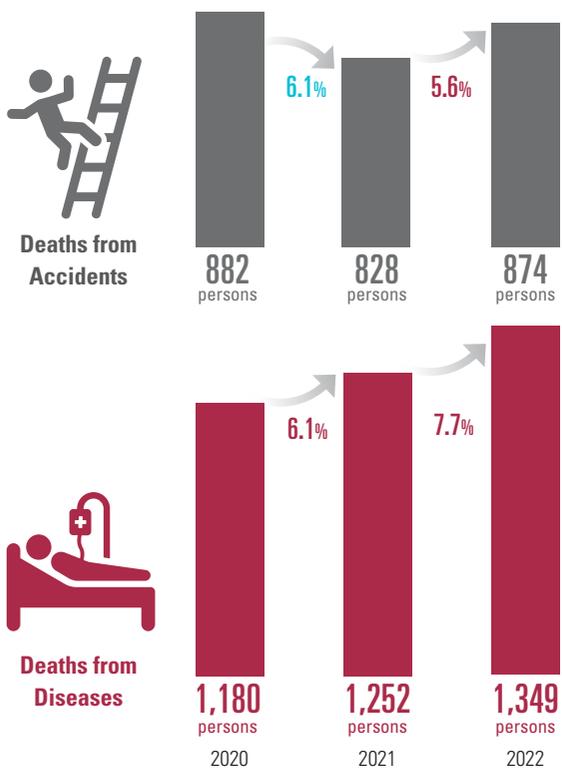
23.4%



Korea

3.36%

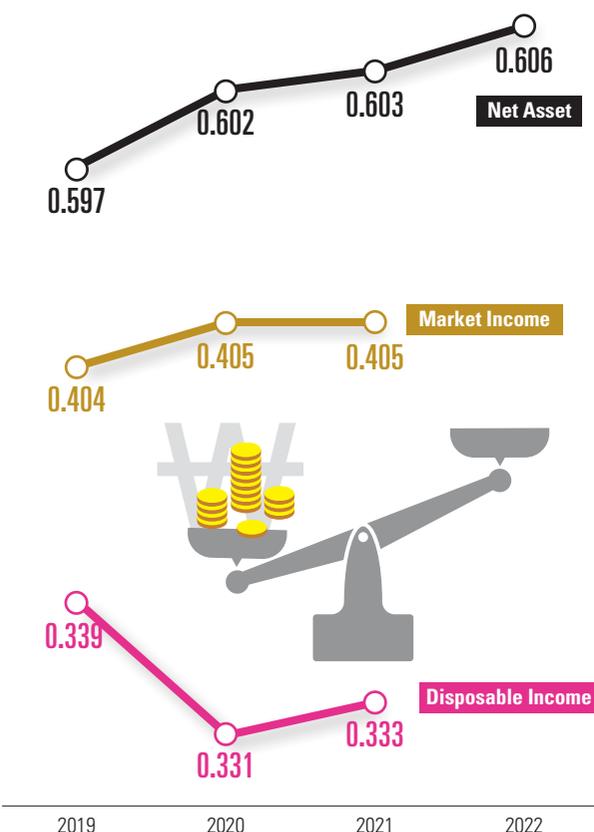
Number of Deaths from Industrial Accidents



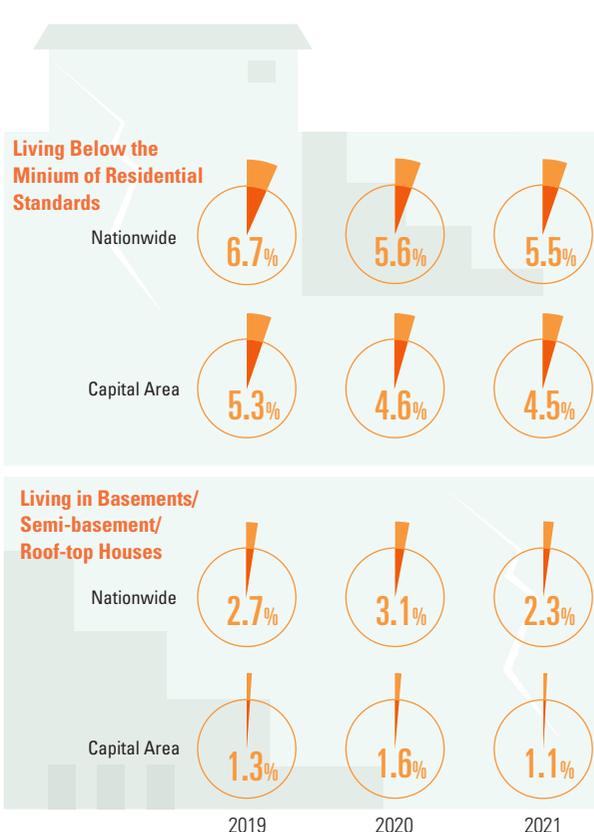
Changes in Number of Employed before and after COVID-19



Inequality by Gini Coefficient



Living below the Minimum of Residential Standards

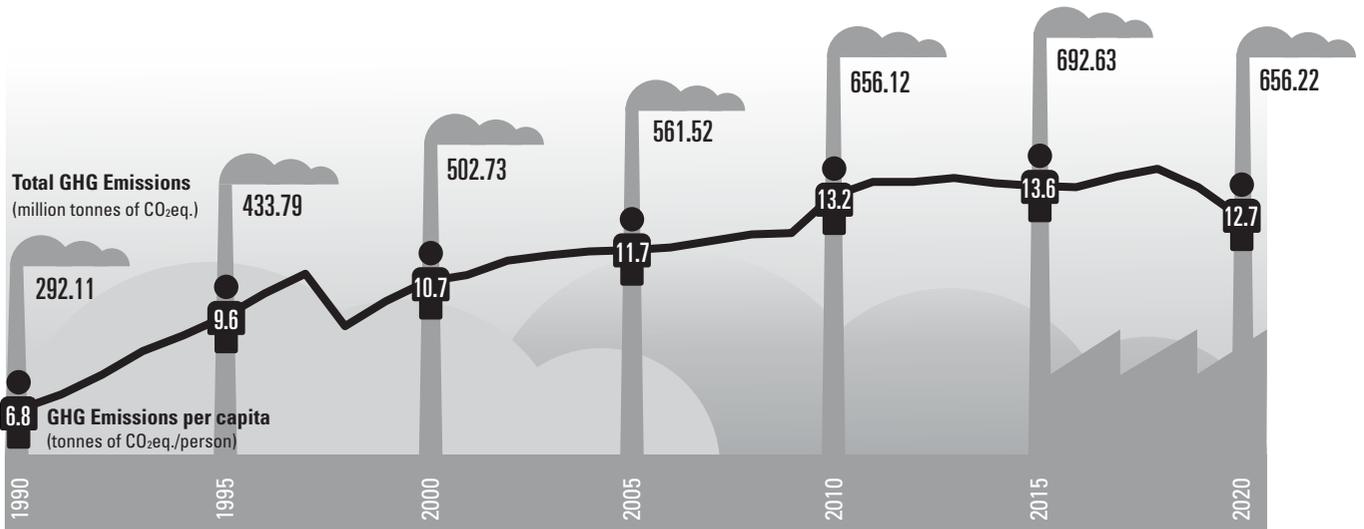




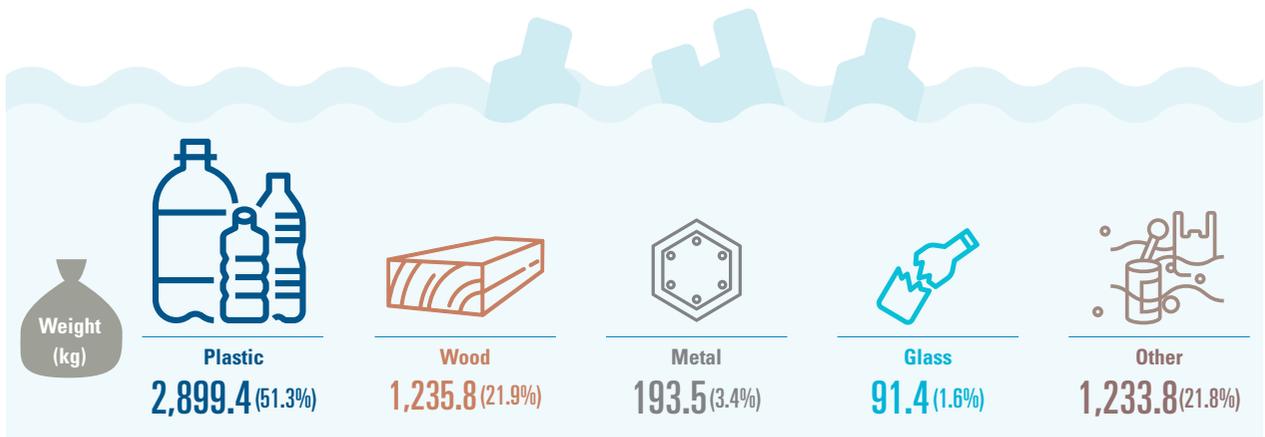
Domestic Waste Generated (per capita per day)



Green House Gas Emissions

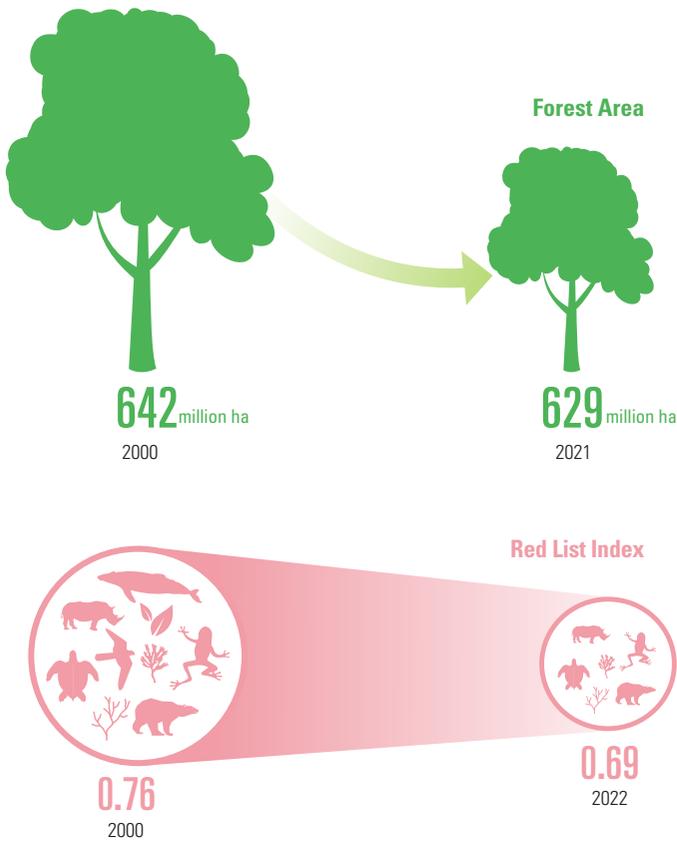


Weight Share by Type of Coastal Waste, 2021

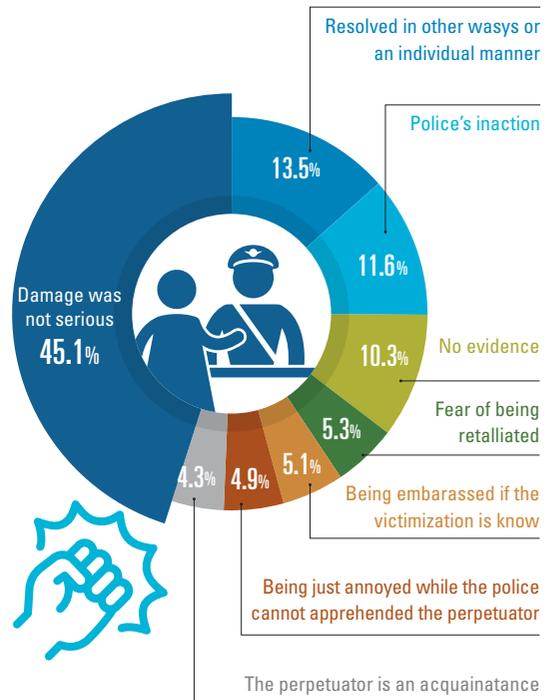




Forest Area and Red List Index

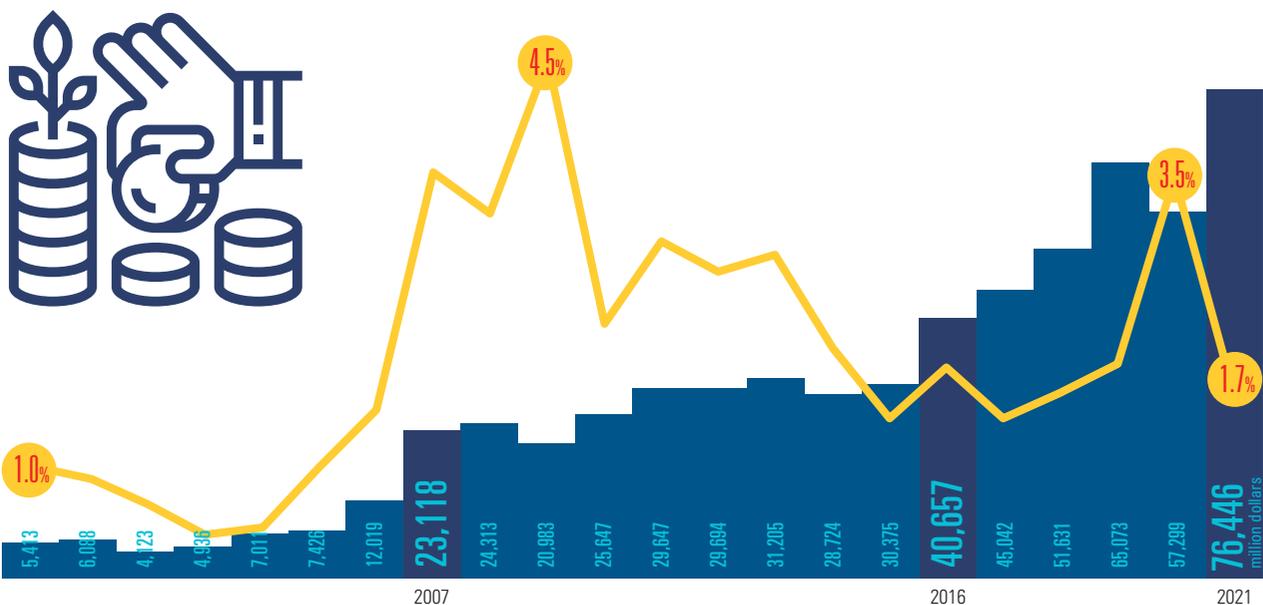


Reasons for Not Reporting Violent Crime, 2020



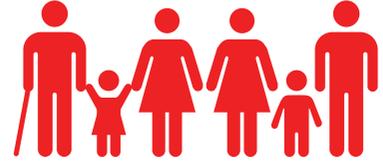
Foreign Direct Investment and Share in Least Developed Countries

■ Korea's Total Overseas Direct Investment ● LCD Investment/Total Investment





1 NO POVERTY



End poverty in all its forms everywhere

SDG 1 aims to monitor multi-dimensional poverty that may occur depending on the changing global environments and minimize the effects of disastrous situations on the poor such as infectious diseases and climate crisis. In other words, SDG 1 focuses not only on poverty per se but also on inequality of the market economy that is the main culprit of poverty and on difficulties in accessing various socio-economic resources as well as policy efforts to alleviate such difficulties.

In 2020 and 2021, Korea witnessed a dramatic change in its labor market conditions due to the COVID-19 pandemic. Many workers lost their jobs in 2020 when the social distancing was enforced. Despite some recovery of gradual employment in 2022, the level of instability in the labor market grew. Starting from 2020, the government provided subsidies to support the disenfranchised class by securing supplementary budgets on six different occasions including direct fiscal support for micro enterprises, Emergency Disaster Relief Fund for households whose livelihood was at risk and National Support Fund, in order to ease economic difficulties and re-invigorate the market economy with fiscal aid.

With all these, the poverty rate based on disposable income sharply declined in 2020 vis-à-vis the previous year, and the effects of poverty reduction increased a lot more than before. In particular, most households tended to receive the public transfer income including the Emergency Disaster Relief Fund (EDRF). Excluding EDRF, as of 2020, members from the households that were recipients of the public transfer income accounted for 62.9% of the total population. That said, in 2021, such a reduction in the poverty rate slowed down due to a cutback in public transfer income.

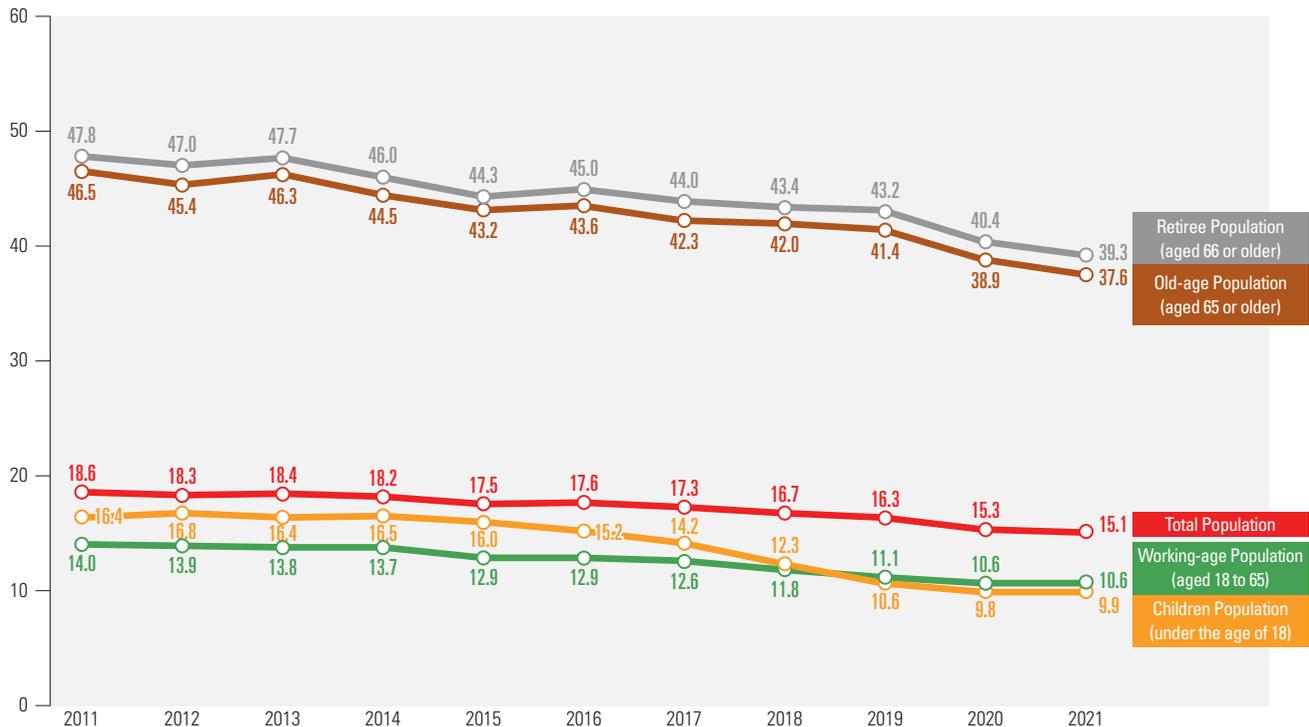
The share of public social expenditures out of GDP jumped from 2.6% in 1990 to 14.4% in 2020. To be specific, 5.1% was spent on health security and 3.4% on security for the elderly in 2020. Korea's efforts to alleviate global poverty can be observed from its official development assistance (ODA). Korea's ODA contributions to reduce poverty of recipient nations rose from USD 243.44 million in 2011 to USD 771.82 million in 2020.

The relative poverty rate has continuously decreased, but the reduction slowed down in 2021 (🔄 SDG 1.2.1)

The relative poverty rate refers to the proportion of the poor receiving 50% or less of the median household income

equalized by the number of household members out of the total population. It is used to diagnose the level of household income obtained from the market and finances of households after private/public income transfer, taxes and social

Relative Poverty Rate based on Disposable Income by Age Group, 2011~2021 (Unit: %)



Source: Statistics Korea - Bank of Korea - Financial Supervisory Service, Survey of Household Finances and Living Conditions, each year (<https://kosis.kr>, retrieved on Dec 01, 2022)
 Note : The disposable income was calculated based on the formula 'market income+public transfer income-public transfer expenditure,' and the market income based on the formula 'earned income+business income+property income+private transfer income-private transfer expenditure'.



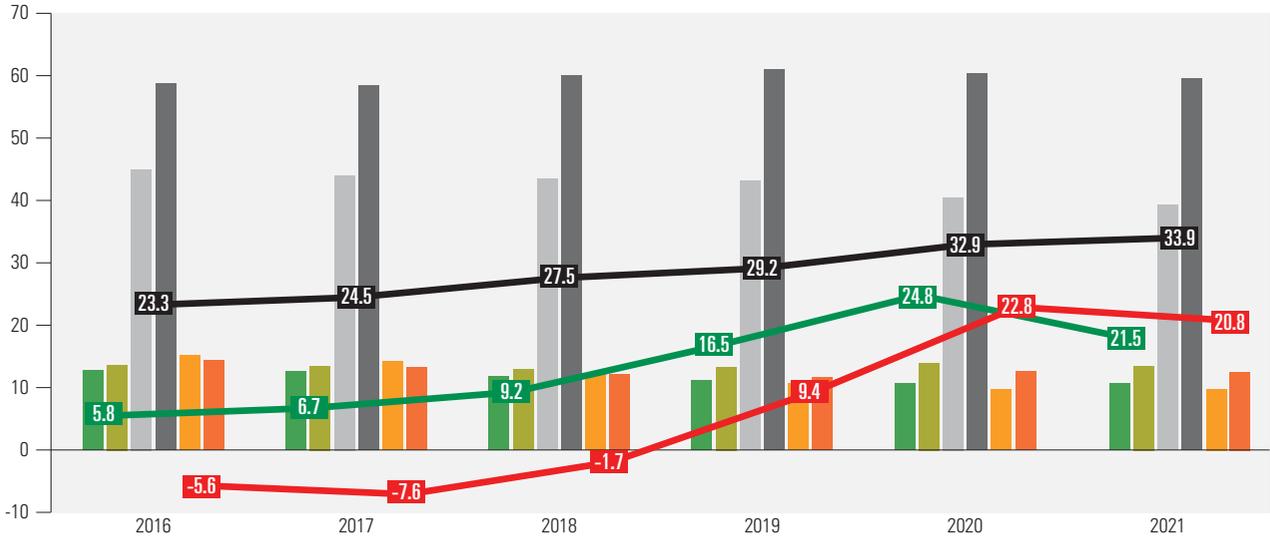
Poverty Reduction Effects from Public Transfer Income by Age Group, 2016~2021

((Unit: %))

Working-age Population (aged 18 to 65) ■ Poverty Rate based on disposable income ■ Poverty Rate based on market income — Poverty Reduction

Retiree Population (aged 66 or older) ■ Poverty Rate based on disposable income ■ Poverty Rate based on market income — Poverty Reduction

Children Population (under the age of 18) ■ Poverty Rate based on disposable income ■ Poverty Rate based on market income — Poverty Reduction



Source: Statistics Korea - Bank of Korea - Financial Supervisory Service, Survey of Household Finances and Living Conditions, each year (<https://kosis.kr>, retrieved on Dec 01, 2022)

Note 1: The poverty rate of the children population based on market income was calculated, using raw data of the Survey of Household Finances and Living Conditions.

Note 2: The effects of poverty reduction from public transfers were calculated as a percentage obtained after dividing the difference between the poverty rate based on market income and the poverty rate based on disposable income by the poverty rate of the market income.

insurance premiums. According to the 「Survey of Household Finances and Living Conditions」 of Statistics Korea that calculates the relative poverty rate based on the nation's disposable income, the relative poverty rate went down from 18.6% in 2011 to 15.1% in 2021. The poverty rate, which had been on a rapid decrease since 2017, dropped by only 0.2%p y-o-y in 2021.

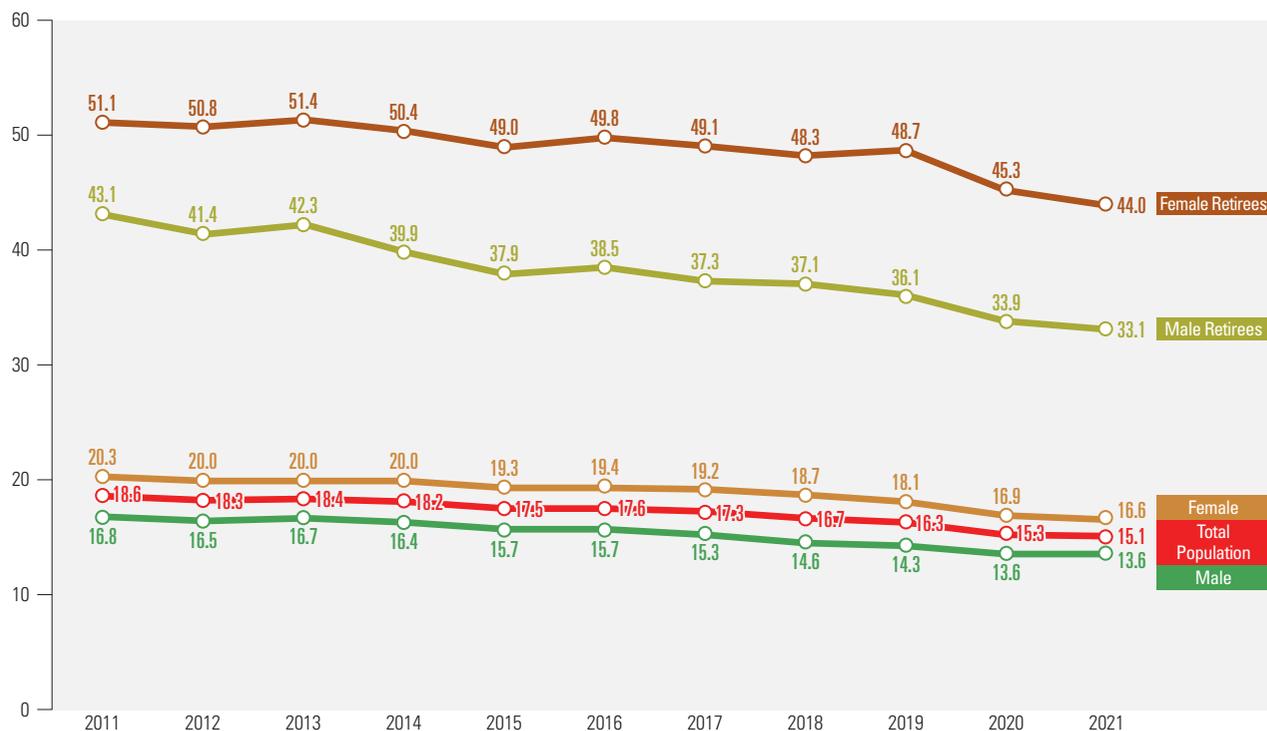
By age group, the poverty rate under the age of 18 (children population) in 2021 was equal to 9.9% which was a rather increase from the previous year; and the rate of working-age population aged 18 to 65 stayed the same as the previous year at 10.6%. Meanwhile, the poverty rates of those aged 65 or older (old-age population) and aged 66 or older (retiree population) stood at 37.6% and 39.3%, 1.3%p and 1.1%p down from the previous year respectively. Looking closely at the changes from the previous year, there was no reduction in the poverty rates in households with the population under the age of 65 and the rate declined only in old-age population. The fact that the poverty rate of those aged 18 to 65 based on market income failed to see an additional drop following a reduction from 14.1% in 2020 to 13.5%

in 2021 was due to the cutback in public income transfer. Among the population aged 66 or older, the poverty rate of market income went down from 60.2% in 2020 to 59.5% in 2021. For the same period, the poverty rate of disposable income decreased from 40.4% to 39.3%, showing that it was attributed to the public income transfer to some degree.

Given effects of alleviating poverty by age group measured in comparison between the poverty rate of market income and that of disposable income, the rate of poverty reduction among the population aged 18 to 65 soared from 5.8% in 2016 to 24.8% in 2020. For the same period, the poverty reduction rate of those aged 66 or older also increased from 23.3% to 32.9%. As for those under the age of 18, the poverty rate of disposable income was higher than that of market income in 2016, sending the poverty reduction rate into a negative territory (-5.6%); however, it rose back to 22.8% in 2020. It means that there was more reduction in their income than public income transfers they received due to taxes and social insurance premiums in households with population under the age 18 until 2018, but these households also saw an increase in public income

Relative Poverty Rate based on Disposable Income by Sex, 2011~2021

(Unit: %)



Source: Statistics Korea · Bank of Korea · Financial Supervisory Service, Survey of Household Finances and Living Conditions, each year (<https://kosis.kr>, retrieved on Dec 01, 2022)

Note : The disposable income was calculated based on the formula 'market income+public transfer income-public transfer expenditure' and the market income based on the formula 'earned income+business income+property income+private transfer income-private transfer expenditure'.

transfers after 2019. In 2021, however, the poverty reduction rate of the population aged 18 to 65 again went down to 21.5%, and the rate of the population aged 66 or older increased slightly to 33.9%. The poverty reduction rate also fell to 20.8% for the under 18 population. This shows that poverty reduction effects from the public income transfer in 2021 diminished than before or saw a slight decrease.

By sex, the relative poverty rate of men reduced from 15.7% in 2016 to 13.6% in 2021 while that of women decreased from 19.4% to 16.6% for the same period. However, men's poverty rate in 2021 remained unchanged from the previous year whereas the poverty rate of women fell by only 0.3%p from the last year.

Amid the rising take-up rate of public transfer income, 62.3% of household members received it in 2021 (SDG 1.3.1)

Public transfer income comes in various forms ranging from allowances targeted at specific age groups such as a children's allowance to public assistance paid to people satisfying certain income and property requirements including Basic

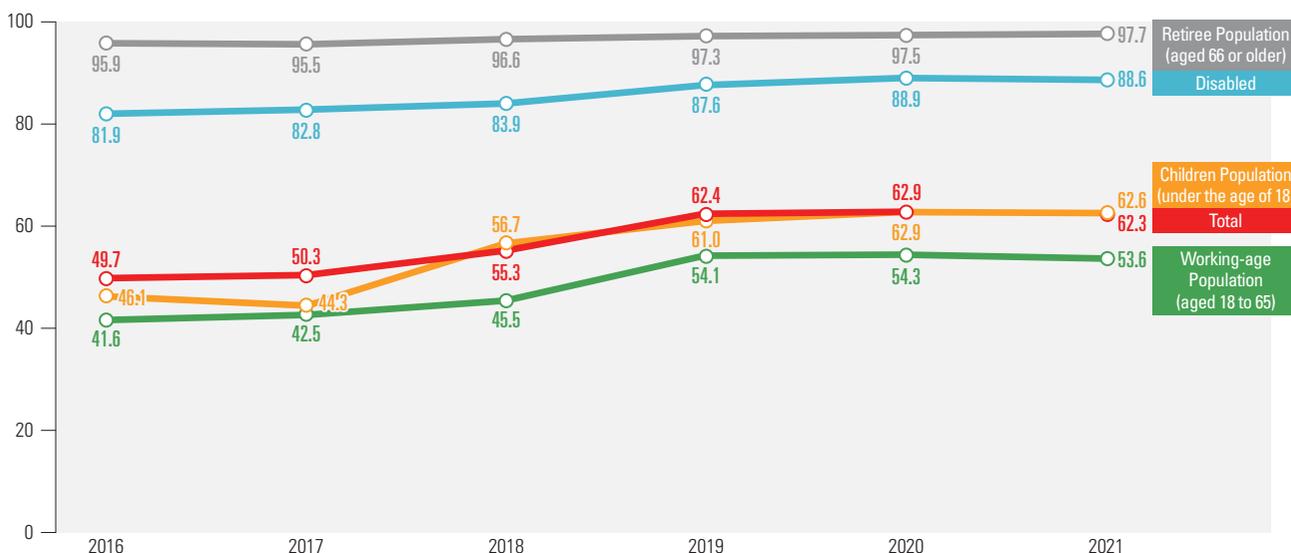
Pension, National Basic Livelihood Security and Earned Income/Child Tax Credit. In particular, the Emergency Disaster Relief Fund (EDRF) was granted due to COVID-19 in 2020 and 2021. As a proportion of household members who have received public transfer income out of the total population, the take-up rate serves as an indicator to check whether needed help can be provided in case of economic difficulties by allowing other members, if not the intended recipient, in a household to receive the public transfer income.

Out of the total population, the take-up rate of public transfer income steadily increased from 49.7% in 2016 to 62.3% in 2021. While the EDRF was granted to most of households due to the widespread of COVID-19 in 2020, the fund was excluded from the calculation to confirm a rising trend of the take-up rate. After increasing since 2017, the take-up rate of public transfer income peaked in 2020 and declined slightly in 2021. The take-up rate of public transfer income among the working-age population (aged 18 to 65) rose from 41.6% in 2016 to 53.6% in 2021, showing the similar a growing tendency seen in the children population (under the age of 18) that went up from 46.1% to 62.6%.



Take-up Rate of Public Transit Income by Age Group and of Households with the Disabled, 2016~2021

(Unit: %)



Source: Statistics Korea · Bank of Korea · Financial Supervisory Service, analyzed using raw data from Survey of Household Finances and Living Conditions
 Note : It indicates the ratio of household members who have received public transfer income in the corresponding year.

However, there was no significant change in the take-up rate of retiree population (aged 66 or older) from 95.9% in 2016 to 97.7% in 2021. No noticeable change was observed in the disabled group either from 81.9% to 88.6%. This is because that the Basic Pension and Disability Pension designed to secure income for the elderly and disabled have not largely increased the number of eligible recipients since their introduction in 2014 whereas welfare policies for the working-age population and children have gradually expanded.

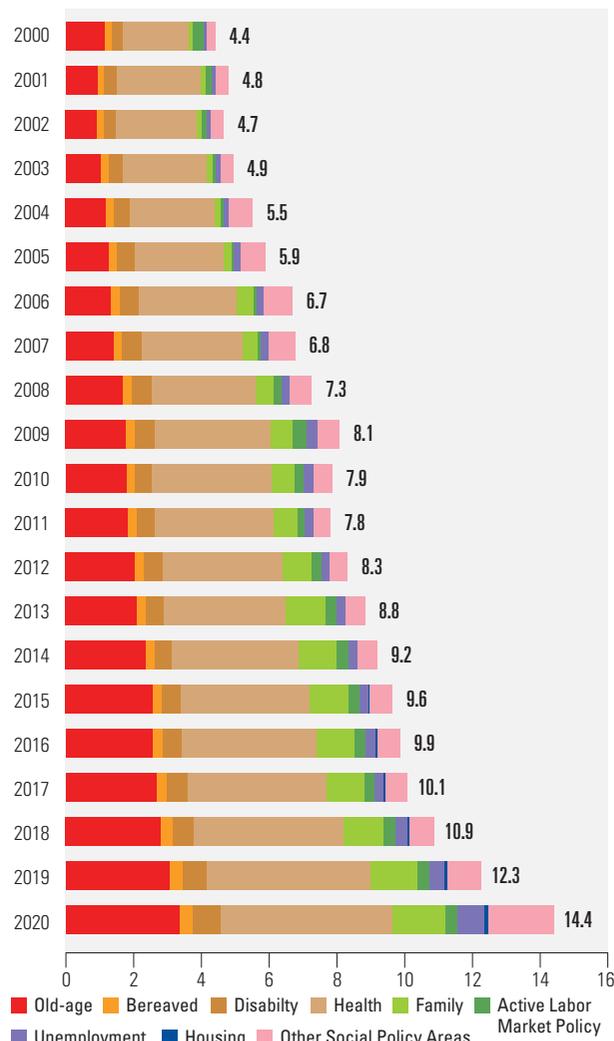
A large rise in public social expenditures in family and old-age domains (🎯 SDG 1.b.1)

OECD social expenditure data show each nation's social expenditures in major domains. As of 2020, Korea's social expenditures as a share of GDP stood at 14.4%, out of which health-related benefits took up the largest share with 5.1% of GDP, followed by old-age benefits (3.4%), other social policy benefits (1.9%), family-related benefits (1.5%), disability benefits (0.8%), unemployment benefits (0.8%), bereaved family benefits (0.4%), benefits for active labor market policies (0.4%), and housing benefits (0.1%). Under the influences of COVID-19, the benefits for other social policy areas and unemployment saw a significant increase in 2020 compared to the previous year.

To exclude the impact of COVID-19, we looked at the change in public social expenditures from 2010 to 2019, the

Public Social Expenditures as Share of GDP per Policy Domain, 2000~2020

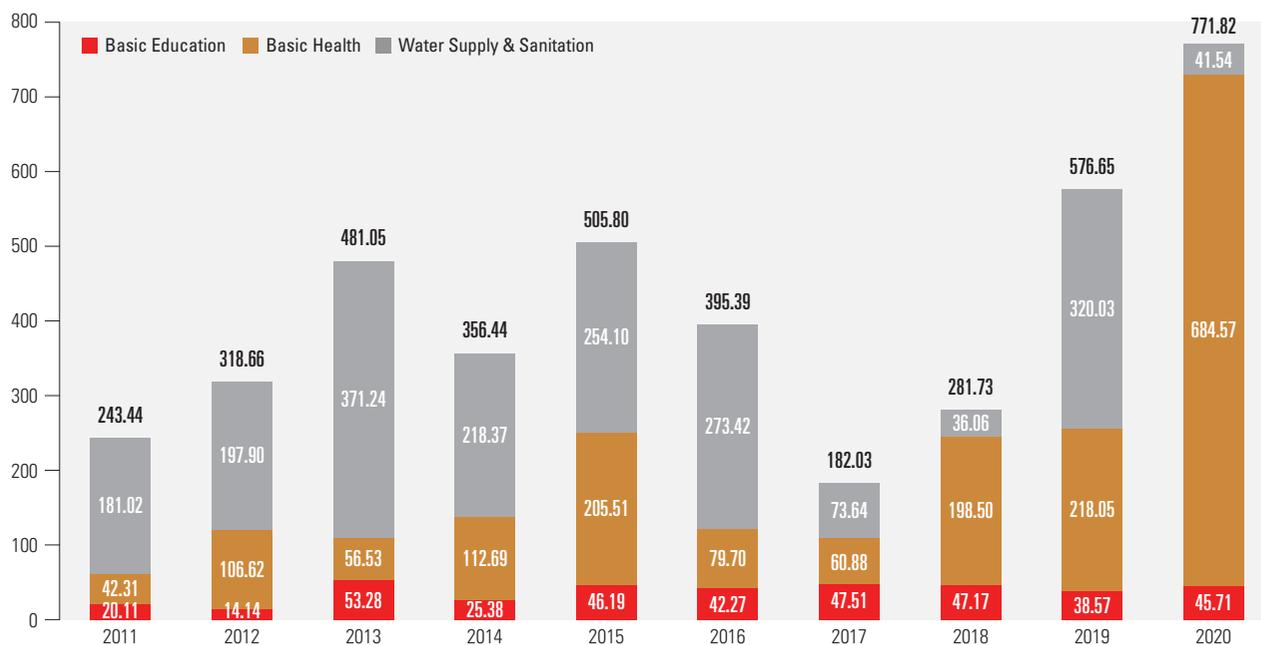
(Unit: %)



Source: OECD Social Expenditure Database (SOEX) (retrieved on Jan 26, 2023)

ODA Contributions to Reduce Poverty in Recipient Nations, 2011~2020

(Unit: USD 1 million, constant data of 2020)



Source: OECD, Dataset: Aid (ODA) by sector and donor[DAC5] (Retrieved on Sep 18, 2022)

expenditures as a share of GDP in Korea increased by 56.0% from 7.9%p to 12.3%p. During the period, family-related spending increased the most by 105.4%, followed by old-age spending (72.3%). In the family domain, more support was provided for family allowances regarding child-rearing and childcare subsidies. This is due to policy direction to deal with the low-fertility rate and to expand social responsibilities for childcare. As for expenditures for the elderly, spending on the National Pension, Public Officials Pension and Basic Pension were 2.5 times, 2.0 times and 3.8 times respectively in 2019 vis-a-vis 2010.

A rise in public health support out of ODA contributions to alleviate poverty (SDG 1.a.1)

Official development assistance (ODA) is defined as government aid to promote economic development and welfare of developing countries. Such assistance is carried out between a donor nation and a recipient nation or by multilateral

development organizations such as the UN or World Bank. The UN's longstanding target is to raise official development assistance to 0.7% of donors' GNP.

ODA expenses are divided into sectors, categories and items. The expenditures to reduce poverty in recipient nations were calculated including basic education under the education category; basic health under the health category; and the entire water and sanitation category out of the sector of social infrastructure and services. Normally, basic social services under the category of other social infrastructure and services and the food provision of multi-sectors can be included, but they are not applicable in Korea.

Korea's ODA contributions to reduce poverty in recipient nations rose from USD 243.44 million in 2011 to USD 771.82 million in 2020. That said, they went down to as low as USD 182.03 million in 2017. An increase in ODA contributions in 2020 was largely attributed to growing support for public health.

Definition

- **Relative poverty rate** : It refers to a rate of the poor at risk of poverty out of the total population. It is calculated as the proportion of population whose income is less than the relative poverty line corresponding to 50% of the median income of the total population.
- **Social expenditure data** : As database created to compare the status of social security and expenditures among OECD members, it classifies social expenditures into 9 policy domains and suggests the size of in-kind and cash expenditures per domain.



2 ZERO HUNGER



Cows graze on a ranch in Jeju, Korea

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Food is the most essential element for the survival of humans. SDG 2 aims to end hunger and provide quality nutrition by ensuring a sufficient amount of food to be supplied and consumed. On top of that, it is to fulfill basic human needs by establishing a sustainable food production system.

Although food production is large enough to feed the entire population in the world, the number of hungry population has risen around the world due to impacts from climate change, the COVID-19 pandemic, wars and conflicts and economic downturns. Around the globe, hungry population still stood at 828 million as of 2021, which increased by 46 million compared to 2020 and by 150 million compared to 2019 before COVID-19. With such a rising number of hungry population, it is getting difficult in achieving SDG 2 to end global hunger by 2030.

The recent pandemic, international disputes and climate change have worsened food conditions around the world including Korea. These are indeed a threat to food security and have negative impacts on health and nutrition of the general public including the vulnerable class. Korea has no longer suffered from absolute food shortage; however, the issue of food polarization and imbalance has emerged in terms of quality and quantity. Recently, there is a growing percentage of undernourished population, implying worsened imbalance in nutrition intake. Besides that, unstable global production and supply of food has pushed prices of food and others up. Accordingly, it has made it even more difficult for the vulnerable to get their hands on quality food. In order to maintain health and nutrition of the people at an appropriate level, both quality and quantity of food should be considered when food policies are devised.

As the global food supply chain is at risk due to the pandemic and wars, food security is getting more important than ever. With a low self-sufficiency rate of food and a weak domestic production base, Korea has limitations to respond to food crisis. It is necessary to secure a stable domestic production base of agricultural produce to meet basic food demands of the people. In Korea, small-sized farms tend to take up a high proportion out of the total agricultural households; however, their income level is relatively low. Therefore, it is necessary to improve economic conditions for these small-scale farms to maintain the optimum level of agriculture. In addition, active responses are required to safeguard biodiversity of fauna and flora, in order to shore up a sustainable agricultural system and secure food security.

A rising percentage of undernourished population since 2015 (🌱 SDG 2.1.1)

The ‘undernourishment’ refers to a condition in which energy intake is less than 75% of the required amount and the intake of calcium, iron, vitamin A, and riboflavin is less than the average amount required.

According to the National Health & Nutrition Survey com-

pleted by Korea Disease Control and Prevention Agency (KDCA), the percentage of the undernourished (aged 1 or older) amounted to 14.4% in 2020. The percentage of undernourished population which had stood at 18.4% in 2001 dropped by more than half to 8.0% in 2014, which was a fall by 10.4%p in thirteen years. Starting from 2015, however, it increased again. In 2020, it rose to 14.4% by 6.4%p up from the record low in 2014.

Percentage of Undernourished Population by Income Level, 2001~2020

(Unit: %)



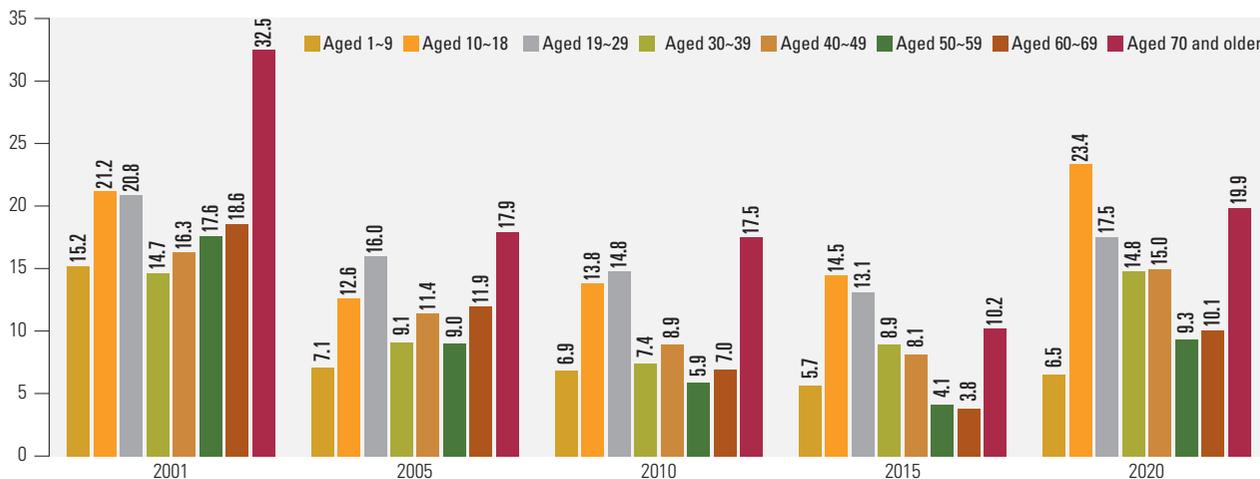
Source: Korea Disease Control and Prevention Agency, National Health & Nutrition Survey (<https://knhanes.kdca.go.kr>, retrieved on Aug 20, 2022)

Note : Income level: Monthly equivalized household income (Monthly family income/√No. of family members) divided into five categories (high/mid-upper/middle/mid-low/low) by gender and age (at a five-year interval)



Percentage of Undernourished Population by Age Group, 2001~2020

(Unit: %)



Source: KDCA, National Health & Nutrition Survey (<https://knhanes.kdca.go.kr>, retrieved on Aug 20, 2022)

Percentage of Undernourished Population by Sex, 2001~2020

(Unit: %)



Source: Korea Disease Control and Prevention Agency, National Health & Nutrition Survey (<https://knhanes.kdca.go.kr>, retrieved on Aug 20, 2022)

The percentage of undernourished population varies according to income levels. The lower income level, the higher undernourished people throughout all periods from 2001 to 2020. In 2020 alone, the percentage of poorly nourished people was just 13.4% in the high-income group but it rose to 18.9% in the low-income class. Meanwhile, a gap in the percentage of undernourished people between income groups narrowed in 2020 compared to 2019. However, it was not due to nourishment improvement in the low income class but owing to a rise in undernourished people in the high income class. Combined with dietary life affected by COVID-19 and worsened nutritional imbalance, the rate of poorly nourished people in the high-income class largely increased vis-a-vis those in the low income class which normally has a tendency to take up a higher portion of undernourished population. Back in 2020, the proportion of undernourished population in the high income group rose by

4.8%p compared to the last year whereas that in the low-income class almost stayed the same as the previous year. Thus, the gap in the proportion of undernourished people between income groups halved to 5.5%p in 2020 from 10.1%p in 2019.

By age, aged 10 to 18 accounted for the highest rate with 23.4% in 2020, followed by those in their 70s or older (19.9%) and in aged 19 to 29 (17.5%). In fact, undernourished people at the age of 70 or older was 32.5% in 2001, which was overwhelmingly higher than that of other age groups, but the gap between those in their 70s or older and other age groups decreased in 2020.

Men and women have different dietary habits, leading to a difference in their level of nutrition intake. From 2001 to 2020, the proportion of undernourished women was relatively higher than that of men. The percentage of undernourished women stayed at 16% to 17% after 2018 while that of

men slightly increased to 11.1% in 2020 from 8.3% in 2018. The gap between men and women decreased from 11.7%p in 2007 to 5.3%p in 2017, but once widened to 9.1%p in 2018. It again narrowed to 6.6%p in 2019 and 2020. Since 2017, the gender gap has remained more or less at 5%p to 6%p.

A slight decrease in agricultural income gap by farmland size (📍 SDG 2.3.2)

An agricultural income is a measure that shows the income level of agricultural households. It refers to an amount of gross agricultural revenues minus agricultural management expenses. Although there are some fluctuations in agricultural income in Korea, it has been on an increase since the 2010s on average. In 2019, it plummeted by 20.6% y-o-y to KRW 10.26 million. Afterwards, it turned around and rose to KRW 12.96 million in 2021.

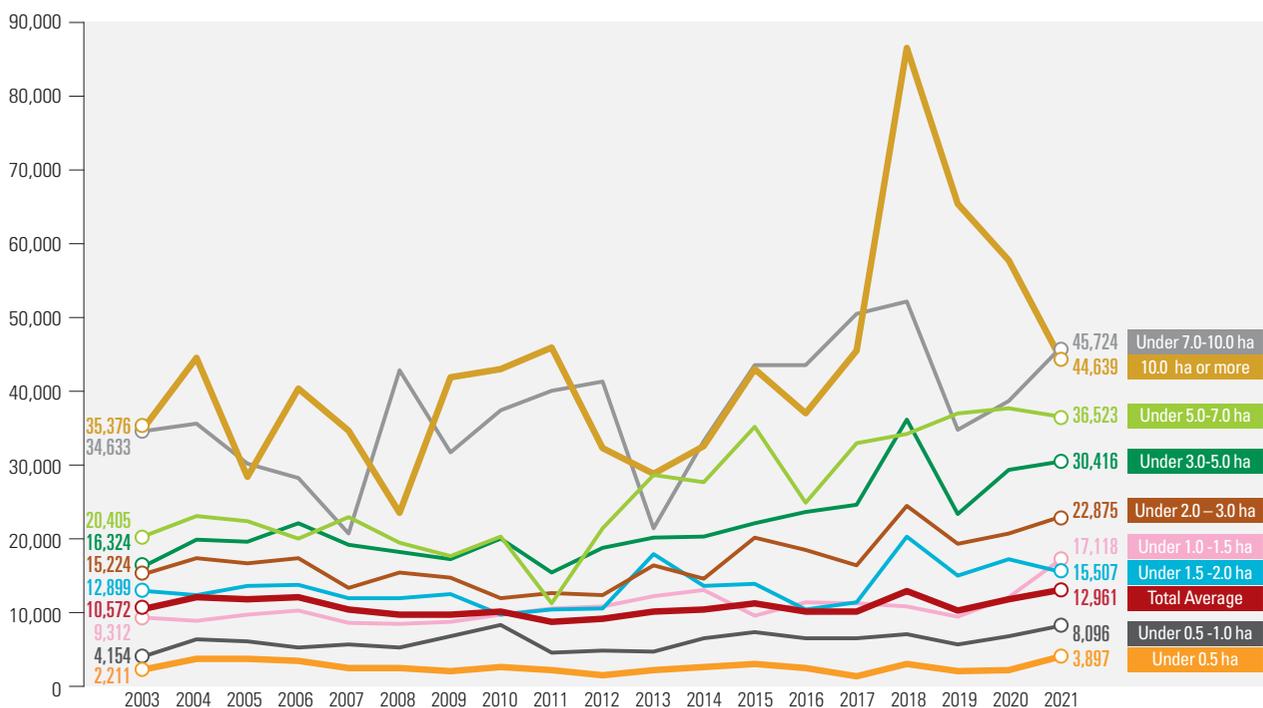
The agricultural income was up and down until 2021, so was a gap in the agricultural income depending on the size of farmland. The agricultural income of most farms heavily increased until 2018, which accordingly widened the income gap with relatively small farms. In the aftermath of wide-

spread of COVID-19 in 2020, however, most of farms had yet to restore their agricultural income to the pre-COVID level whereas, for the same period, small farms saw their income increase, narrowing the gap slightly, if not heavily, in the agricultural income between small and big farms.

In 2003, the agricultural income of small farms with a farmland of 0.5 ha or less was just 6.3% of large-scale farms' with a farmland of 10 ha or larger. Since then, due to agricultural income of the large farms largely increased, it dwindled to 3.5% in 2018. Nevertheless, the income of large farms kept falling from 2018 till 2021. Instead, the income of small farms saw a slight increase, which pushed their agricultural income up to 8.7% of large farms'.

The average agricultural income rose only by a mere 1.1% in the 2000s. Rather, the non-agricultural income increased by 3.6% on an annual average and the transfer income rose by 11.7% per year on average, driving the growth of agricultural income. Out of farm household income, the proportion of the agricultural income dropped by 12.2%p for 18 years from 2003 to 2021. Besides that, non-agricultural income and transfer income increased by 2.5%p and 23.5%p respectively. Given all these, the rate of non-agricultural income

Agricultural Income by Farmland Size, 2003~2021 (Unit: KRW 1,000)

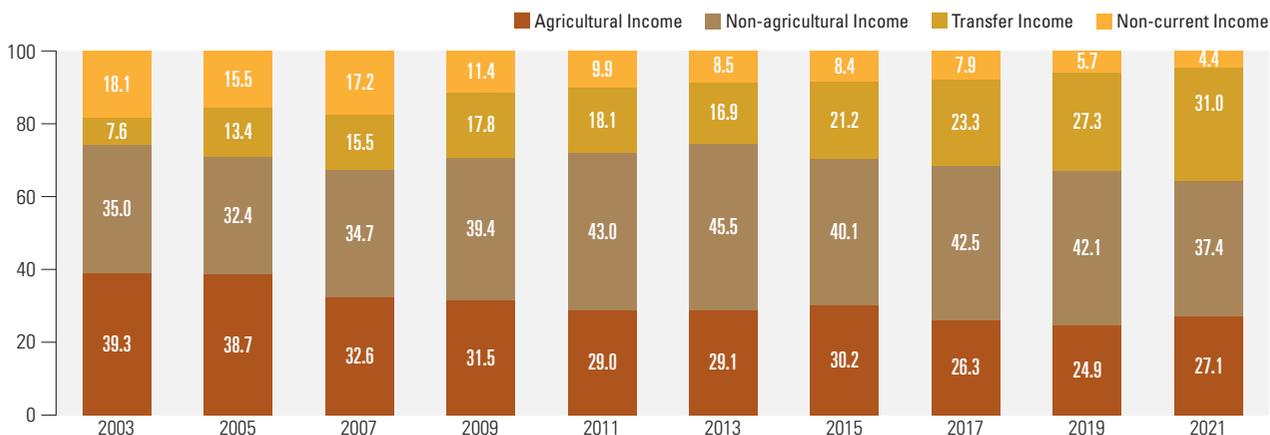


Source: Statistics Korea, Farm Household Economy Survey (<https://kosis.kr>, retrieved on Aug 20, 2022)
 Note : The Farm Household Economy Survey assesses the level of farm household income which consists of agricultural income, non-agricultural income, transfer income and non-current income. Among these elements, the survey focuses on agricultural income (= gross agricultural revenue - agriculture management expense, based on nominal value) for analysis.



Breakdown of Agricultural Income, 2003~2021

(Unit: %)



Source: Statistics Korea, Farm Household Economy Survey (<https://kosis.kr>, retrieved on Jan 10, 2023)

Note : The farm household income is comprised of agricultural income, non-agricultural income, transfer income and non-current income. Among them, the agricultural income refers to an amount of the gross agricultural revenues minus agricultural management expenses. The non-agricultural income sums up income from subsidiary businesses and non-business income, showing outcome achieved from non-agricultural activities. The transfer income is the income earned from non-economic activities of agricultural households, all covering private grants and public subsidies (pension, etc.). The non-current income is the income excluding current income, meaning income derived from non-regular and contingent events.

stood at 37.4% which was the largest out of the farm household income in 2021, followed by transfer income (31.0%), agricultural income (27.1%) and non-current income (4.4%).

A high rate of endangered local livestock breeds, requiring efforts to ensure livestock resource diversity (SDG 2.5.2)

The rate of local livestock breeds at risk of extinction serves as an indicator to assess the level of biodiversity and means a rate of breeds classified as at-risk status out of local livestock breeds whose at-risk level is known. Accordingly, FAO has endeavored to systematically manage livestock's genetic resources around the world and maintain diversity of animals' genetic resources via Domestic Animal Diversity Information System

(DAD-IS). FAO classifies the livestock registered to the system into three categories, namely, at risk, not at risk and unknown.

The rate of local livestock breeds at risk continued to remain at a very high level (80% or higher) since 2011. It rose to 90% and 91% in 2012 and 2013, but fell to 80% since 2014. In 2022, it recently fell by 2%p y-o-y to 84%, showing a glimpse of improvement. However, it indicates that diversity of animal resources fell short of a big improvement in the 2010s.

Severer price fluctuations of agricultural/livestock/fishery products than overall consumer prices (SDG 2.c.1)

Not only does a rise in prices affect the national economy, but it also influences individuals' economic activities. Given the fact

Rate of Local Livestock Breeds at Risk, 2005~2022

(Unit: %)



Source: FAO, DAD-IS (<https://kostat.go.kr/sdg>, retrieved on Dec 30, 2022)

Note : This is regarding the rate of breeds classified as at-risk status out of livestock breeds in areas whose at-risk level is known.

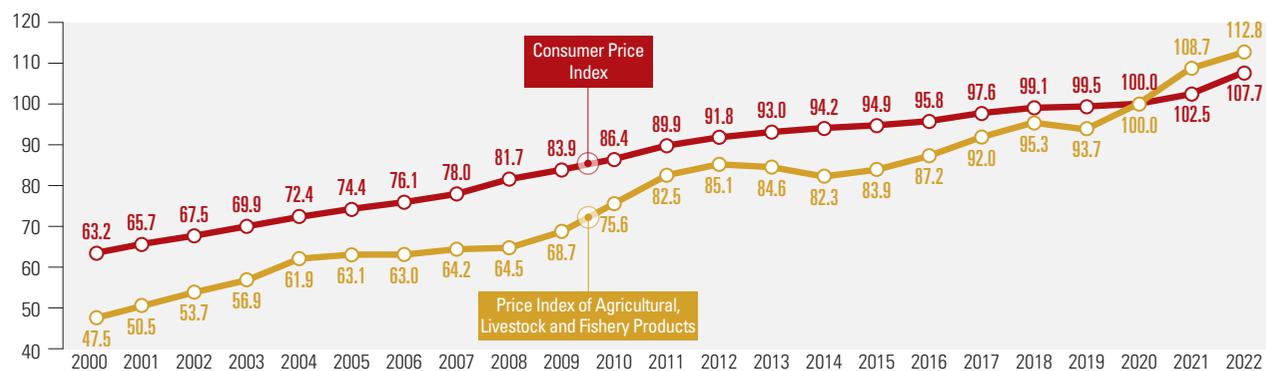
that a steep inflation could cripple development of the national economy and individuals' economic activities, it is critical to bring stability to prices for both the nation and individuals.

Accordingly, the UN SDG are paying particular attention to the stability of food prices. Looking at the domestic price index of agricultural, livestock and fisheries products in this regard, consumer products have continued. It is rising faster than the index. Compared to 2000, the consumer price index in 2022 soared by 70.5% while the price index of the products increased by 137.3% for the same period.

As the price index of agricultural, livestock and fishery products is very sensitive to external factors such as weather conditions, it could have a severe fluctuation than the consumer price index. The y-o-y change in the consumer price index from 2001 to 2022 remained at 0.4% to 5.1% while

the price index of agricultural, livestock and fishery products fluctuated by a relative big margin from -2.7% to 10.0%. The escalation of the price index of the products went down to a negative territory in 2006, 2013, 2014 and 2019, but it sharply soared by over 5% y-o-y in 2001 to 2004, 2009 to 2011, 2017 and 2020 to 2021. In particular, for the two consecutive years like 2020 and 2021 when the COVID-19 pandemic widely spread, it jumped by 6.7% and 8.7% y-o-y respectively. Such an upward trend slowed a bit down to 3.7% in 2022. This sudden rise in prices of the agricultural, livestock and fishery products inevitably tend to impose a sizeable economic burden on consumers. Especially, the low-income classes are hit hard by these impacts. This is because it makes it more difficult for them to intake food enough to maintain basic health and be well nourished.

Price Index of Agricultural, Livestock and Fishery Products & Consumer Price Index, 2000~2022 (2020=100)



Source: Statistics Korea, Consumer Price Index (<https://kosis.kr>, retrieved on Dec 30, 2022)

Fluctuation in Price Index of Agricultural, Livestock and Fishery Products & Consumer Price Index, 2001~2022 (Unit: %)



Source: Statistics Korea, Consumer Price Index (<https://kosis.kr>, retrieved on Dec 30, 2022)

Definition

- **Undernourished population** : It refers to people in a condition in which energy intake is less than 75% of the required amount and the intake of calcium, iron, vitamin A, and riboflavin is less than the average amount required.
- **Price index of agricultural, livestock and fishery products** : It is an index that measures a price fluctuation in agricultural, livestock and fishery products that consumers buy.



3 GOOD HEALTH AND WELL-BEING



Ensure healthy lives and promote well-being for all at all ages

SDG 3 is to 'ensure healthy lives and promote well-being for all at all ages' which is an essential element for better quality of the people's lives and the society's sustainable development. The WHO and international community have engaged in various projects to ensure mankind's right to health. SDG 3 contains detailed targets like protection of maternity and children health, mitigation of burden inflicted by communicable and non-infectious diseases, more coverage for essential healthcare services, disease prevention from environmental pollutants and protection of mankind from alcohol, drugs and tobacco.

The COVID-19 pandemic, which has continued for over three years, clearly shows importance of health-related sustainable development goals. The critical agenda that we have to achieve includes prevention from and response to infectious diseases, health management of the vulnerable, better access to medical services and sound mental health in the post-COVID society. In this sense, Korea has determined its national sustainable development goal (K-SDGs) 3 as 'ensuring healthy and happy lives' and has endeavored efforts to safeguard the people's right to health, so as to achieve its 9 targets. Such efforts have led to some accomplishment o SDG in Korea.

According to the International Health Regulations (IHR), Korea has continuously maintained its core capacities for preparedness and response to health emergencies at a high level; however, the available number of healthcare resources is still far less than that of other OECD countries. In addition, the number of new Human Immunodeficiency Virus(HIV) infections and smoking population is low by global standards, but the figures have been stagnant rather than being improved. To this end, continuous monitoring is needed.

Korea ranked high in its health emergency preparedness among OECD countries (📍 SDG 3.d.1)

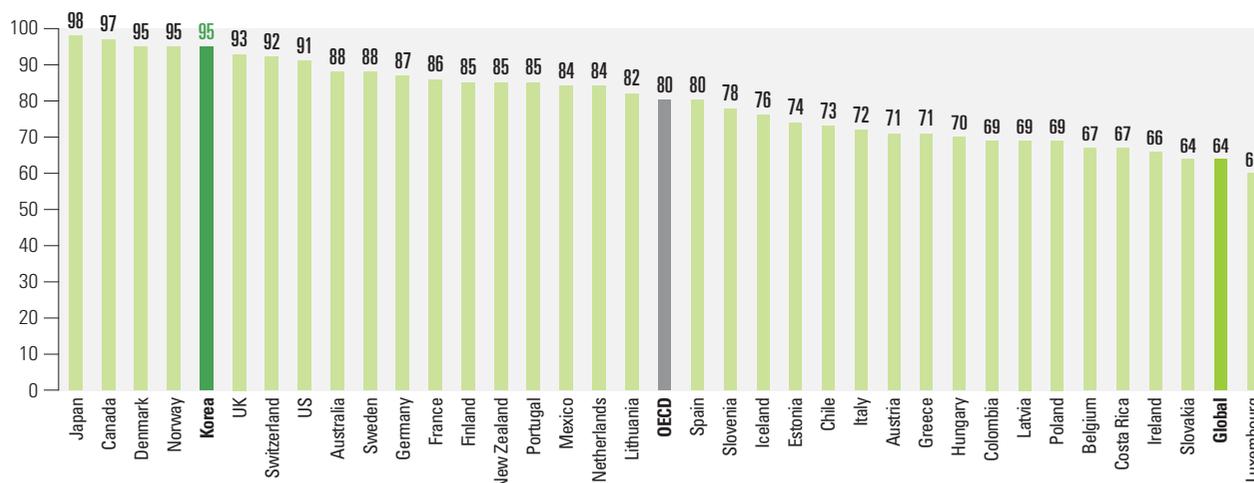
International Health Regulation (IHR) capacity and health emergency preparedness are used as an indicator to assess a country's capacities to respond to a health issue. The IHR serves as legal regulations for WHO member states to prevent, detect and respond to a public health crisis. Under such regulations, Indicator 3.d.1. aims at ensuring all countries to engage in early warning and risk mitigation and reinforce their capacities to respond to national and international health emergencies. The IHR capacities and health emergency response are evaluated in accordance with 15 items of core capacities. There are: 1. Policy, legal and normative instru-

ments to implement IHR ; 2. IHR coordination, national focal point functions, 3. Financing, 4. Laboratory, 5. Surveillance, 6. Human resources, 7. Health emergency management, 8. Health services provision, 9. Infection prevention and control (IPC), 10. Risk communication and community engagement (RCCE) , 11. Point of entry and border health, 12. Zoonotic diseases, 13. Food safety, 14. Chemical events, 15. Radiation emergencies. Among them, the item 'Infection Prevention and Control' was newly added to the list in 2021.

In 2021, Korea's IHR rating was 95%, which is higher than the global average(64%) and ranks among the top OECD countries. This trend was largely maintained in the each detailed items assessment. All 15 items scored higher

IHR Core Capacities by OECD Country, 2021

(Unit: %)



Source : UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Jan 04, 2023)

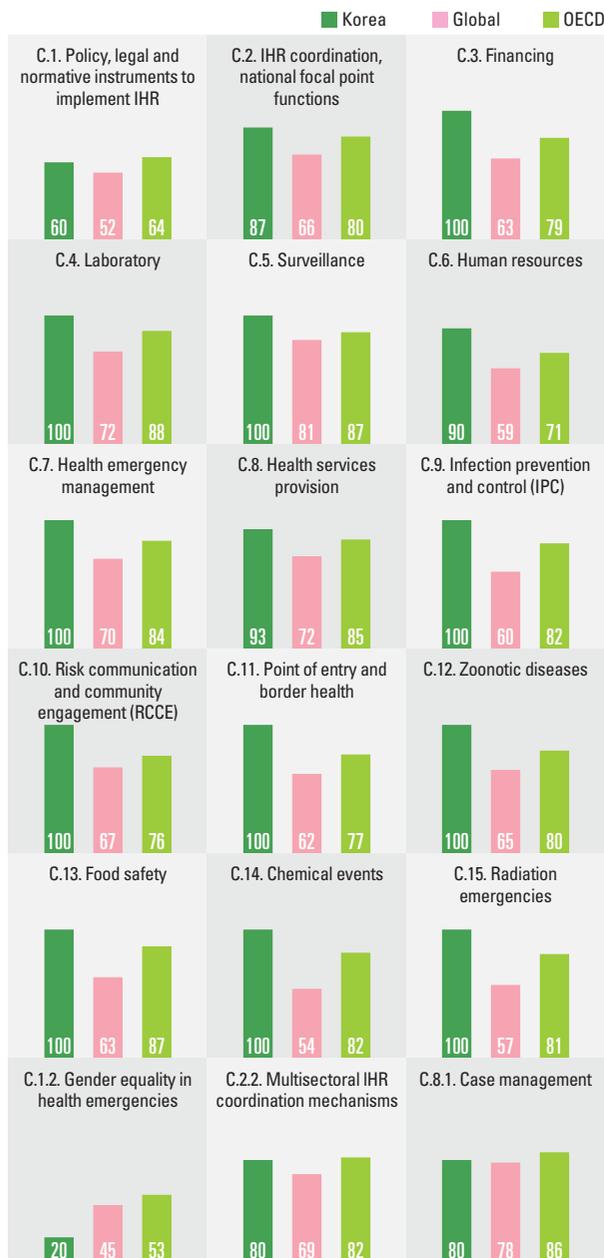


than the global average, and when compared to the OECD average, Korea scored higher in all but one item (1. Policy, legal and normative instruments to implement IHR). However, when we drill down to the sub-items, we find three areas where Korea falls below the OECD average. These are gender equality in health emergencies(1.2), multisectoral IHR coordination mechanisms (2.2), and case management (8.1).

Newly created in 2021, the item of gender equality conducts gender analysis regarding IHR capacities and assesses

Korea's IHR Detailed Capacities, 2021

(Unit: %)



Source: WHO, e-SPAR: IHR score per capacity (<https://extranet.who.int/e-spar/#capacity-score>, retrieved on Jan 04, 2023)

Note : Compared to the 2018-2020 items, a new item 'Infection prevention and control(9)' has been added. The existing 'Policy and finance' item will be split into two items; Policy, legal and normative instruments to implement IHR(1) and Financing (3). The existing 'Risk communication' item has been renamed 'Risk communication and community engagement(10)'.

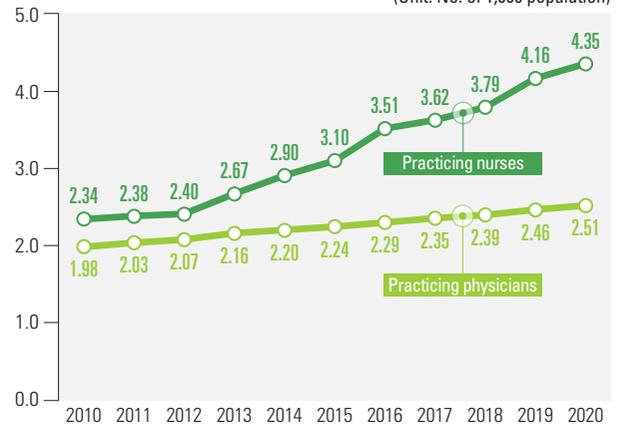
how plans, budgets and implementation system are put in place and in operation to alleviate a gender gap identified. Globally, there is a high sense of awareness on the phenomenon in which discrimination against and alienation of women could lead to an issue with access to health information and services. Establishing a department responsible for gender equality policies under the Ministry of Health and Welfare in 2019, Korea has also paid keen attention to gender equality in health policies. Going forward, these efforts have to be made in a more systematic manner down the road.

The number of health care resources increased but fell short of the OECD average (SDG 3.c.1)

Since the outbreak of the COVID-19 pandemic, stable supply of health care resources has been emphasized as a very important element in health care services that the society provides. The

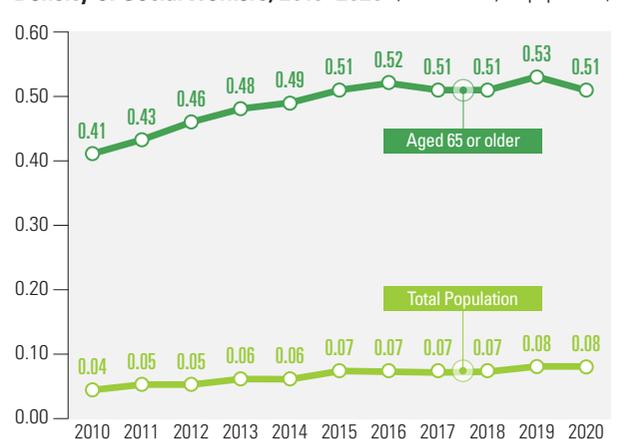
Density of Health Care Resources, 2010~2020

(Unit: No. of 1,000 population)



Source: OECD Statistics, Health Care Resources (retrieved on Jan 16, 2023)

Density of Social Workers, 2010~2020 (Unit: No. of 1,000 population)



Source: National Health Insurance Service · Health Insurance Review & Assessment Service, National Health Insurance Statistics (<https://kosis.kr>, retrieved on Aug 08, 2022), Statistics Korea, Projected Future Population (<https://kosis.kr>, retrieved on Dec 30, 2022)

number of practicing physicians and nurses in Korea has been a steady rise since 2010, sending the density to 2.51 physicians per 1,000 population with 2,756 up from 2019 and density to 4.35 nurses per 1,000 population with 10,169 up from 2019. Despite all that, the number still fell short of the international level. As of 2020, the OECD average is 3.67 practicing physicians and 8.06 practicing nurses per 1000 people. This is very low compared to countries such as Austria (5.35), Norway (5.09), and Spain (4.58), which have a high number of physicians per capita, and Norway (18.01), Germany (12.06), and Switzerland (11.81), which have a high number of nurses.

As the population is aging, social workers are playing a bigger role. The population of social workers in Korea, which was 2,200 in 2010, almost doubled to 4,136 in 2020 in a matter of a decade. However, the number of social workers per 1,000 population in 2020 was a mere 0.08, and worse yet, the number per 1,000 population aged 65 or older was 0.51. Considering growing needs for health care services and stronger right to health in this aged society, there is also unfortunately a shortage of social workers.

New HIV infections remained very low among OECD countries (🎯 SDG 3.3.1)

SDG Target 3.3 aims at stamping out large-scale spread of communicable diseases such as acquired immunodeficiency syndrome (AIDS) and neglected tropical diseases. To be specific, In-

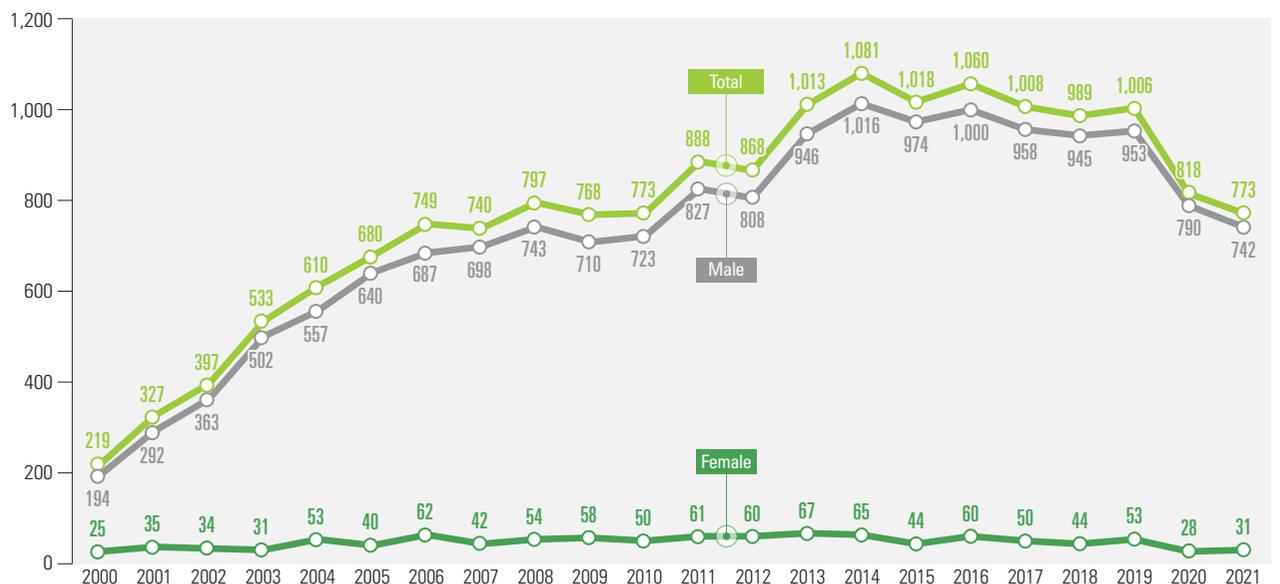
dicator 3.3.1 (No. of new HIV infections) had been on a steady rise since 2000 and didn't go up any more starting from 2016. Over 90% of new infections were men, and the number of infected men also stopped the increase since 2016. After 2020, the number of new infections noticeably decreased in both men and women compared to the previous year. It is assumed that it was due to social distancing caused by COVID-19.

In Korea, the number of new HIV infections per 1,000 population was very low with 0.0149 in 2021 among OECD countries. In comparison to the international statistics in 2020, Norway (0.01), Slovenia (0.01) and Japan (0.00) were the only three countries whose new infections were less than those in Korea. Although the number of new infections in Korea is very small with no more than 1,000 each year, the global average per 1,000 population dramatically fell from 0.48 in 2000 to 0.19 in 2020. On the other hand, the number of patients in Korea remained stagnant for a while since mid-2010 and saw a decrease starting from 2020 when COVID-19 spread. Continuous monitoring is required to let such a downward trend continue.

Despite a downward trend, the smoking rate of men remained at the top rank out of OECD countries (🎯 SDG 3.a.1)

In Korea, the smoking rates among adult(19 or older) have been a reduction since 2001. In particular, the smoking

Number of New HIV Infections by Sex, 2000~2021 (Unit: No. of persons)

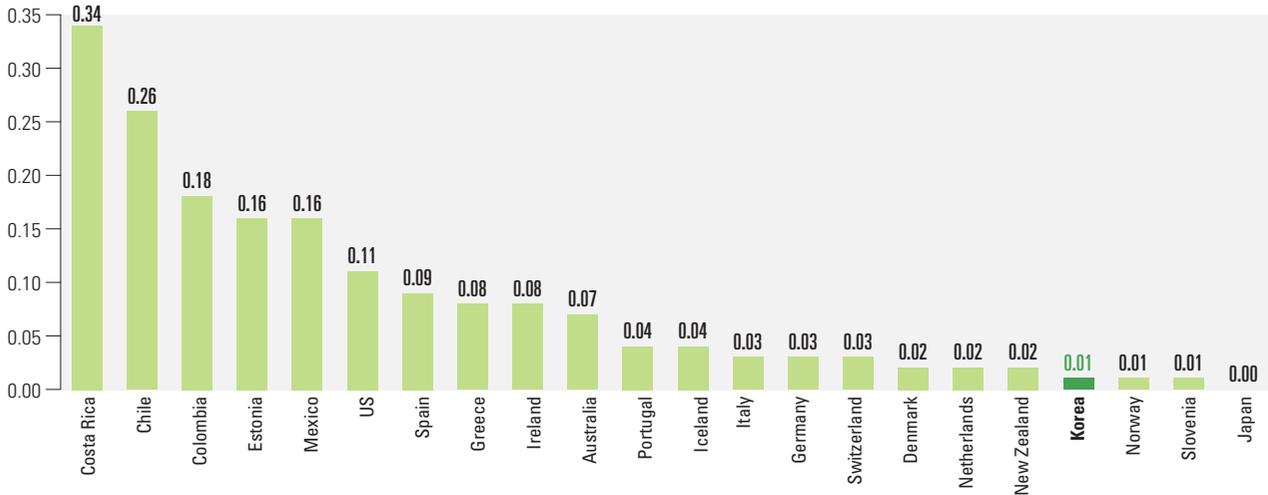


Source: Korea Disease Control and Prevention Agency, HIV/AIDS Reporting Status (<https://kosis.kr>, retrieved on Jan 04, 2023)



Number of New HIV Infections by OECD Country, 2020

(Unit: No. of persons per 1,000 non-infected population)



Source: UN SDG Indicators database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Oct 25, 2022); Korea Disease Control and Prevention Agency, 2021 Infectious Diseases Surveillance Yearbook
 Note 1: Incidence rates estimated using UNAIDS modeling software (Spectrum) for all countries except Republic of Korea
 Note 2: It was the 2019 figure for the United States and the 2018 figure for Switzerland.

rate of men reduced from 60.9% in 2001, down more than 25%p to 34.0% in 2020 in a matter of two decades. The smoking rate of adult women was much lower than their male counterparts, but they stayed almost unchanged from 5.2% in 2001 to 6.6% in 2020.

Smoking of adolescents (high school students) also continued to decrease since 2005. The smoking rate of male students declined from 22.4% in 2005 to 10.0% in 2021, and that of female students decreased from 13.5% to 4.2% for the same period. The rates more than halved in both sex. Having said that, the smoking rate of female students didn't show any evident reduction since 2016, indicating that they were at a standstill just like the rate of female adults. Moreover, the smoking rate of women aged 19 to 29 was relatively

higher than that of female adults and showed a growing trend since 2015. It indicates that an intervention would be critical for adolescents and young female adults in their 20s, so as to break stagnation of smoking rates among women and bring them down.

Compared to OECD countries, Korea's overall smoking rate was lower than the OECD median value. Looking at the smoking rates by sex, additional implications can be obtained. Although the smoking rate of adult men in Korea has been on an decrease, it ranked 8th among OECD countries. This is a stark comparison with the smoking rate of Korean women who were the third lowest among OECD countries after Costa Rica and Columbia. It could justify active policy intervention to lower the smoking rate of men.

Smoking Rates of Adults by Sex, 2001~2020

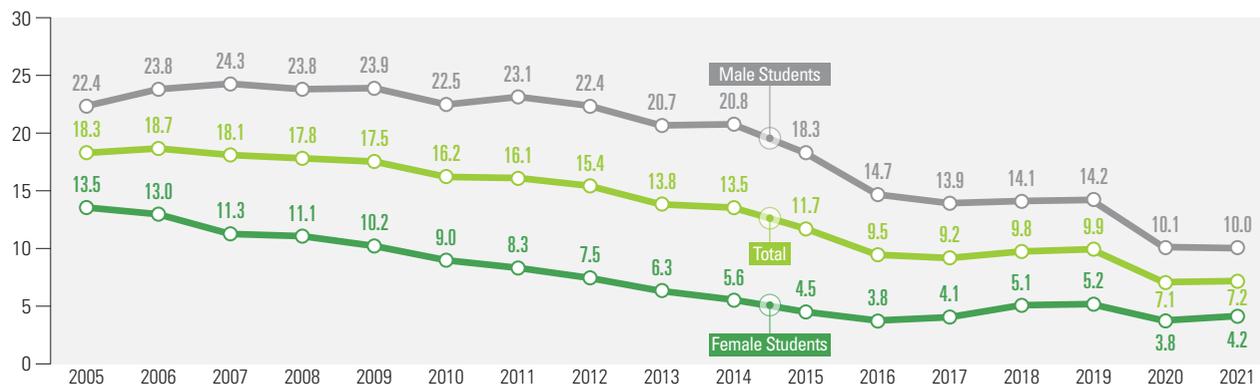
(Unit: %)



Source: Korea Disease Control and Prevention Agency, National Health & Nutrition Examination Survey (<https://kosis.kr>, retrieved on Sep 08, 2022)

Smoking Rates of High School Students by Sex, 2005~2021

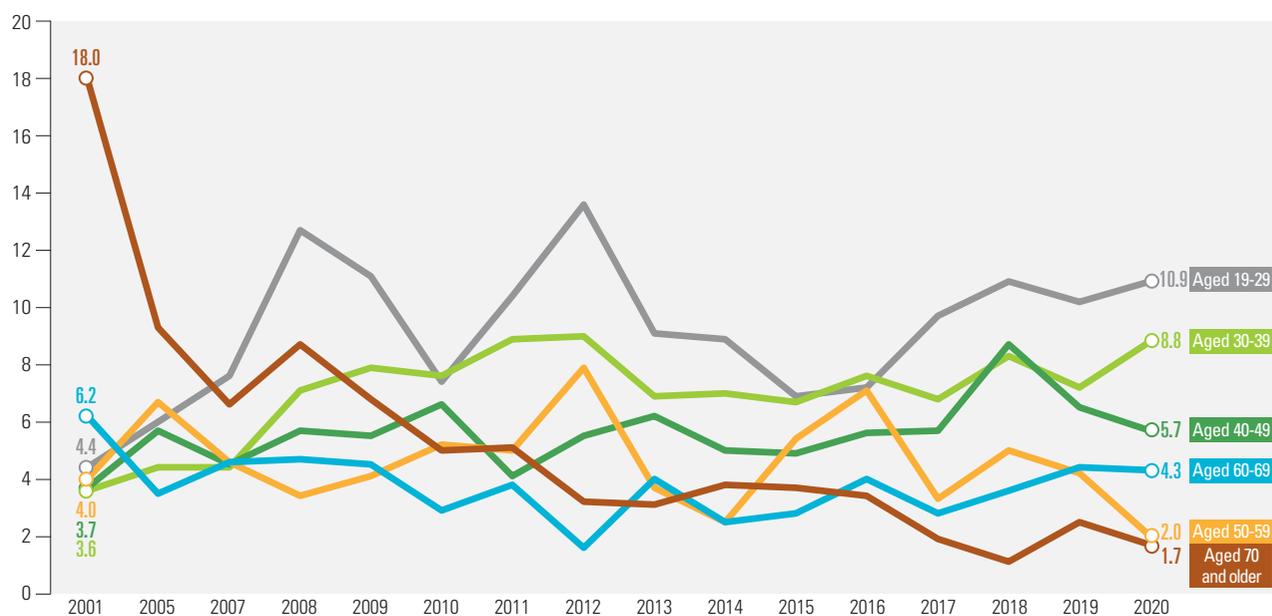
(Unit: %)



Source: Korea Disease Control and Prevention Agency, Adolescent Health Behavior Survey (<https://kosis.kr>, retrieved on Sep 08, 2022)

Smoking Rate of Adult Women by Age Group, 2001~2020

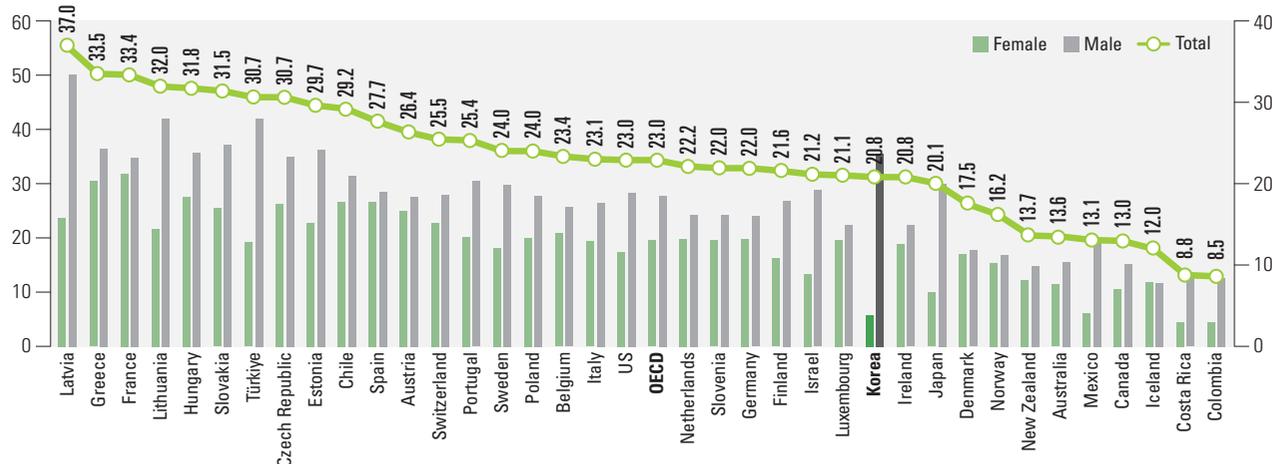
(Unit: %)



Source: Korea Disease Control and Prevention Agency, National Health & Nutrition Examination Survey (<https://kosis.kr>, retrieved on Sep 08, 2022)

Smoking Rates of Population aged 15 or older by OECD Country, 2020

(Unit: %)



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 10, 2022)



4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

SDG 4 is to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all', which is a critical goal considered as a key enabler under the SDG framework (United Nations, 2022). This progress report analyzed relevant indicators ranging from early childhood education to lifelong learning to cover life-cycle education across the board on which SDG 4 focuses.

In Korea, the enrollment rate of 5-year-olds soared during the early 2010s. It has hovered 90% to this date. It is in line with the global trend that highlights the importance of early childhood education. It can be also regarded as outcome of Korean education policies focusing on state responsibility for childcare and education of young children. The international assessment of academic achievement conducted on elementary and middle students showed that Korea was one of the highest achievers since the launch of the assessment. However, the proportion of students achieving at least minimum proficiency level in math and reading reduced a little bit compared to the past (Statistics Research Institute, 2021). The National Assessment of Educational Achievement also showed that the rate of students whose achievement level is classified as 'average or higher' dramatically went down in the aftermath of the outbreak of COVID-19. It seems to require thorough and continuous monitoring on students' academic achievement in the future. Meanwhile, the indicator 'extend to which global citizenship education (GCDE) and education for sustainable development (ESD) are mainstreamed' was first reported recently, which garnered a great deal of attention. In fact, Korea has addressed GCDE and ESD as an important education agenda by emphasizing or mandating the implementation of GCDE and ESD in relevant Acts and amending curriculum in 2015 to suggest global citizenship education as core capacities.

The importance of lifelong learning has been more emphasized against the backdrop of macro trends such as aging and growing needs for training to refresh knowledge and skills (OECD, 2021). The participation rate of lifelong learning among adults in Korea maintained at around 40% since 2018, but since the onset of COVID-19, greatly reduced to 30.7% in 2021. The participation rate of lifelong learning tends to be relatively low among the vulnerable. Thus, continuous monitoring and supportive policies are needed to encourage adults to take part in lifelong education.

Although Korea maintained high achievement level at PISA, the percentage of students achieving 'average or higher' continued to fall after the onset of COVID-19 (📉 SDG 4.1.1)

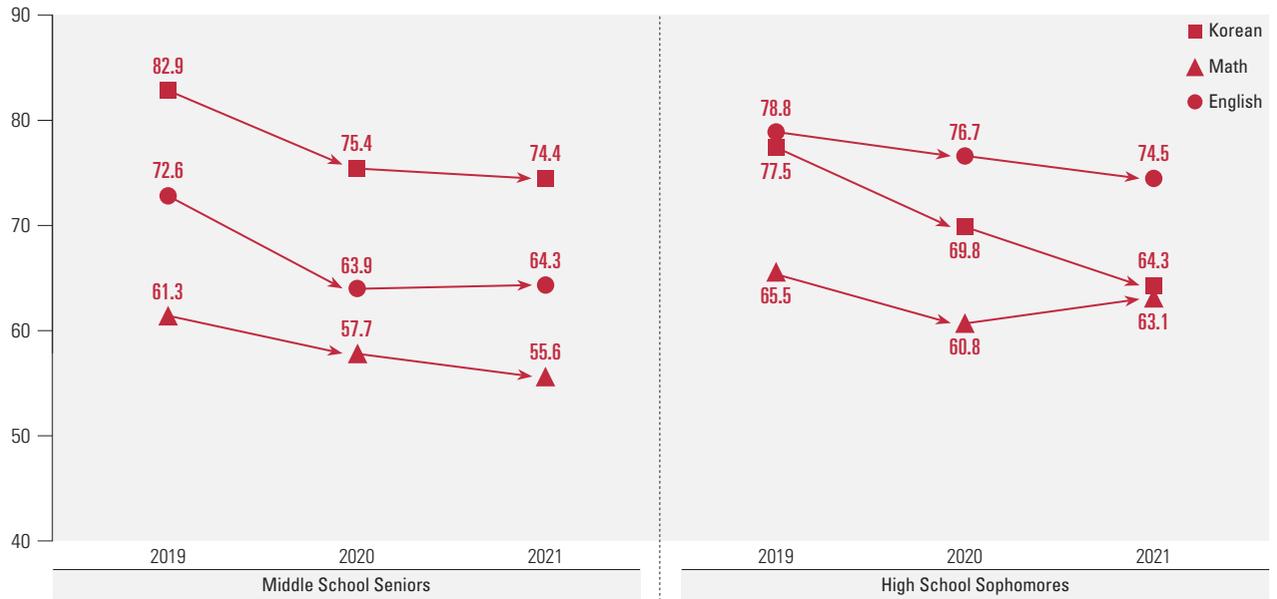
The academic achievement level of a country is one of many measures to show the quality of a nation's education. In particular, the percentage of children and adolescents achieving the 'minimum proficiency level' serves as an indicator that shows not only the nation's quality of education but also inclusiveness and equality of education. The National Assessment of Educational Achievement (Hosted by Korea Institute for Curriculum and Evaluation) conducted each year on middle school seniors and high school sophomores in Korea classifies students' achievement levels in subjects like Korean, math and English into the following four: Level 4: Excellent, Level 3: Average, Level 2: Basic, Level 1: Below the basic academic skills. The percentage of students reaching 'Level 3 (average) or higher' and 'Level 1 (below the basic academic skills)' are publicly announced. As the results of National Assessment of Educational Achievement are announced each

year, it is useful in tracking a change in students' academic achievement. Especially, the data can be utilized to closely analyze such a change in students' academic achievement before and after the outbreak of COVID-19.

To be specific, the ratio of students achieving 'Level 3 (average) or higher' declined in all subjects during a period from 2019 to 2021. The ratio among middle school seniors and high school sophomores also decreased in all subjects from 2019 to 2020. In response, the Ministry of Education embarked on efforts to recoup education loss inflicted by COVID-19 by announcing 'Comprehensive Measures for Education Restoration' in 2021. As a result, there was some improvement by a small margin in some subjects in 2021, but still the rate of 'Level 3 (average) or higher' was on a steady decline. On the other hand, the proportion of students below the average in major subjects went up after the COVID-19 outbreak. Such a trend continued until 2021 which was the second year since the onset of the pandemic. It is safe to say that COVID-19 made negative impact on inclusive and equitable access to education; therefore, it is necessary to make



Percentage of Middle/High School Students Achieving 'Level 3 (Average) or Higher' in Korean, Math and English, 2019~2021 (Unit: %)



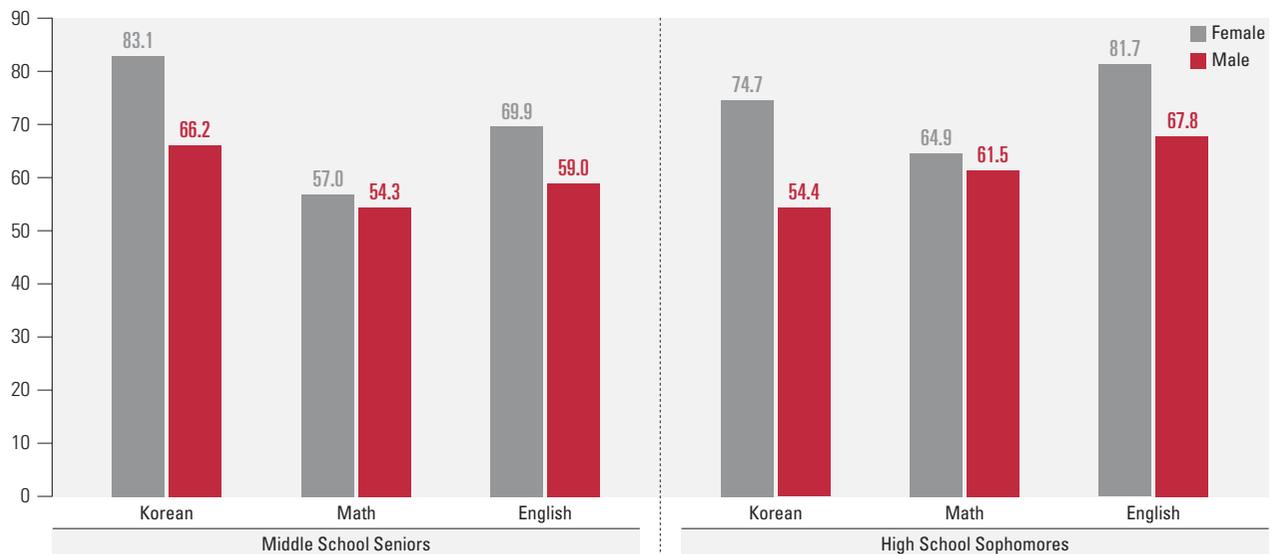
Source: Korea Institute for Curriculum and Evaluation, National Assessment of Educational Achievement, each year.
 Note : Achievement is divided into four levels (Level 4: Excellent, Level 3: Average, Level 2: Basic, Level 1: below the basic academic skills)

steady efforts to put education back on track.

The academic achievement levels vary depending on sex and region. In the 2021 National Assessment of Educational Achievement, academic levels of female students exceeded those of male counterparts in general and large cities tended to have a higher proportion of students achieving 'Level 3 (Average) or higher, compared to sub-urban areas (eup and myeon). To be specific, the rate of female students at the

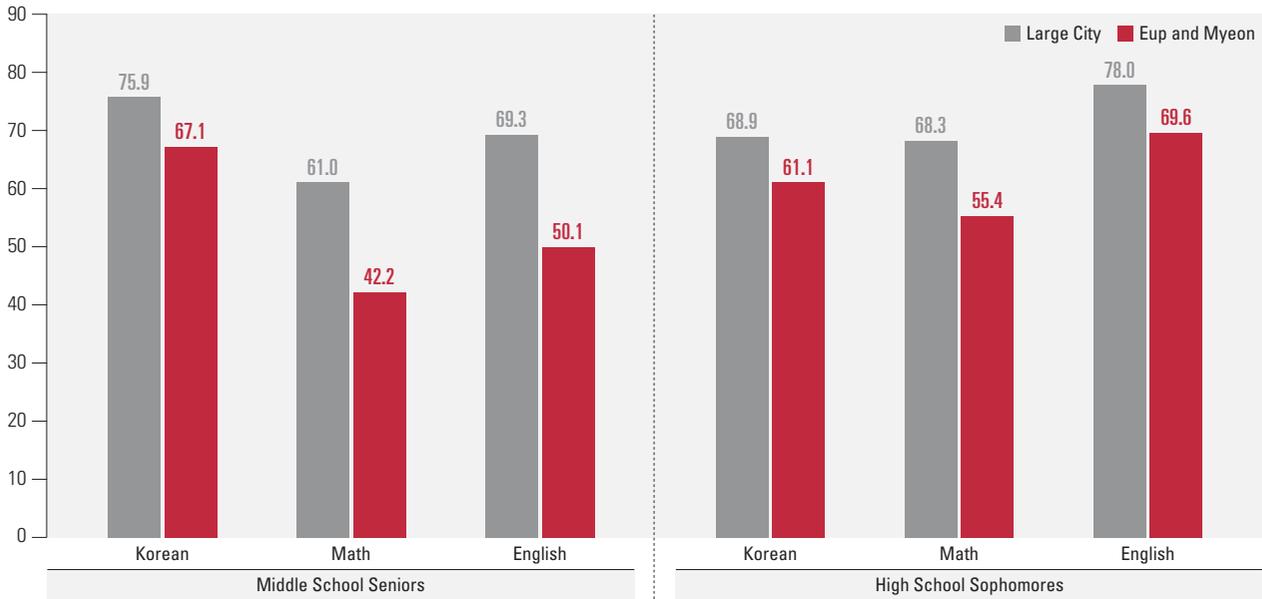
'Level 3 (average) or higher' was higher with statistical significance than that of male students in Korean and English subjects. Such a trend was also observed in both groups of middle school seniors and high school sophomores. By regional scale, the number of students at Level 3 (average) or higher in large cities was statistically significantly higher than that in Eup and myeon. As the academic gap depending on sex and regional scale has been around for several years, it is

Percentage of Students with 'Level 3 (Average) or Higher' in Korean, Math and English by Sex, 2021 (Unit: %)



Source: Korea Institute for Curriculum and Evaluation, National Assessment of Educational Achievement, 2021.

Percentage of Students with 'Level 3 (Average) or higher' in Korean, Math and English by Regional Size, 2021 (Unit: %)



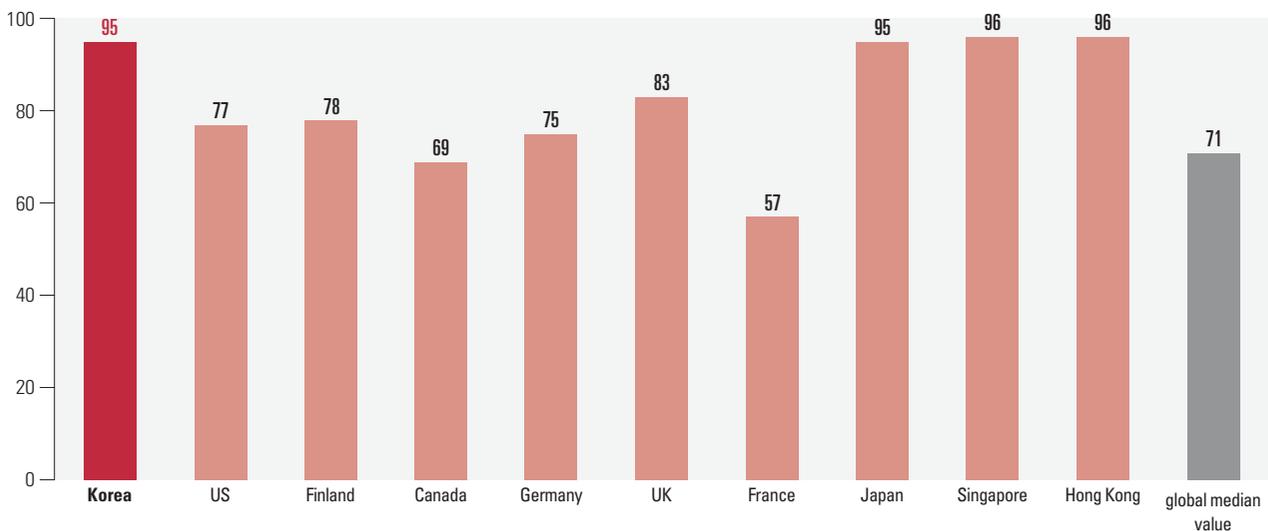
Source: Korea Institute for Curriculum and Evaluation, National Assessment of Educational Achievement, 2021.

required to engage in monitoring and multi-faceted analysis on causes behind the trend.

International assessment of academic achievement such as TIMSS and PISA allows one to compare Korea students with those from other countries in terms of their academic accomplishment. As already well-known, Korean students have been at the top rank and the ratio of children and adolescents reaching the minimum proficiency level is also

high. For example, according to the 2019 TIMSS that measured academic achievement in math among the 4th graders in elementary schools, the ratio of students achieving the minimum proficiency level amounted to 95% which was a figure well above the global median value (71%). It's way higher than the level of students in North American and European countries and similar to that of neighboring Asian countries (Japan, Singapore and Hongkong, etc.). The same

Percentage of Students (4th Graders) Reaching Minimum Proficiency Level by Major Country (in Math), 2019 (Unit: %)



Source: IEA, TIMSS, 2019

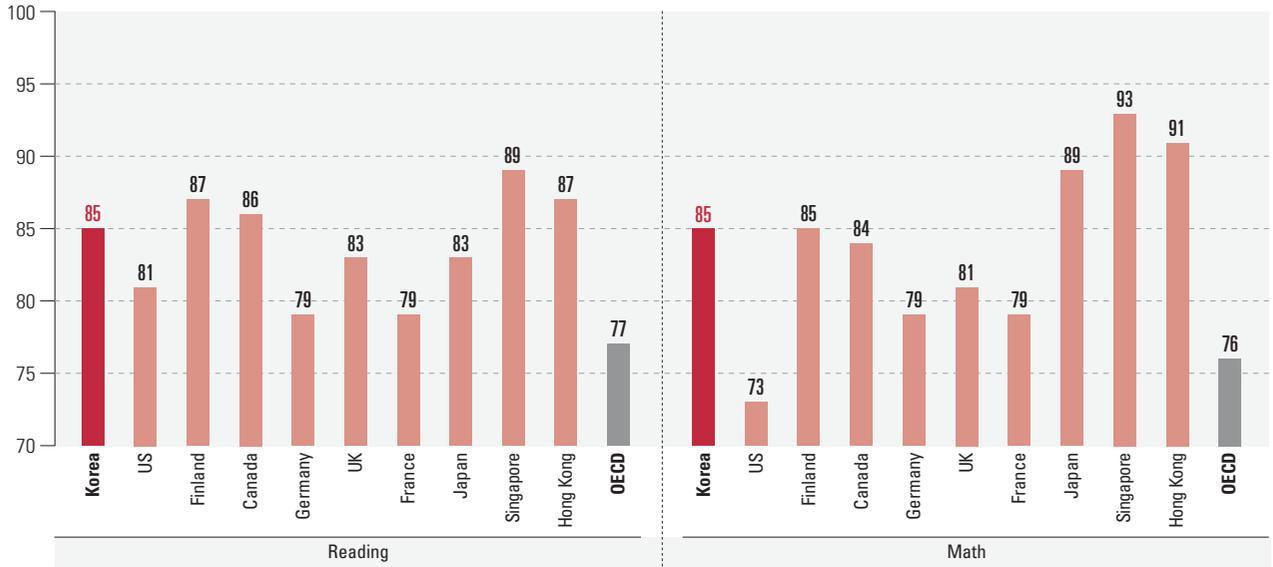
Note 1: The minimum proficiency level refers to 'average or higher (no less than 475 points)' in TIMSS 2019.

Note 2: In most countries including Korea, the TIMSS 2019 was conducted on the 4th graders at elementary schools, but on the 5th graders in some countries.

Note 3: Major countries were selected by the author in reference to major benchmark nations in Korea.



Percentage of Students (Aged 15) Reaching Minimum Proficiency Level in Major Countries (in Reading & Math), 2018 (Unit: %)



Source: OECD, PISA, 2018.

Note 1: The minimum proficiency level is based on 'Level 2 or higher (420 points or more)' in the PISA 2018.

Note 2: Major countries were selected by the author in reference to major benchmark nations in Korea.

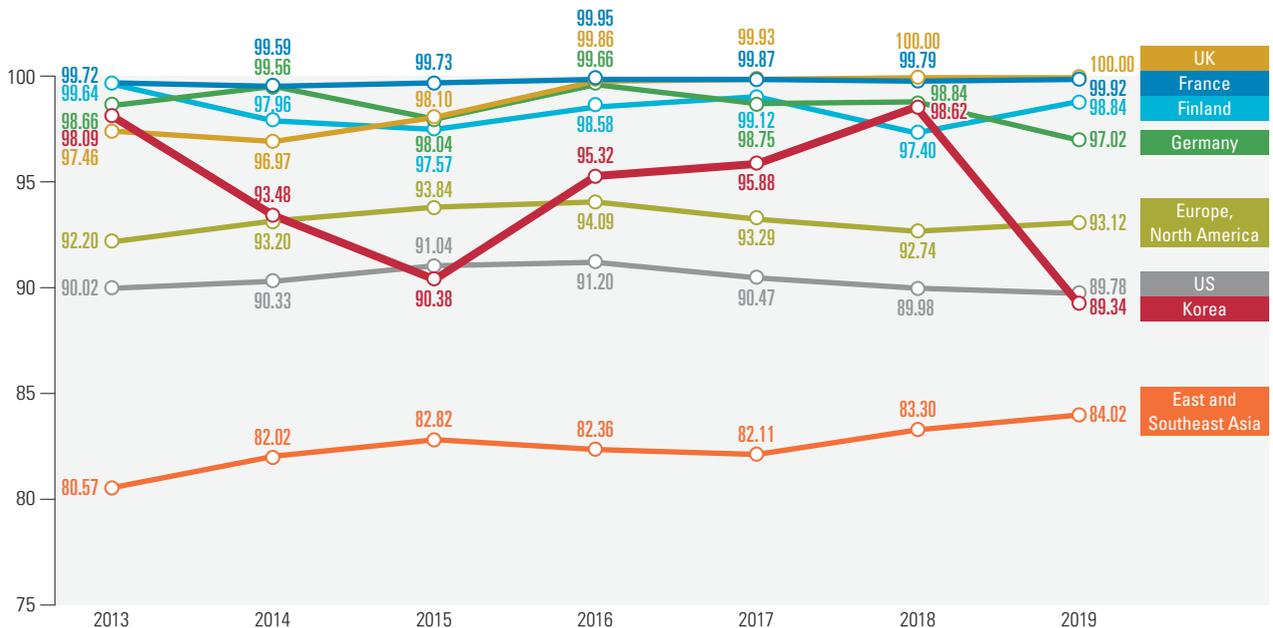
goes for PISA data. The 2018 PISA showed that the ratio of 15-year-olds in Korea reaching the minimum proficiency level in reading and math stood at 85%. This largely hovered the OECD average (77% and 76%). The ratio of Korean learners aged at 15 reaching the minimum level slightly exceeded or was similar to that of students in North American

and European countries and was a little bit lower than their counterparts in neighboring Asian countries.

Around 90% of enrollment rate among 5-year-olds
(SDG 4.2.2)

SDG Indicator 4.2.2 indicates a ratio of young children regis-

Participation Rate of Organized Class (1 year) before Entrance into Elementary School in Major Countries, 2013~2019 (Unit: %)



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Aug 26, 2022)

Note 1: This refers to a rate of participation in organized class one year before the age comes to enter an elementary school. As for Korea, it was based on data regarding 5-year-olds.

Note 2: Major countries were selected by the author in reference to major benchmark nations in Korea, out of countries with available data.

Note 3: The decline in South Korea's rate in 2019 is likely due to estimates of the country's 5-year-old population that do not reflect the country's rapidly declining fertility rate.

tered to an educational program one year before the age comes to start formal primary school, which shows how pervasive early childhood education is in each nation. Recently, there is growing awareness on the importance of education at early childhood across the globe. It is based on the notion that not only does educational experience during the young childhood make a difference during the childhood, but it also leads to a mid/long-term difference throughout the entire life of individuals (Jeong-won Lee et al. 2015). From this perspective, education during the early childhood is considered as a critical part that shapes inclusiveness and equality of education in a country.

The enrollment rate of 5-year-old children in Korea remained at around 90% from 2013 to 2019 although there was a slight variation each year. Such a high enrollment rate among young children in Korea has a lot to do with Nuri (kindergarten-level) curriculum introduced in 2012 whose tuition and childcare fees are covered by the nation. The effects from the Nuri curriculum can be checked in OECD data. The enrollment rate of young children aged 3, 4 and

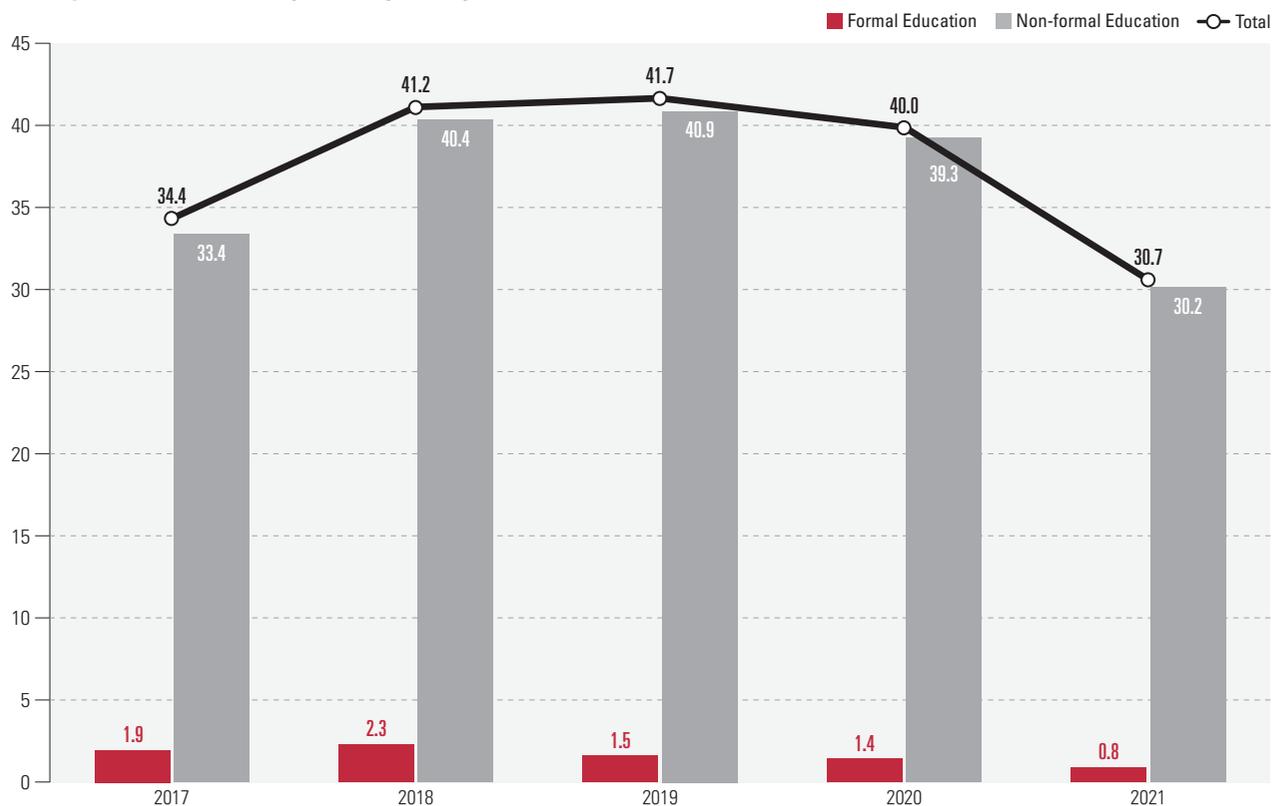
5 in 2010 before Nuri curriculum had been introduced was only equal to 78%, 82.5% and 88.7% respectively, however, it soared to 92.3%, 93.8% and 97.2% in 2018 (Korea Educational Development institute, 2021). Globally speaking, the enrollment rate of Korean children one year before the official school age hovered the total average of Europe, North America and East and Southeast Asia. Meanwhile, it was slightly lower than that of some European countries like France, Germany and Finland which initiated universal education for young children from early on (Munhee Seo, 2006). In 2019, the enrollment rate of young boys and girls in Korea stood at 89.1% and 89.6% respectively, showing no big difference by sex.

A drastic drop in participation rate of lifelong learning during the COVID-19 pandemic, with low participation of the vulnerable (🎯 SDG 4.3.1)

SDG Indicator 4.3.1 monitors participation in lifelong learning of adolescents and adults beyond their school age

Participation Rate of Lifelong Learning among Adults, 2017~2021

(Unit: %)



Source : Korea Educational Development Institute, National Lifelong Learning Survey for Individual Learners, each year.

Note 1 : Measures the percentage of adults aged 25-79 who participated in a lifelong learning program at least once in the past year. However, until 2019, adults aged 25-64 will be included.

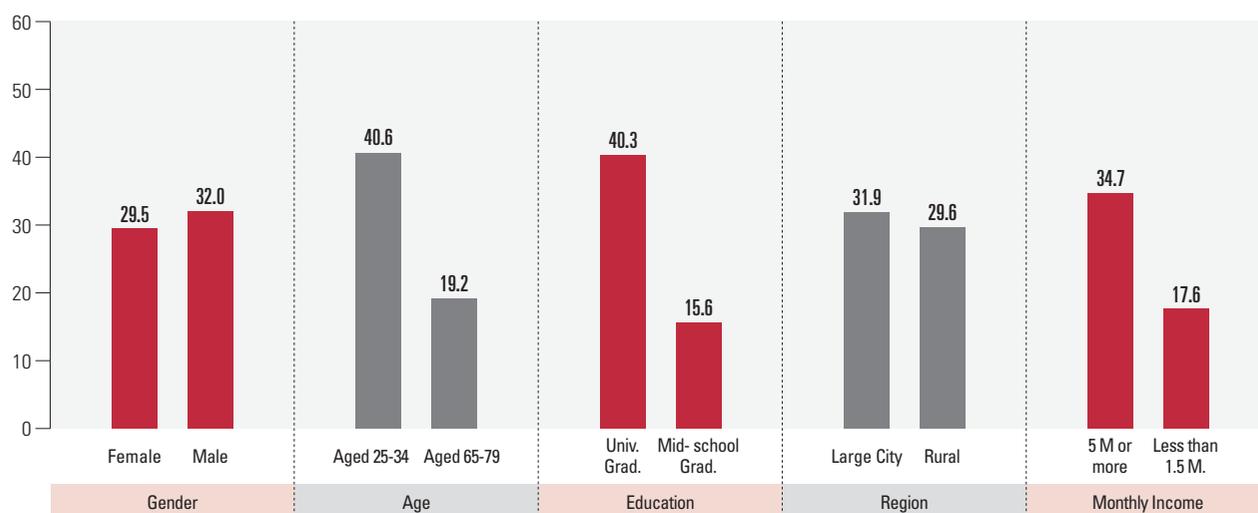
Note 2 : Until 2020, a survey was on a year from July in the previous year to June of the year being surveyed. Starting from 2021, the survey covers a year from Jan to Dec of the previous year.

Note 3 : Formal education refers to education that can lead to a diploma or degree through a regular education process, such as elementary, middle, high school, or university, and informal education refers to education that takes place through programs or curricula operated by continuing education institutions as structured learning activities other than formal education.



Participation Rate of Lifelong Learning among Adults (Formal/Non-formal Education), 2021

(Unit: %)



Source: Korea Educational Development Institute, National Lifelong Learning Survey for Individual Learners, 2021.
 Note : It was conducted on adults aged 25 to 79.

(or compulsory education). In Korea, data from the National Lifelong Learning Survey for Individual Learners (Hosted by Korea Education Development Institute) are used for the indicator. Given the trend of participation in lifelong learning among adults (aged 25 to 79) since 2017, the rate rose from 34.4% in 2017 to 41.7% in 2019, but went slightly down to 40.0% in 2020, followed by a sharp drop to 30.7% in 2021. Such a recent downward trend seems to have been attributed to COVID-19 which made it difficult for lifelong education programs, normally face-to-face, to be carried out (Ministry of Education, 2022). The participation in lifelong learning tends to remain relatively low among the vulnerable. For instance, socio-economically disenfranchised classes including women, the elderly (aged 65 to 79), the low-educated (middle school graduates or less), residents in rural areas, low-income class (no more than KRW 1.5 million per month) showed the tendency to less participate in lifelong learning. Considering that lifelong education is directly related to vocational capacities in lifetime, health after retirement and quality of life, it is necessary to continuously monitor any inequality in education and come up with supportive policies.

Korea's efforts for global citizenship education and education for sustainable development
 (SDG 4.7.1)

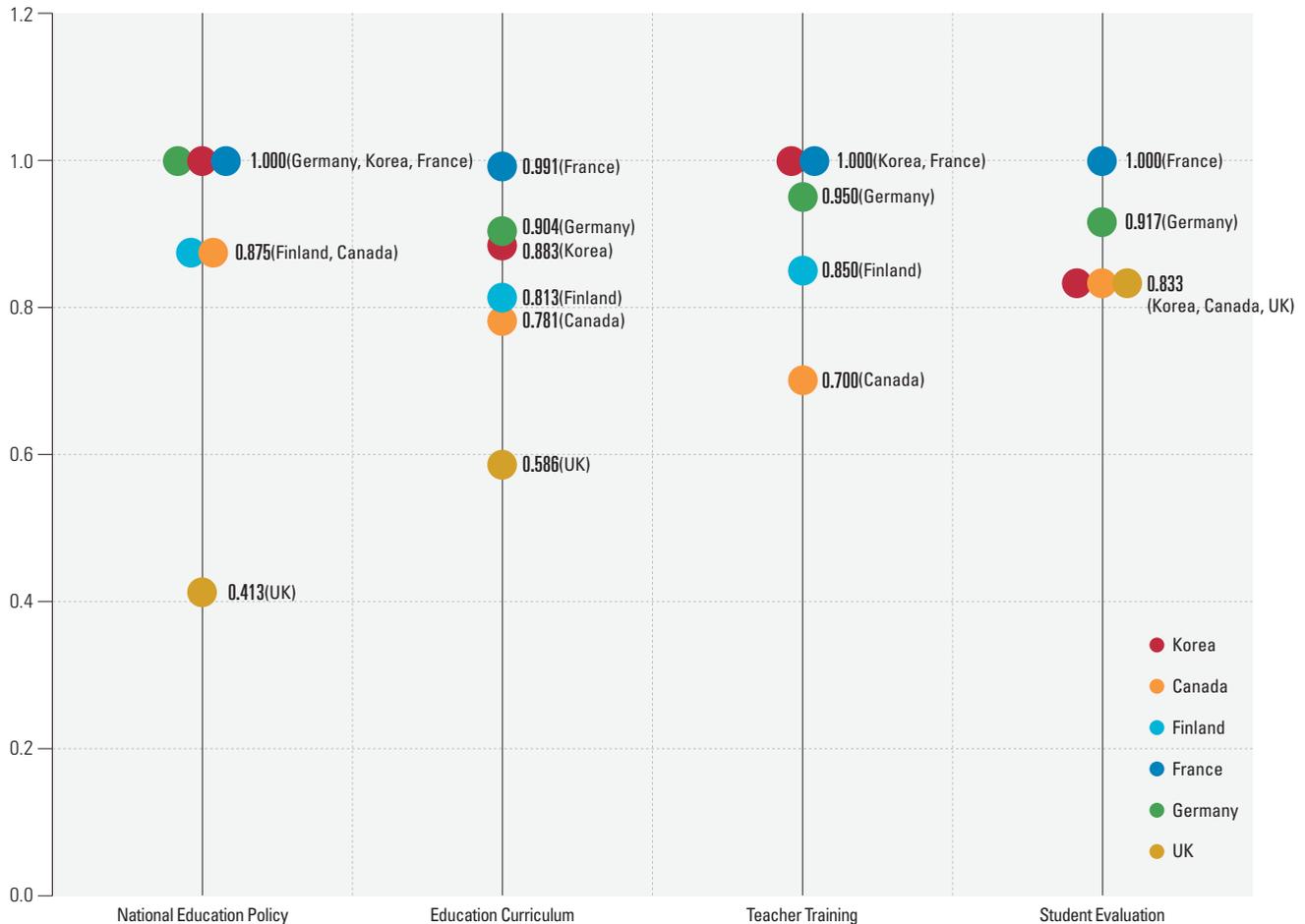
As an new indicator started to be reported in 2021, SDG

Indicator 4.7.1 shows the extent to which Global Citizenship Education (GCED) and Education for Sustainable Development (ESD) are mainstreamed in detailed domains of a nation's education scheme (national education policy, education curriculum, teacher training, student evaluation). This indicator is calculated based on responses submitted by each country's education authorities in a survey conducted by UNESCO. It has a figure from 0 to 1, with closer to 1 meaning that GCED and ESD are more mainstreamed. For example, Korea has a figure of 1.000 in the domain of national education policy, which indicates that the nation answered in a positive manner to the question "how mainstreamed are GCED and ESD in Korea's education laws and policies?"

The extent to which global citizenship education and education for sustainable development are mainstreamed in Korea was measured as 1.000, 0.883, 1.000 and 0.833 in domains, including national education policy, education curriculum, teacher training and student evaluation. It is difficult to accurately determine the degree of mainstream solely based on the absolute size of figures since they are based on qualitative answers and there is no comparable longitudinal figure. That said, they show at least that there have been multiple policy approaches and efforts made for GCED and ESD in Korean education.

In fact, implementation of GCED and ESD has been

Extent to which Global Citizenship Education and Education for Sustainable Development are Mainstreamed in Major Countries, 2020



Source: UN SDG Indicators Database (<https://unstats.un.org/sdgs/dataportal>, retrieved on Aug 26, 2022)

Note : Survey results from UNESCO, Implementation of the 1974 Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental, expressed as a value between 0 and 1

stressed or mandated in various Acts including Framework Act on Education and Act on UNESCO Activities as well as policies/plans. The 2015 revised education curriculum specifies ‘community capacity actively engaged in community development with values and attitudes required for members of the local/national/global community’ as one of core capacities and suggests cross-curricular learning topics such as democratic citizenship education, human rights education, multicultural education and environment/sustainable development education, showing that GCED and ESD have been

importantly addressed in the national education curriculum. (Ministry of Education, 2015; Geungyeon Lee, 2017).

As they are included as key elements in the national education curriculum, GCED and ESD have been highlighted in the overall education system including teacher training and student evaluation. Furthermore, diverse policy efforts are being made regarding global citizenship education and development for sustainable development not only at the Ministry of Education and but also at the Municipal/Provincial Office of Education (Hyeyeong Yoo, et al., 2017)

Definition

- **Minimum proficiency level** : It is measured through assessment on the academic achievement in specific subjects (e.g., math and reading) by benchmarking basic knowledge.
- **Global citizenship education(GCED)** : It means education aiming to encourage learners to foster respect for all, enhance a sense of belonging to the human community and help them to become accountable and pre-emptive global citizens.
- **Education for sustainable development(ESD)** : It refers to education for acquiring knowledge, skills, attitudes and values needed to create a sustainable future.



5 GENDER EQUALITY



The 5th Global Engagement & Empowerment Forum on Sustainable Development (GEEF) was held in Seoul on February 2-3, 2023 under the theme "Turning Point: Crisis into Opportunity". This photo shows a special session on "Women's Leadership." Photo/ Institute for Global Engagement & Empowerment

Achieve gender equality and empower all women and girls

Gender equality has been internationally accepted as a major policy goal since the Beijing Platform for Action was announced at the fourth World Conference on Women held in Beijing in 1995. Despite such international efforts, women are still more exposed to assorted violence and are at a disadvantageous position in diverse areas like politics, economy, labor, education and culture. Therefore, 'achieving gender equality and empowering all women and girls' has been set as a core goal in the UN SDG scheme, in order to improve gender inequality that still exists. In the aftermath of 'Beijing Platform for Action' promulgated, Korea also enacted a series of legislation such as the Framework Act on Gender Equality (1995), Act on the Prevention of Domestic Violence and Protection of Victims (1997) and Framework Act on Prevention of Violence against Women (2018). In 2011, the Gender Impact Analysis and Assessment Act was introduced to identify and improve sexually discriminatory elements in the policymaking and implementation course.

These government's efforts have made improvements in sexual inequality, but there is still a long way to go. In particular, noticeably low is the ratio of women in the representative and managerial positions who make an important decision in politics, the administration and the private sector. More attention has to be paid to quantitative growth of female leaders, so as to move more into gender equality than now.

Underrepresented women in local politics

(SDG 5.5.1)

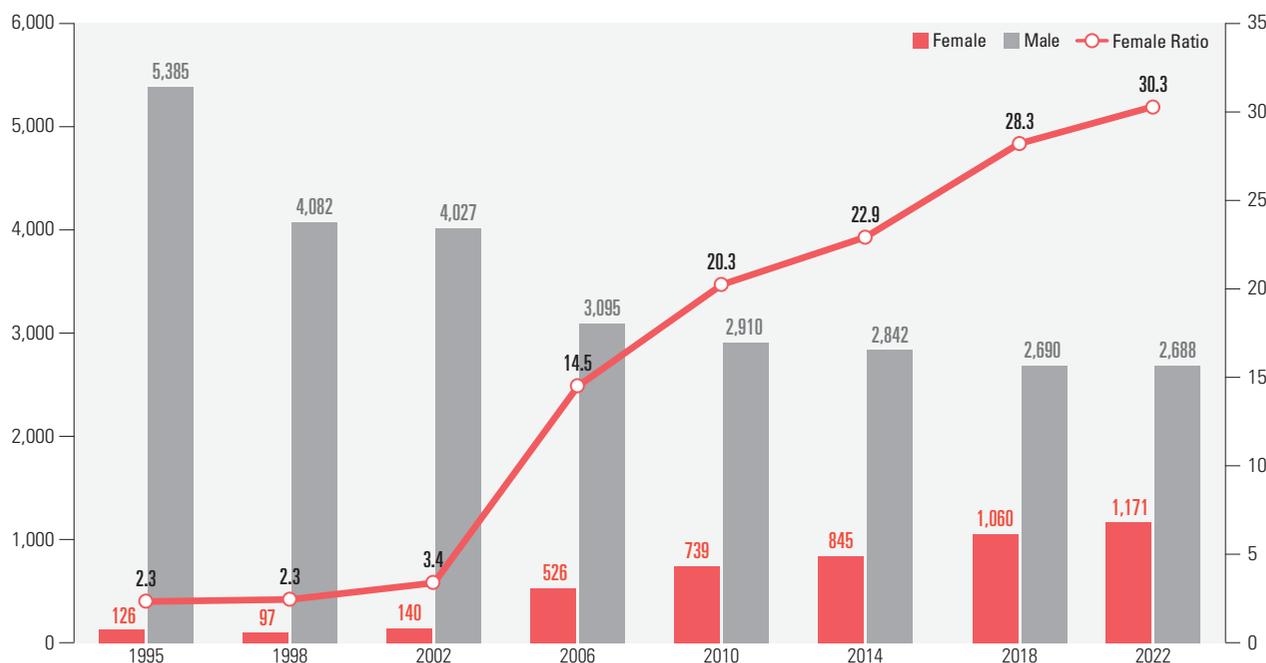
Over the past 25 years, the ratio of seats held by women in local governments has steadily risen. Especially, the proportion dramatically took off in 2006 and the proportion of female representatives elected in the 2022 local elections led to 30.3%. Such an increase is mainly because of the Public Official Election Act (Article 47, Party Nomination of Candidates) revised in 2005 to nominate female candidates for over 50% of seats that are elected by proportional representation and to make sure that more than

30% of candidates nominated be women in local constituencies.

In 2020, Out of OECD countries, Iceland came in first in the proportion of women representatives in local governments (47.0%) which is almost half and shows a stark gap by about 33%p to 37%p with countries with the lowest rates such as Japan (14.3%) and Türkiye (10.1%). With 30.3%, Korea's rate was comparable to that of Hungary (30.5%) and Poland (30.0%) and was ranked at 19th out of 33 countries.

Since the revision of the Public Official Election Act in 2005, the female share in local councils has been on a steady

Proportion and Number of Seats Held by Women in Local Councils, 1995~2022 (Unit: No. of persons, %)



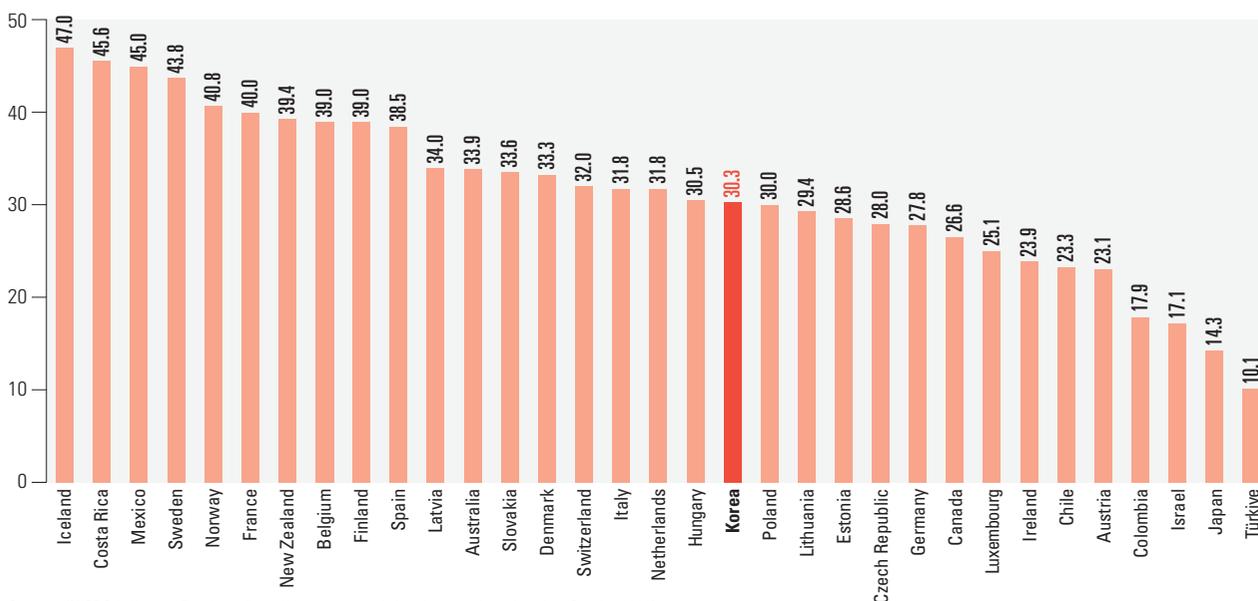
Source: National Election Commission, Election Statistics System (<http://info.nec.go.kr/> retrieved on Aug 30, 2022)

Note : This includes metropolitan and municipal councilors and local constituencies and proportional representatives.



Proportion of Seats Held by Women in Local Councils by OECD Country, 2020

(Unit: %)



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 01, 2022)

Note : Korea for 2022 figures; Mexico, Belgium, Australia, Slovakia, Poland and Austria for 2019 figures; Finland, Latvia, Denmark, Estonia, Canada and Chile for 2018 figures and Costa Rica for 2017 figures

Status of Heads of Upper-level Local Governments/Municipalities by Sex, 1995~2022

(Unit: No. of persons)

Category	1995	1998	2002	2006	2010	2014	2018	2022
Upper-level	15	16	16	16	16	17	17	17
- Male	15	16	16	16	16	17	17	17
- Female	0	0	0	0	0	0	0	0
Municipalities	230	232	232	230	228	226	226	226
- Male	229	232	230	227	222	217	218	219
- Female	1	0	2	3	6	9	8	7

Source: National Election Commission, Election Statistics System (<http://info.nec.go.kr/>, retrieved on Aug 30, 2022)

rise. But, there has been no noticeable improvement in the female share of local government heads who are the top decision-makers and oversee the local administration. From 1995 when the elections for local government heads were first held to 2022 when the most recent elections were held, there was not a single female head in the upper-level local governments. Out of 226 electees during the 2022 elections, there were only seven women elected as the head of municipalities. In perspectives, the ratio of seats held by women in local governments improved over the past 27 years due to the revision of the Public Officials Election Act. However, the ratio of female heads in local governments, who are the core power of the local self-governing system, was still not significant. Given that fact that local politics is deeply related to life difficulties such as care, health, education, culture and leisure, it is necessary to further reinforce women's representation.

Low proportion of women in managerial positions (🎯 SDG 5.5.2)

Despite improvements in the ratio of female public servants in the national and local governments, that of women in managerial positions still remained low. As of 2021, women accounted for 19.7% out of all public officials in managerial positions (Grade 4 or higher). This is contrasted with the female ratio (40.6%) in 2021 out of public servants working in the same job groups (administrative, technical, and operational). In other words, the ratio of women in managerial positions is only about half of all women within the same job groups. Taking a look at the trend over the past 10 years, the ratio of women has continued to go up.

The female share in the entire administrative, technical and operational job groups increased by 12.0%p from 28.6% in 2010 to 40.6% in 2021. During the same period, the ratio of women

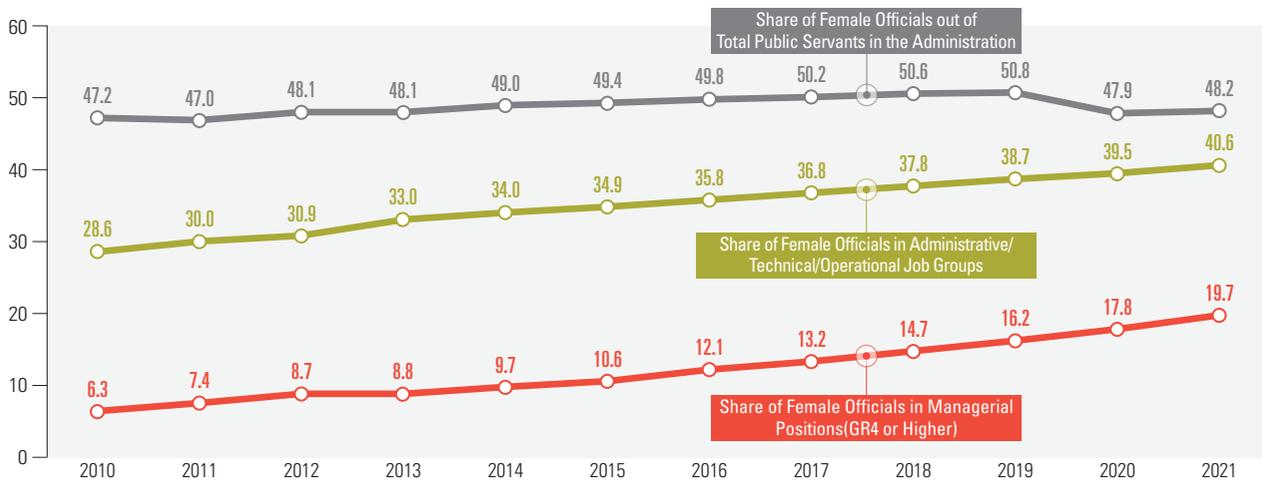
in managerial positions rose by 13.4%p from 6.3% in 2010 to 19.7% in 2021. Meanwhile, there was no big difference between women (48.2%) and men out of all public servants (in the administration) in 2021. From 2017 to 2019, the ratio of women even exceeded 50%, but it went down to 47.9% after the status of fire-fighters was changed from local to national. This reflects a very low percentage of women in the fire-fighting job group. In 2021, women accounted for only 10.0% in the fire-fighting jobs. Besides fire-fighting, there are other job groups like police

and education in which certain gender takes up the majority. For instance, in 2021, women took up only 13.6% among the police personnel whereas 72.6% of teaching staff were women.

Among the public servants in the local governments, the ratio of female managers (Grade 5 or higher) has also risen. Still, the female share in managerial positions (24.3%) was almost half of the female ratio (48.1%) out of local public servants in 2021.

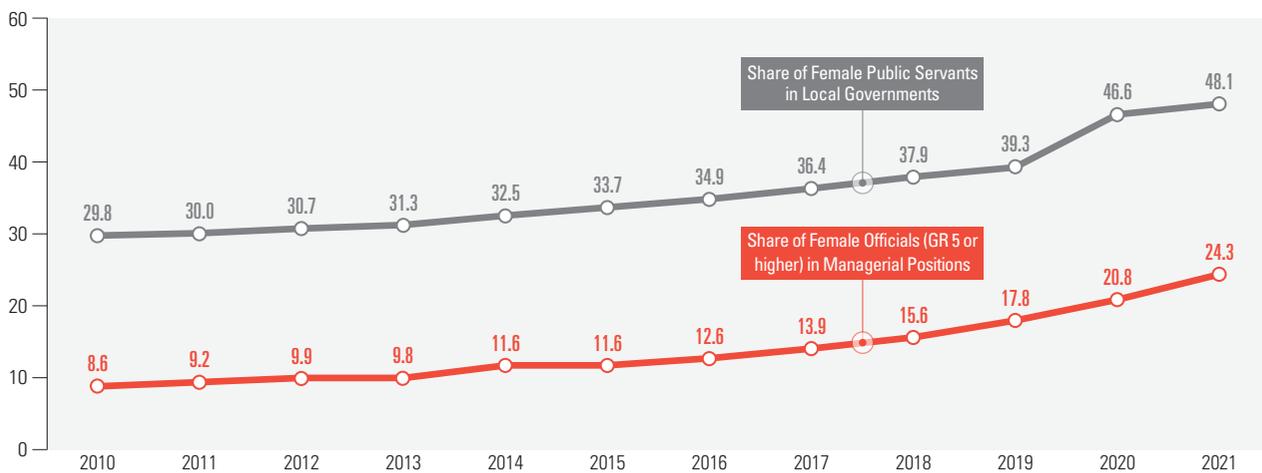
Looking at the female share in the top managerial positions (Grade 1 and 2) at the central governments of

Share of Women in Managerial Positions out of Public Officials (GR 4 or higher), 2010~2021 (Unit: %)



Source: Ministry of Personnel Management, Statistical Yearbook, each year; Korean Women's Development Institute, Gender-sensitive Statistics (<https://gsis.kwdi.re.kr/gsis/> retrieved on Jan 05, 2023)
 Note 1: This is based on public servants in the administrative branch, excluding those in the legislation, judiciary, Constitutional Court and National Election Commission.
 Note 2: The ratio of women in managerial positions (GR 4 or higher) is based on administrative/technical/operational job groups with figures available for the female ratio in each rank.
 Note 3: Administrative/technical/operational job groups exclude those in special position (foreign affairs, police, fire-fighting, inspection, training), political position and privileged government position out of public servants in the administration. Out of public servants in general-service positions, excluded are public servants in specialized, research, technical advice positions; specialized officials; and those under flexwork and normal/special/temporary term schemes.

Share of Women in Managerial Positions (GR 5 or higher) at Local Governments, 2010~2021 (Unit: %)

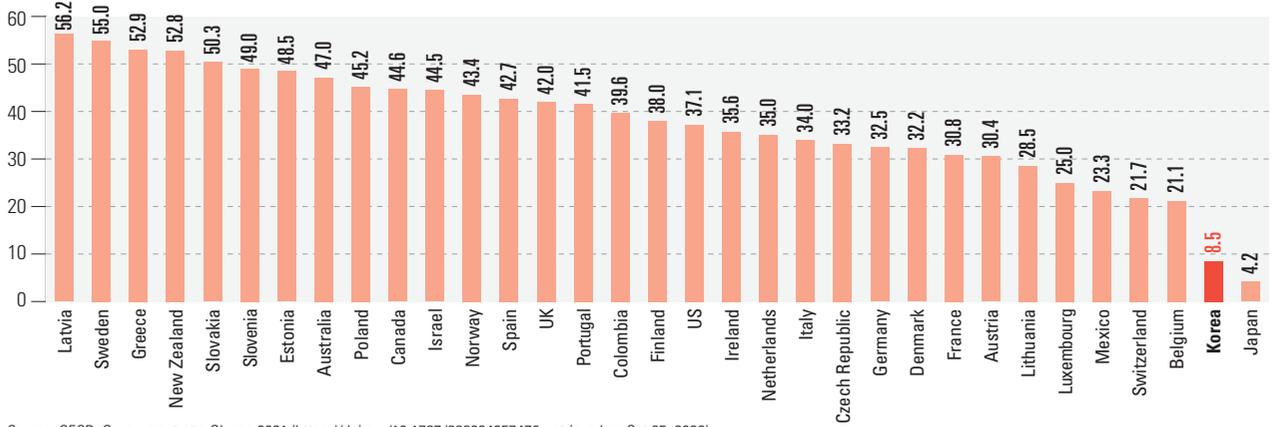


Source: Ministry of Public Administration and Security, Statistics of Female Public Servants in Local Government (retrieved on Dec 31, 2022)
 Note 1: It is based on local governments excluding self-governing educational bodies out of local public servants (local public servants = local governments+self-governing educational bodies).
 Note 2: Local public officials on GR 5 or higher include high-level officials, those in general services (incl. ordinary term system) on GR 1 to 5, those in the ordinary term system on GR 5, researchers and senior technical advisors, those in privileged government positions equivalent to GR 1 to 5, special career officials on Group A and those in the exclusive positions (GR 5 or higher).



Female Share in Top Managerial Positions of Central Government by OECD Country, 2020

(Unit: %)



Source: OECD, Government at a Glance 2021 (<https://doi.org/10.1787/888934257470>, retrieved on Oct 25, 2022)

OECD countries, top ranks include Latvia (56.2%), Sweden (55.0%), Greece (52.9%) New Zealand (52.8%) and Slovakia (50.3%) in the 50% range. On the contrary, Korea (8.5%) was ranked the bottom together with Japan (4.2%). There was even a distant gap by 12.6%p with Belgium (21.1%) which was a place ahead than Korea.

A low ratio of women managers in public organizations, local public corporations and private companies (SDG 5.5.1)

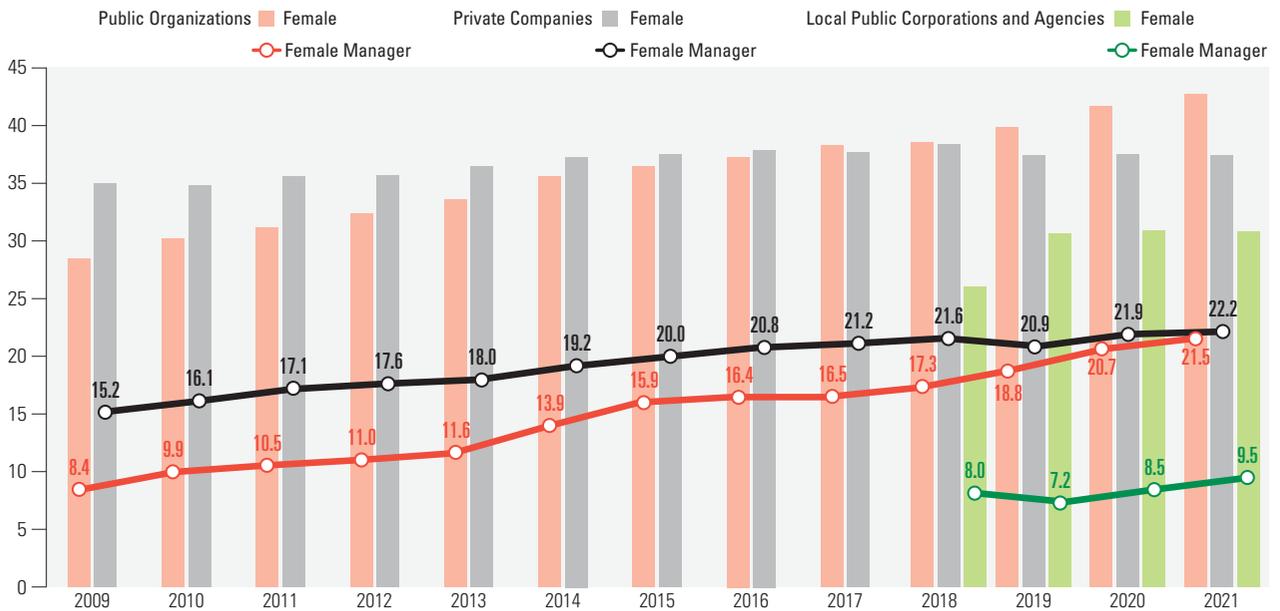
Since the Affirmative Action that tentatively prefers certain

gender to alleviate sexual discrimination and promote equality in employment was introduced in 2006, the ratio of women employed in public institutes and local public enterprises has steadily increased. In particular, the female employment rate which had stayed at 28.5% in 2009 rose by 14.2%p to 42.7% in 2021. Comparing it to the private sector with no noticeable change in female employment for the same period, it can be considered that the Affirmative Action has made positive influences and contributed to growth of the female employment rate at public institutes and local public enterprises.

Although more women have been able to land managerial

Female Employment Rates, 2009~2021

(Unit: %)



Source: Ministry of Employment and Labor, 2022 Employment & Labor White Paper

Note 1: This shows female employment rates at organizations where the Affirmative Action has been actively implemented. The concept of public enterprises has expanded to cover local public corporation and agencies under the Local Public Enterprises Act since 2018.

Note 2: Distinguished from managerial positions, managers are defined as high-level executives and managers in accordance with the Korean Standard Classification of Occupations, and presence of the following three authorities determines whether a person corresponds to a manager regardless of his or her job position: work supervision, personnel appraisal (performance evaluation) and approval.

positions on the back of a rising ratio of female employment, the share of female managers pales next to the female employment rate. In 2021, female employment rates were 42.7%, 37.5% and 30.8% at public organizations, private companies and local public corporations whereas ratios of female managers remained stagnant at 21.5%, 9.5% and 22.2% respectively. What is noticeable is that the ratio of female managers in public enterprises was evidently lower than that in public institutes and private companies.

New violence against women that is worth noting (SDG 5.2.1)

Recently, unlawful filming, dating violence and stoking are new types of crimes against women that have recently been brought into relief. In response, the government has endeavored to prevent these types of violence from happening and punish them, if occur, by formulating and revising relevant Acts such as the Act on Special Cases Concerning the Punishment of Sexual Crimes (in 2010), Framework Act on Prevention of Violence against Women (in 2018) and Stoking Punishment Act (2021). Everyday use of smart phones and the Internet and easy purchase of small-sized camera at a cheap price have been an enabler of legal filming. In particular, the unlawfully-filmed footage can be easily spread over the Internet and be relentlessly reproduced.

Number of Unlawful Filming, Dating Violence and Stoking Crimes, 2013~2020
(Unit: No. of cases)

Category	2013	2014	2015	2016	2017	2018	2019	2020
Unlawful Filming	4,841	6,635	7,615	5,185	6,465	5,925	5,762	5,032
Dating Violence	7,237	6,675	7,692	8,367	10,303	10,245	9,858	-
Stoking	312	297	363	557	438	544	581	-

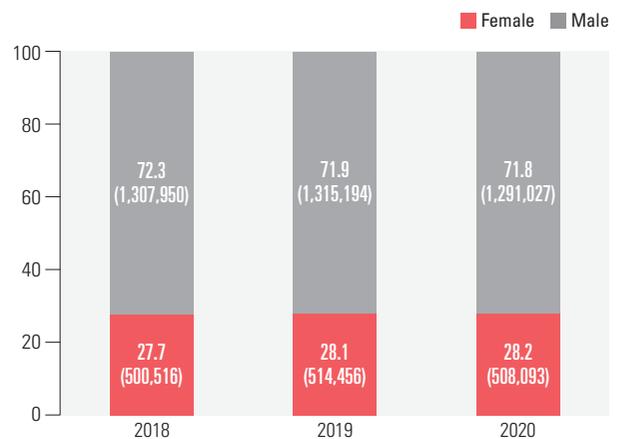
Source: National Police Agency, Police Statistical Yearbook (Ministry of Gender Equality and Family, re-quoted from Women's life Seen from 2021 Statistics)

In 2015, the number of unlawful filming caught hit the record high at 7,615 cases. Since then, over 5,000 cases has continued to occur each year. In addition, there is a growing trend observed in dating violence (10,000 cases per year) and stoking crimes (500 cases per year). However, these figures are assumed as just the tip of the iceberg as they only cover crimes that have been caught.

Less lands owned by female farmers (SDG 5.a.1)

According to Statistics Korea (2022), the number of agricultural households stood at 1,031,210 in 2021, which accounted for 4.4% out of the total. With 1.12 million women and 1.1 million men out of the farm population, women took up 50.3%. This showed 0.6%p reduction from 50.9% (or 1.51 million) in 2011, a decade earlier.

Number of Farm Owners by Sex and Rate of Female Farm Ownership, 2018~2020
(Unit: %, No. of persons)



Source: Ministry of Agriculture, Food and Rural Affairs, Gender-sensitive Statistics of Major Agricultural Projects (2021)

Note 1: Out of the farmland ledgers at the year-end, those comprised only of leased farmlands were excluded.

Note 2: It's based on agricultural households. The farmland(s) owned by an agricultural household or member(s) of the agricultural household are all distinguished as the farmland belonging to the agricultural household.

Affirmative Action : It is a measure (introduced in 2006) that tentatively prefers certain gender to alleviate sexual discrimination or promote equality in employment. It asks workplaces with 500 Permanent employees or more, including public institutes, local public corporations and agencies, whose number of female workers and managers falls short of the industry average to submit an implementation plan and accordingly monitors actual implementation.



6 CLEAN WATER AND SANITATION



Mazang Reservoir near Paju, Gyeonggi-do, dried up due to drought

Ensure availability and sustainable management of water and sanitation for all

SDG 6 aims to ‘achieve universal access to safe drinking water and sanitation services’ and ‘ensure sustainable management of water, water quality and aquatic ecosystem and establish integrated water resources management.’ It is very critical to make efforts on a government for sustainable use of water since hygienic use of water including drinking water is essential to the people’s dietary and housing life.

For over the half century, Korea has made a steady stride in development of water and sanitation, together with economic growth. In 2020, the penetration rate of water and sewerage reached 99.3% and 94.5% respectively. In particular, public investments were made to rural areas with no access to water supply to address imbalance supply of drinking water between urban and rural areas. As a result, the ratio of no access to water supply reduced from 5.9% in 2002 to 0.6% in 2021. Recently, a satisfaction survey on tap water services has been put in place to provide water services befitting needs of users.

Over the past ten years, water use efficiency in Korea has steadily increased in the industries and services, along with an rise in its added value of economy. Compared to 2009, the overall efficiency of water use in 2019 increased by 41.5%. By sector, industries and services saw a great jump in water use efficiency by 37.6% and 50.1% respectively, in contrast with 7.2% up in agriculture. Especially, water use efficiency in the agriculture sector has remained unchanged since 2011, weakening coupling effects between water use efficiency in the sector and economic growth. Combined with water policies to prevent excessive use of water in terms of water stress, efforts are needed to enhance efficiency of water use not to stand in the way of sustainable economic growth on a mid/long term.

Since 2000, 6% of floodgates saw a severe change in the surface area of surface water bodies. Compared to the entire East Asia, it is not that big change. Yet, the surface area of surface water bodies seems to have been affected by climate change such as drought and floods. Thus, it is necessary to make efforts to respond to climate change by continuously monitoring impacts of climate change on physical availability and use of water.

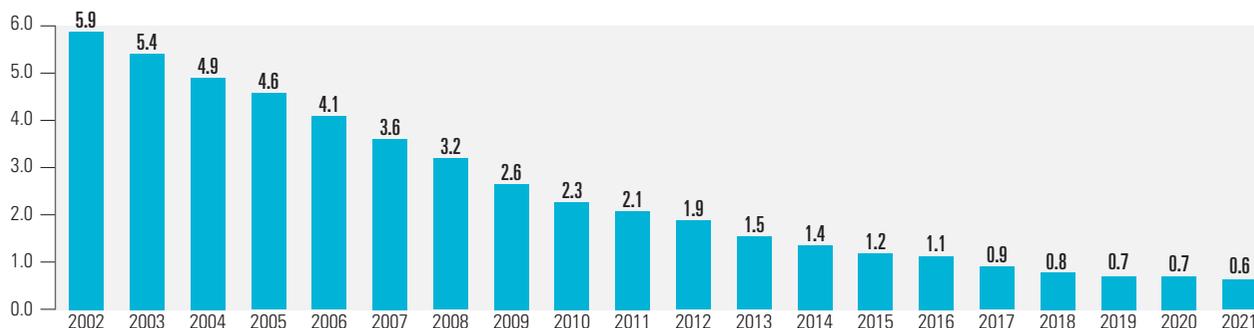
Improved drinking water services with diminishing areas with no access to water (☉ SDG 6.1.1)

The water supply rate in Korea stood at 99.4% in 2021, indicating some improvements in drinking water services in rural areas that were relatively more vulnerable to water supply than urban areas. For the past 20 years, the rate of no water supply has gone down on a steady manner throughout the nation due to continuing public investments in water and sewerage facilities mainly in rural areas suffering from no access to water supply. In 2021, the number of population with no access to public drinking water services declined to

0.6% or a tenth of 5.9% in 2002 in a matter of 20 years. Meanwhile, as the Water Supply and Waterworks Installation Act (Article 29-2 Survey on Actual Conditions of Drinkable Tap Water) was revised for evaluation of water services, the satisfaction survey was first conducted in 2021 regarding tap water services. The survey results showed that 58.3% of respondents were satisfied with tap water (Ministry of Environment, 2021). It indicates that there should be continuous efforts to improve services such as water quality management and replacement of obsolete water supply facilities.

No Water Supply Rates, 2002~2021

(Unit: %)



Source: Ministry of Environment, Waterworks Statistics, National Water Information System (<https://www.waternow.go.kr>, retrieved on Jan 03, 2023)

Note : 'No Water Supply' refers to a proportion of population with no water supply out of total population (who have no access to wells, springs and dedicated waterworks).



Water Use Efficiency, 2009~2019

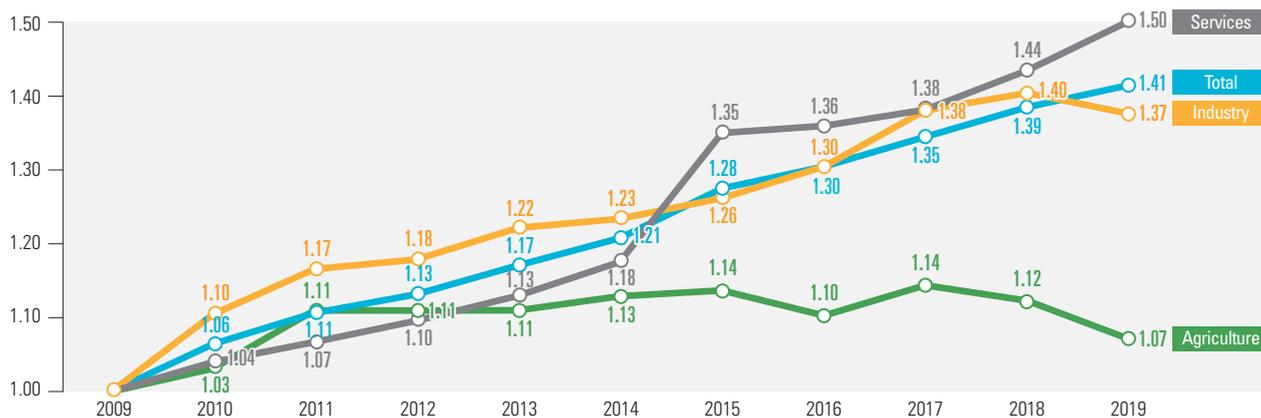
(Unit: USD/m³)

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	38.979	41.498	43.131	44.130	45.655	47.074	49.714	50.857	52.445	53.998	55.146
Agriculture	1.388	1.431	1.540	1.540	1.538	1.568	1.579	1.531	1.588	1.559	1.487
Industry	82.527	91.184	96.233	97.332	100.869	101.897	104.189	107.671	113.990	115.891	113.597
Service	96.258	100.152	102.712	105.517	108.813	113.144	129.967	130.958	133.051	138.159	144.515

Source: FAO, AQUASTAT (<https://www.fao.org/aquastat/statistics/query/index>, retrieved on Dec 30, 2022)

Comparison of Changes in Water Use Efficiency, 2009~2019

(Compared to the baseline year, 2009=1.00)



Source: FAO, AQUASTAT (<https://www.fao.org/aquastat/statistics/query/index>, retrieved on Jan 03, 2022)

Active efforts needed to enhance efficiency of water use (SDG 6.4.1)

‘Water-use efficiency (WUE)’ is an economic indicator that assesses the extent to which a nation’s economic growth relies on water resources. If a rise in the indicator is slower than economic growth, it means there is a potential problem with mid/long-term sustainability of economic growth itself. This is because that economic development can be restricted due to water shortage.

For the past decade, Korea has seen its water-use efficiency steadily rising up in industry and service sectors, combined with economic growth. In 2019, the overall water-use efficiency stood at USD 55.1/m³. By sector, it was calculated at USD 1.5/m³ in agriculture, USD 113.6/m³ in industries and USD 144.5/m³ in services. The overall WUE jumped up by 41.5% compared to 2009. If you look this by sector, there was a big increase by 37.6% in industries and by 50.1% in services but by only 7.2% in agriculture. In particular, the water-use efficiency in agriculture has been stagnant without change since 2011, weakening coupling effects between water-use efficiency and economic growth. In terms of water stress, it is necessary to devise water policies to reduce risks of

excessively using available water. On a mid/long term, efforts are needed to enhance efficiency of water use not to limit sustainability of economic growth.

Continuous monitoring on freshwater resources needed to respond to climate change (SDG 6.6.1)

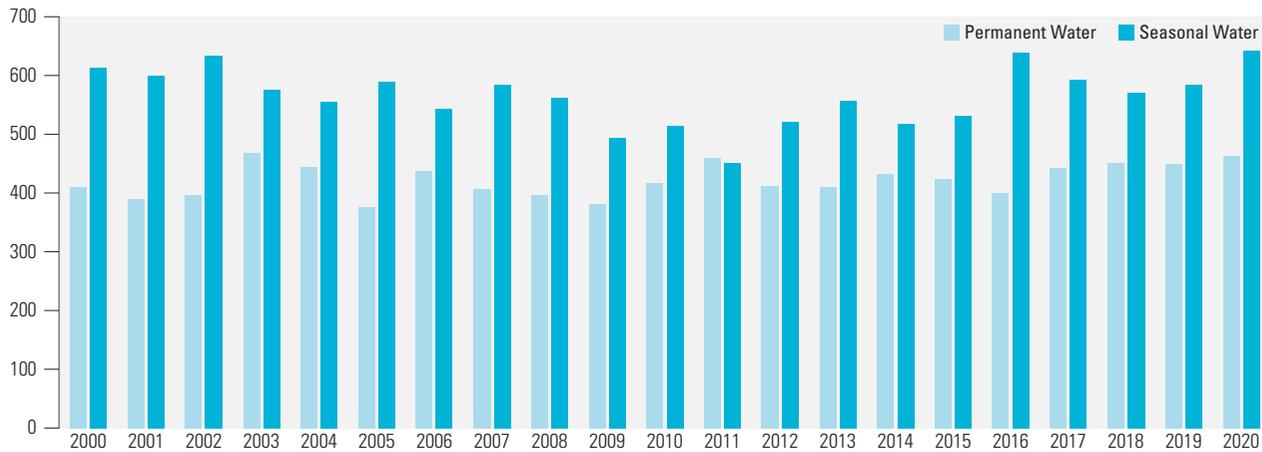
A change in the surface area of surface water bodies can be used as an environmental indicator that keeps track of physical availability of freshwater resources and impacts of water use. From 2016 to 2020, the surface area of the total surface water bodies (lakes, rivers, estuaries, and artificial water) in Korea stood at 1,820km² or 1.9% out of the total land area. Compared to 2000, the ratio of floodgate areas with a severe change (over 97.5 percentile increase or less than 2.5 percentile decrease) in surface water bodies in 2020 was equal to 6%. Considering that Eastern and South-Eastern Asia where South Korea is located has seen a 30% change, it is a relatively small fluctuation (UNEP, Freshwater Ecosystem Explorer). Given a change in the surface area of surface water bodies such as wetlands/lakes and rivers since 2000, the size of permanent water rose by 3.85% (17.18km²) while that of seasonal water increased by 9.00% (53.08km²) (a change

from 2016 to 2020 vis-a-vis that from 2000 to 2004). Taking a look at changing trends each year, permanent water has expanded on a steady manner while seasonal water decreased until 2011 and went up again. It seems that climate change such as drought and floods has affected a fluctuation in the surface water area. As for the watermark area in artificial reservoirs, the level increased from the minimum of 4.23%

(13.71km²) to the maximum of 4.42% (21.17km²) since 2000 (a change from 2016 to 2020 vis-à-vis from 2000 to 2004). In particular, a gap between the maximum and minimum levels has widened. This indicates that climate change has an influence on physical availability of freshwater resources and water use. This is reason why continuous monitoring is required to cope with climate change.

Watermark Areas in Lakes and Rivers, 2000~2020

(Unit: km²)



Source: UNEP, Freshwater Ecosystem Explorer (<https://map.sdg661.app>, retrieved on Sep 09, 2022)

Note : The permanent water refers to a watermark area that exists in lakes and rivers for 12 months all year around while the seasonal water to a watermark area that exists lakes and rivers for less than 12 months throughout the year.

Watermark Areas in Artificial Reservoirs, 2000~2020

(Unit: km²)



Source: UNEP, Freshwater Ecosystem Explorer (<https://map.sdg661.app>, received on Sep 09, 2022)

Note : The maximum/minimum water extent refers to a maximum/minimum watermark area observed at reservoirs throughout the year.

Definition

- **Area with no access to water** : It refers to areas with no access to tap water services since they are excluded from water supply areas (to which water is supplied to users as water pipelines are installed from water supply facilities).
- **Water-use efficiency** : The water-use efficiency is measured as a ratio of dollar values to the amount of water used. Water use is considered in all economic activities centering on agriculture, industry and service sectors, in accordance with the International Standard Industrial Classification of All Economic Activities (ISIC) managed by the UN Statistics Division.
- **Permanent water** : Permanent water refers to a watermark area that exists in lakes and rivers for 12 months all year around.
- **Seasonal water** : Seasonal water to a watermark area that exists lakes and rivers for less than 12 months throughout the year.



7 AFFORDABLE AND CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 7 pursues to 'ensure clean and eco-friendly energy use at a reasonable price.' Energy corresponds to essential goods required for all human activities. Since the Industrial Revolution, the global demand for energy has soared and reliance on fossil fuels, especially including coal, oil and gas, has increased. However, greenhouse gas (GHG) emissions resulted from a jump in consumption of fossil fuels have caused global climate change. Reflecting the magnitude of the issue, the United National Framework Convention on Climate Change (UNFCCC) has endeavored to achieve carbon neutrality by 2050 under the Paris Agreement. The fundamental task for carbon neutrality is to shy away from the current fossil fuels and move into new and renewable energy. Such a great transition has been highlighted as a crucial task for sustainable development goals of all nations around the world.

Such a great energy transition requires step-by-step efforts such as efficient use of fossil energy, a shift in economic structure, technological development of renewable energy and market expansion. Energy policies in Korea have focused on improving energy efficiency for long. As a result, energy intensity (primary energy supply/GDP) has seen a continuous improvement. Out of the final energy consumed, the ratio of renewable energy seems to have increased as well. However, it is still low compared to other OECD countries.

Announcing its goal to achieve 'net zero by 2020' to the international community, Korea has enacted and enforced the Framework Act on Carbon Neutrality and Green Growth to address climate crisis. National energy policies regarding reasonable adjustment of renewable energy and a reduction in reliance on fossil fuels will continue to be reinforced down the road.

Renewable energy share is increasing but at the bottom of the OECD (📍 SDG 7.2.1)

It is necessary to find out the share of renewable energy out of the final energy consumption, so as to discover the extent to which renewable energy is actually deployed in our ordinary production and consumption activities. Out of final energy consumed in Korea, the ratio of renewable energy has been on an increase since 2000. The proportion of renewable energy which had been just 0.70% in 2000 rose to 3.36% in 2019. This upward trend recently picked up its speed. Compared to a CAGR of 6.1% from 0.70% in 2000 to 1.35% in 2011, the ratio grew faster on an annual average of 11.1% from 1.61% in 2012 to 3.36% in 2019.

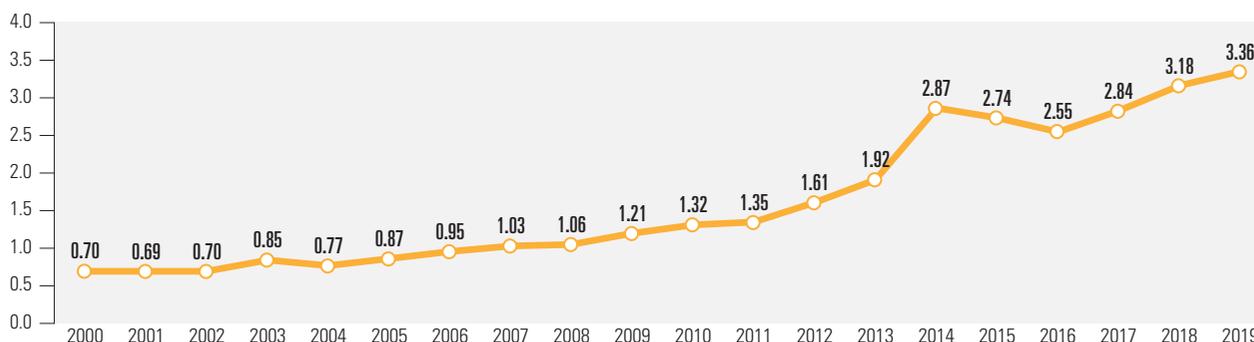
Despite the steadily increasing share of renewable energy

in Korea, it is one of the lowest levels among OECD countries. In 2019, the OECD average (23.4%) was seven times higher than Korea. In Iceland, the ratio of renewable energy reached a whopping 81.1%.

Korea has pushed ahead with deployment of photovoltaic energy, solar energy, wind power, hydraulic power, ocean energy, geothermal energy, bio energy and waste as well as renewable energy such as fuel cells and Integrated Gasification Combined Cycle (IGCC). With the amendment of the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy (the "Act") (enforced in Oct 2019), Korea has put criteria in place for calculation of renewable energy in line with international standards. As of 2021, the amount of renewable and new energy produced

Rate of Renewable Energy out of Final Energy Consumption, 2000~2019

(Unit: %)

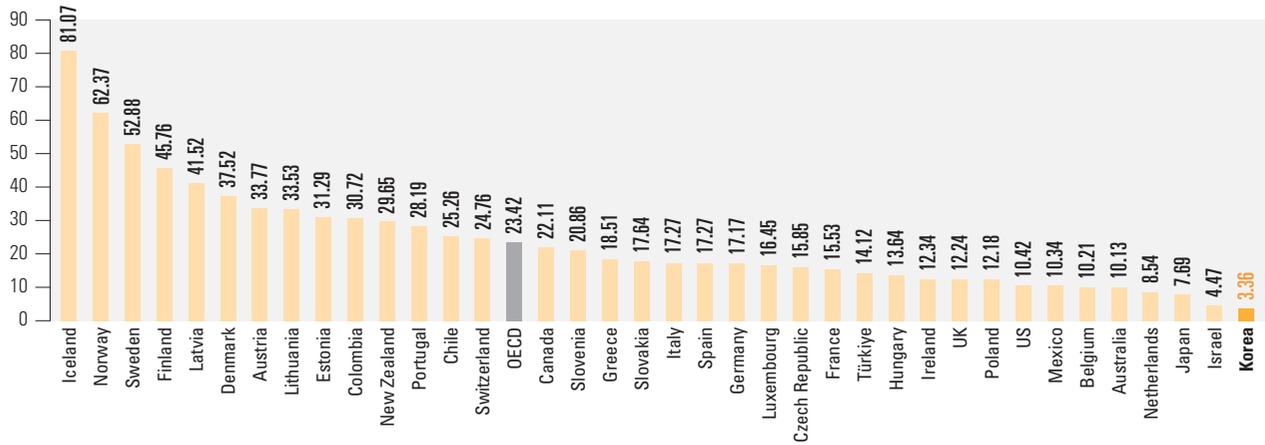


Source: World bank, World Development Indicators (<https://databank.worldbank.org/source/world-development-indicators>, retrieved on July 20, 2022)



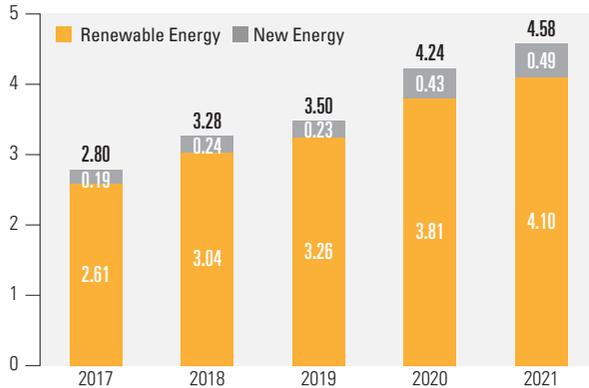
Rate of Renewable out of Final Energy Consumption by OECD Country, 2019

(Unit: %)



Source: World bank, World Development Indicators (<https://databank.worldbank.org/source/world-development-indicators>, retrieved on July 20, 2022)

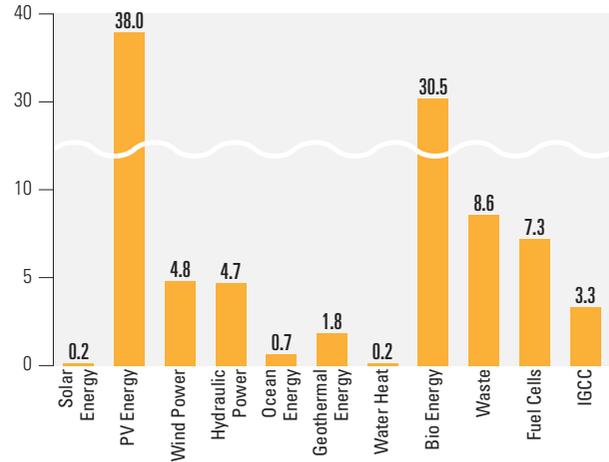
Rate of New and Renewable Energy Supply, 2017~2021 (Unit: %)



Source: Korea Energy Agency, New & Renewable Energy Statistics 2021

Note : Energy generated from non-renewable waste (chemical fiber, artificial leather, vinyl, etc. originating from fossil fuels such as oil and coal) is excluded according to the Renewable Energy Act Amendment (2019).

Type of New and Renewable Energy, 2021 (Unit: %)



Source: Korea Energy Agency, New & Renewable Energy Statistics 2021

Note : Fuel cells and IGCC correspond to new energy and others to renewable energy.

stood at 12.51 million 1000TOE and 1.49 million TOE respectively, taking up 4.66% out of primary energy supply. These figures excluded non-regenerative waste out of waste energy in accordance with the Act.

Given the power production by energy source in 2021, photovoltaic and bio energy accounted for 38.0% and 30.5% respectively, taking up more than half. Meanwhile, each of regenerative waste, hydraulic energy, fuel cells and wind power took up less than 10% out of total production.

Korea has engaged in efforts to expand the ratio of renewable energy by improving various legal systems including feed-in tariffs and renewable portfolio standards. Compared to 'Renewable Energy 3020 Plan' established in 2017, more reinforced goals were promulgated in the '2030 Nationally

Determined Contributions (NDC) Upgrade' announced in 2021. The '3020 Plan' in 2017 aims at mainly expanding the share of PV energy and wind power out of renewable energy up to 20% by 2030 while the 2021 'NDC Upgrade' plans to increase the share of new and renewable energy up to 30.2% by 2030. In particular, Korea is expected to actively engage in deployment of carbon-free energy sources such as hydrogen and ammonia down the road, in order to achieve 'carbon neutrality by 2050.'

Steady improvement in energy intensity

(SDG 7.3.1)

Energy intensity is one of main indicators that show energy efficiency as an amount of energy inputted to produce a

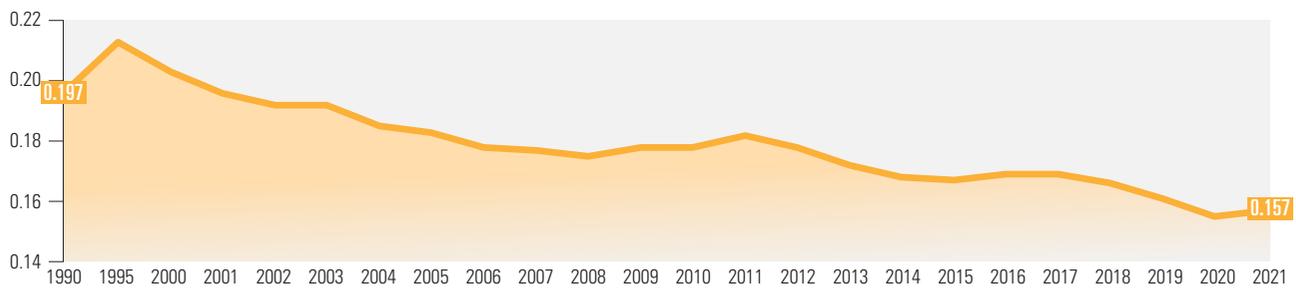
unit of output. It is possible to check whether the national energy efficiency is being improved by keeping tracking of a change in energy intensity. The energy intensity in Korea steadily improved from 0.197 TOE/million in 1990 to 0.157 TOE/million in 2021. This is a direct result from efforts to enhance energy efficiency nationwide and turn into more highly value-added industries. The energy intensity in Korea decreased by 0.7% on an annual average from 1990 to 2021. In particular, it has improved even at a faster pace with an annual reduction by 1.2% after 2000. In 2019 and 2020, it further declined by 3.0% and 3.7% y-o-y respectively due to a reduction in energy consumption and COVID-19. The energy intensity (tentative figure) in 2021 slightly rose up due to base effects of the large drop in 2020.

The average energy intensity (GJ/USD 1000) of OECD countries stood at 3.77 in 2020. As for the energy intensity of

major OECD countries, Germany was 2.93, Japan 3.25 and the United States 4.42. Korea recorded 5.41 for energy intensity, about 30% higher than the OECD average and 46% higher than Germany's. However, it is very critical to compare industrial structure of each country when energy efficiency is compared between countries based on energy intensity. This is because the amount of energy inputs could be different depending on industrial structure even if the added value created is the same. In Korea, for example, main pillars of its national economy is manufacturing such as steel, petrochemistry and oil refinery. These are energy-guzzling businesses, requiring a lot of energy during their production activities. In 2020, the added value created in the manufacturing sector in Korea amounted to 27.1% out of the nation's gross value added, which was the highest among OECD countries except for Ireland (36.6%).

Energy Intensity, 1990~2021

(Unit: TOE/KRW Million, as of 2015)



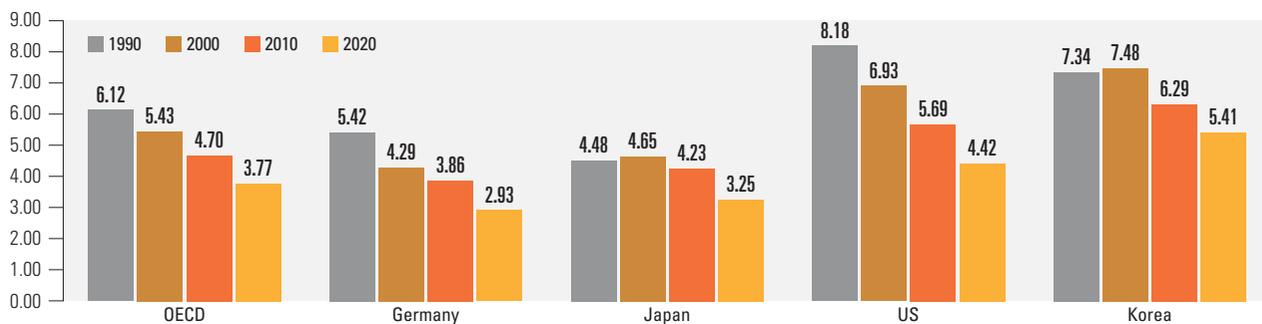
Source: Korea Energy Economics Institute, Monthly Energy Statistics (Dec 2022)

Note 1: Energy intensity is defined as a ratio of primary energy supplied out of gross value added (GVA). The primary energy refers to energy domestically supplied as a result of production, import/export and inventory increase/decrease. It is calculated as the sum of energy inputted to be transformed into other energy and final energy consumed for industrial, transportation, household, commercial/public use.

Note 2: The tentative figure was used for the year 2021.

Energy Intensity in Major OECD Countries, 1990~2020

(Unit: GJ/USD 1,000, based on PPP in 2015)



Source: IEA Data Services, Energy Statistics Data Browser (<https://www.iea.org/data-and-statistics/data-tools/energy-statistics-data-browser?country=KOREA&fuel=Energy%20supply&indicator=TESbyG-DPPPP>, retrieved on July 20, 2022)

Definition

- **Feed-in Tariffs** : It is a scheme designed to contribute to development and deployment of renewable energy by recuperating losses of power utilities and electric sales businesses with preferential purchase of electricity produced and supplied from renewable energy.
- **Renewable Portfolio Standards** : It is a scheme that mandates power utilities (mandatory suppliers) with capacity of 500,000 kW or higher to supply renewable energy at a certain ratio or higher out of the total generation.



8 DECENT WORK AND ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SDG 8 aims to ‘promote sustainable economic growth and decent work.’ At the kernel of this goal lies ‘economic growth’ and ‘decent work.’ ‘Economic growth’ means growth of productivity in a sustained and inclusive form while ‘decent work’ indicates safe jobs through improvement in working conditions and equitable and fair jobs by eradicating various unfair factors.

In 2020, the Korean government embodied SDG 8 that captures domestic conditions via the 4th Basic Plan on Sustainable Development (2021 to 2040), whose main gist contains economic growth by laying the foundation for innovative and inclusive growth, actively creating jobs for the vulnerable and promoting growth for SMEs and micro enterprises. With the prolonged COVID-19 pandemic, in particular, main policies have been implemented in line with efforts to recover from crisis. They include expansion of employment support and education opportunities for the young and vulnerable suffering due to the worsening labor market, implementation of a supporting system for micro enterprises struggling for a living due to social distancing and support for start-ups and SMEs for a seamless transition into digital and contactless economy.

Various SDG 8 indicators show that Korea saw a fast recovery in its growth and employment indicators away from shocks from ‘COVID-19’ in 2021 and 2022. That said, the recovery of population relatively more vulnerable to crises has been pictured differently. In Korea, the growth rate of per capita real GDP hit the bottom during 2Q 2020 and turned into a positive territory for the nine consecutive quarters until 3Q 2022. This means that its per capita real GDP has seen the continuous growth. The unemployment has also recovered from shocks of COVID-19, but recovery patterns have been different depending on population groups. What is required is a policy that actively supports job seeking activities of women and other vulnerable groups. Meanwhile, the number of workers affected by industrial accidents and deaths increased in 2021 compared to the previous year, which means that still there is long way to go in terms of safety control at workplace. This is reason why more effective policy support is required to provide safe working environments.

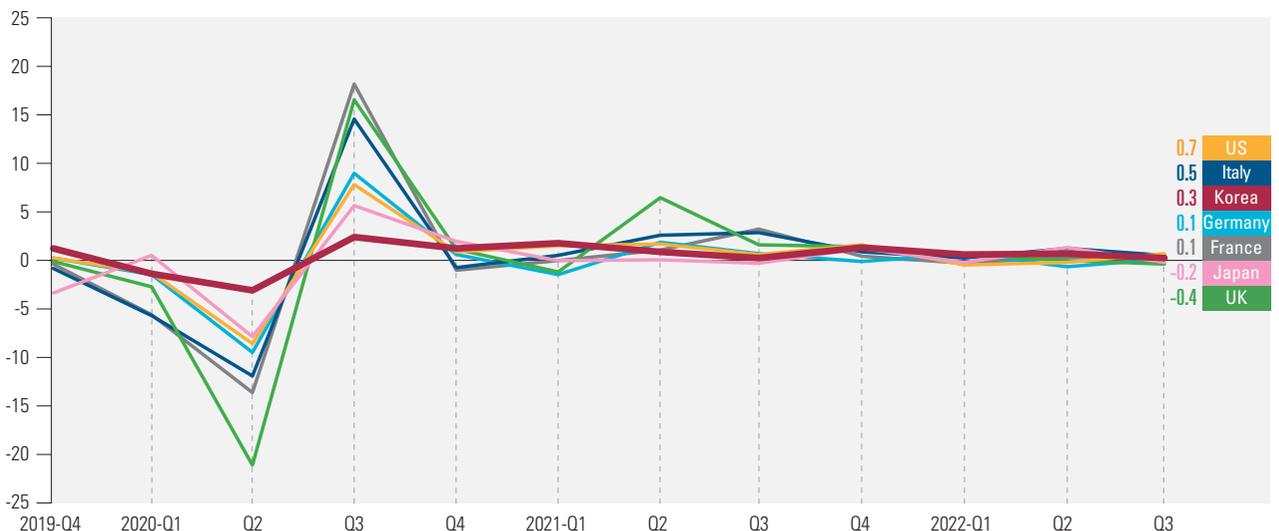
Vivid recovery of economic activities daunted by COVID-19 (SDG 8.1.1)

Economic growth can be measured with GDP growth rates. In major OECD countries, the per capita real GDP declined by a big margin during the first half of 2020 due to severe economic downturn caused by COVID-19. In particular, the United

Kingdom (-21.1%), France (-13.6%) and Italy (-11.9%) were hit the hardest during the 2Q 2020 when the quarterly growth rate saw the biggest decline by over 10% compared to the previous quarter (1Q). Besides them, Germany (-9.4%), the United States (-8.5%) and Japan (-7.9%) were also heavily affected. Among seven major countries, South Korea posted the lowest

Real GDP Growth Rate per capita in Major OECD Countries, 2019~2022

(Unit: %)



Source: OECD.Stat, Gross domestic product (GDP) (https://stats.oecd.org/Index.aspx?DatasetCode=SNA_TABLE1 retrieved on Jan 12, 2023)



decline (-3.0%). Albeit at varying degrees by country, the per capita real GDP started to be stabilized from 4Q 2020, gradually entering a recovery phase. Recovery continued in 2021 as well. In addition, the per capita real GDP reverted back to the 2019 level during the 2Q 2022 in most of countries.

In Korea, its per capita real GDP growth rate per quarter reached the bottom in 2Q 2020 and gradually rose by 2.4% during 3Q, by 1.3% in 4Q and by 1.8% in 1Q 2021. The upward trend, however, slowed down to 0.9% in 2Q 2021 and 0.2% in 3Q. This seems to be due to influences of

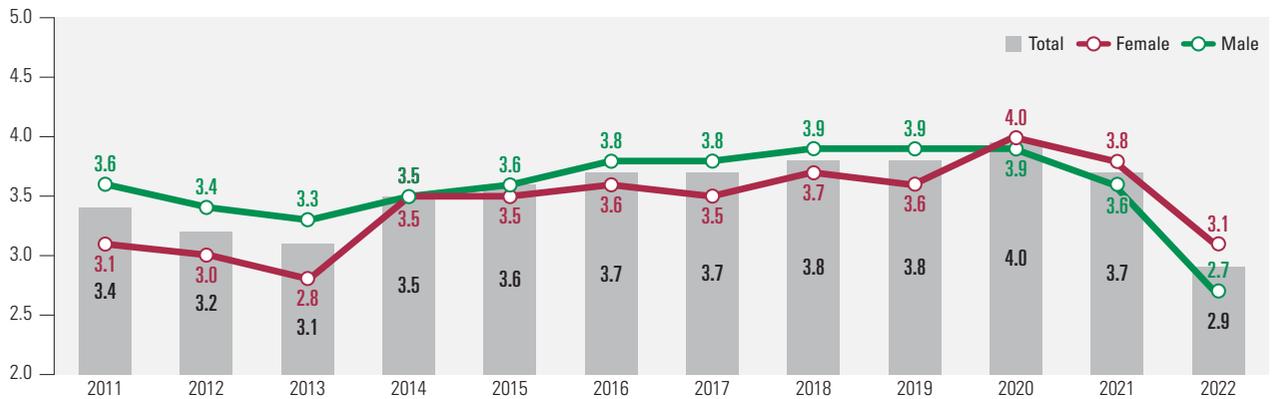
COVID-19's resurgence. Anyhow, the nation's per capita real GDP showed a positive (+) growth rate for the nine consecutive quarters starting from 3Q 2020, which indicates that the real GDP per capita was on a steady rise.

Unemployment rates started to decrease since 2021, but the gender gap has widened (SDG 8.5.2)

Unemployment refers to a situation where a person actively searches for a job but is unable to find one. The unemployment rate in Korea remained at 3.5% to 3.8% from 2014 to 2019.

Unemployment Rate by Sex, 2011~2022

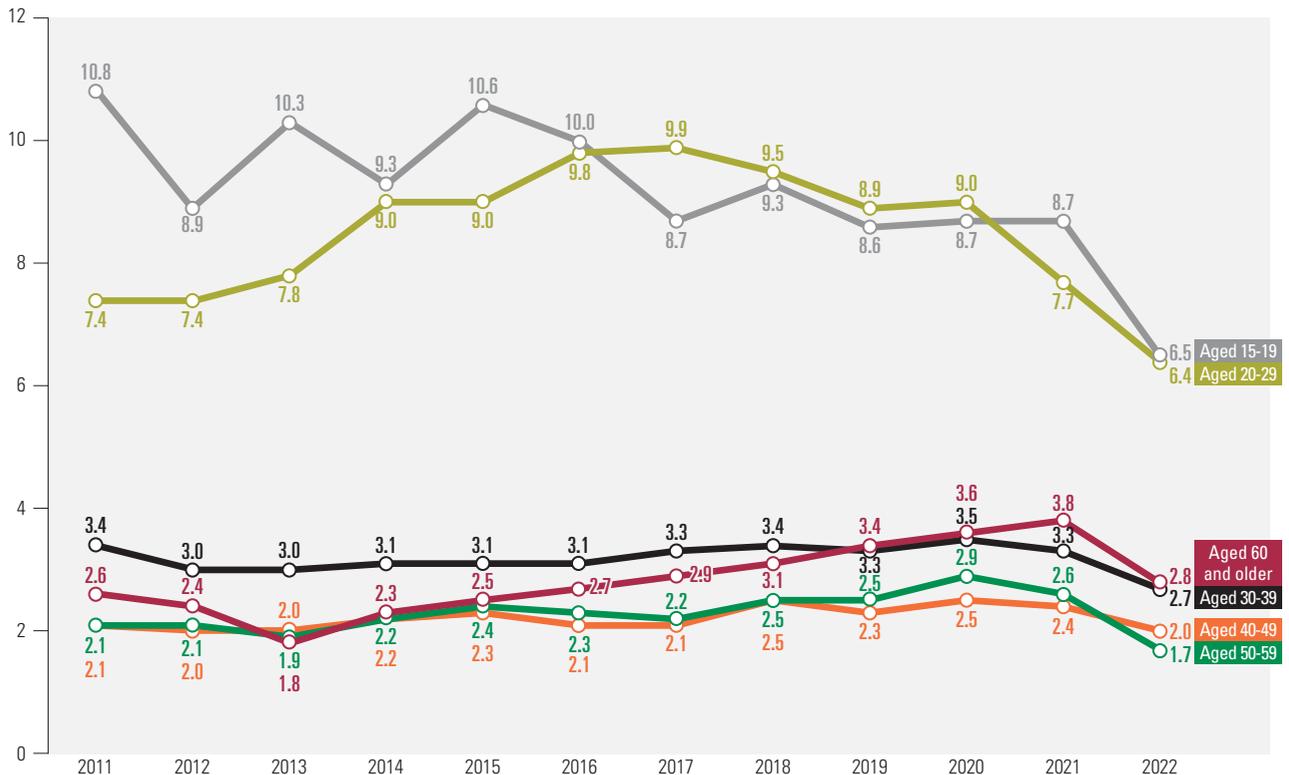
(Unit: %)



Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)

Unemployment Rate by Age Group, 2011~2022

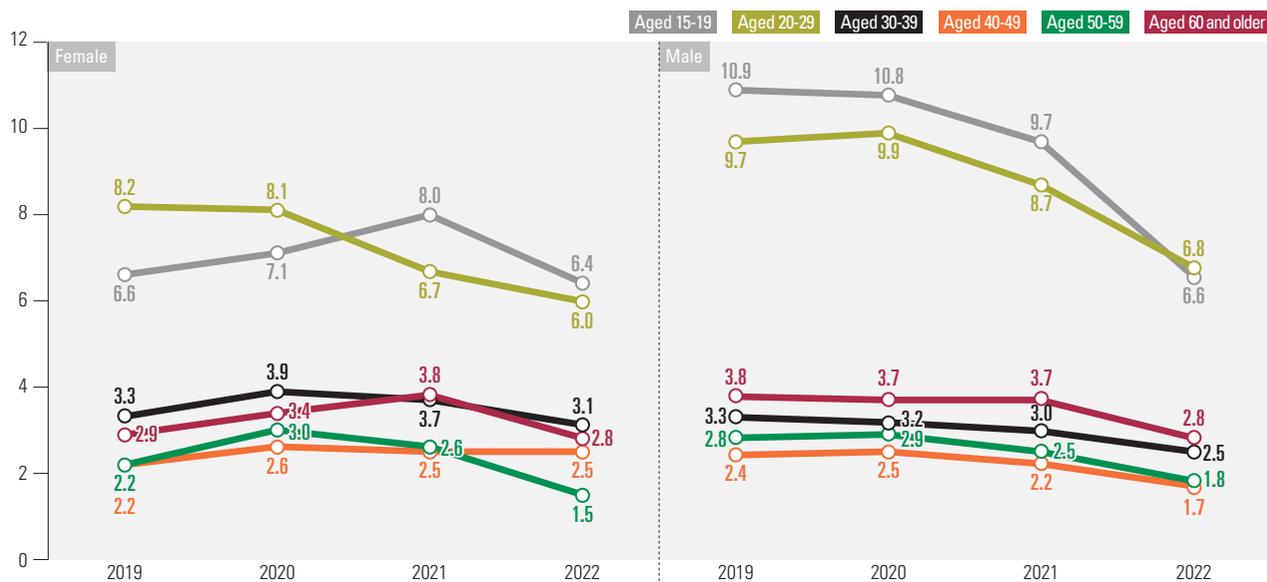
(Unit: %)



Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)

Unemployment Rate by Sex and Age Group, 2019~2022

(Unit: %)



Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)

It rose to 4% in 2020 when the nation was under the direct influence of COVID-19. It reduced back to 3.7% in 2021, returning to the 2019 level, and even went down to 2.9% in 2022. Given the shocks from COVID-19 in the employment market, the unemployment rate recovered faster than other employment indicators such as the number of employed or the employment rate. Having said that, a drastic drop in the unemployment rate in 2022 was somewhat exceptional.

Given the unemployment trend by sex, the unemployment rate of men always hovered that of women since 2012; however, it was reversed as the unemployment rate of women exceeded that of men starting from 2020. This phenomenon continued in 2021 and 2022. The sex reversal in the unemployment rate suggests that COVID-19 has hit women's unemployment rates harder than men's, which has been linked to issues such as child-care. However, the gender gap in the unemployment rate widened in 2022 compared to previous years, with the year-on-year decrease in the unemployment rate for women (0.7% points) being smaller than for men (0.9% points).

Looking at the annual average of unemployment rates by age before COVID-19 from 2011 to 2019, those in their 20s had the highest unemployment rate with 8.7% while those in their 40s and 50s had the lowest with 2.2%. For the same period, the average unemployment rate of the elderly in their 60s or older stood at 2.6% which was lower than that of the thirties (3.2%). During 2020 when the nation was reeling

from the COVID-19 pandemic, the unemployment rates rose throughout all ages, but they reclined again in 2021. This downward trend continued in 2022 as well. As for those in their 20s with a higher proportion of employment in the service sector, in particular, the unemployment rate declined by a relatively big margin to 7.7% in 2021 and to 6.4% in 2022 from 9.0% in 2020. When breaking down the unemployment rate by age group, men had lower unemployment rates in 2022 than in 2019, the year before COVID-19, across all age groups. For women, the unemployment rate for aged 40-49 increased from 2.2% to 2.5%.

In overall, there were clear signs of recovery of unemployment from shocks from COVID-19; however, such a recovery in the unemployment rate showed different patterns depending on demographic population. Therefore, it is necessary to expand job security by actively supporting job seeking activities of the vulnerable including women and by putting in place some cushions to protect SMEs and micro enterprises from the shocks.

A rising number of victims and deaths due to industrial accidents (🎯 SDG 8.8.1)

Industrial accidents are a major indicator to assess safety of workplace. The total number of workers affected by industrial accidents increased 108,379 in 2020 to 122,713 in 2021, 130,348 in 2022. Among them, the number of deaths from industrial accidents decreased in 2021 compared to 2020



and then increased again in 2022 and but that of deaths from occupational diseases continuously rose for three years.

Considering the number of deaths by industry in 2022, Construction (24.2%), manufacturing (22.8%), and mining (20.4%) accounted for the most deaths by industry. The share of disease deaths was highest in mining at 441 persons, while accidental deaths were highest in construction at 402 persons. Meanwhile, the number of accidental deaths among delivery workers increased due to the increased demand for delivery due to the spread of COVID-19. In 2019, there were 7 deaths, compared to 17 in 2020 and 18 in 2021.(MOEL, 2022).

Given the number of deaths by the size of workforce, as of 2022, about 61.7%(1372 persons) of deaths took place in workplaces with less than 50 employees. The proportion of accidental deaths was even higher, reaching 80.9% (707 persons).

This means that there is not enough safety control in place at small-scale businesses. Since Jan 27, 2022, the Serious Accident Punishment Act has come into effect to punish grave industrial accidents in the case business owners and/or executive officers violate their obligations to secure safety and health. It is expected to contribute to making safer working environments on a long term. On top of it, it is necessary to work with policies that reinforce capacities both for SMEs and the government to make sure that the Serious Accident Punishment Act can effectively prevent industrial accidents from happening.

The per capita fossil fuel consumption turned into a reduction starting from 2018 (🔄 SDG 8.4.2)

The domestic material consumption is one of indicators that can measure the extent to which the target of SDG 8.4

Occurrence of Industrial Accidents, 2020~2022

(Unit: No. of persons, %)

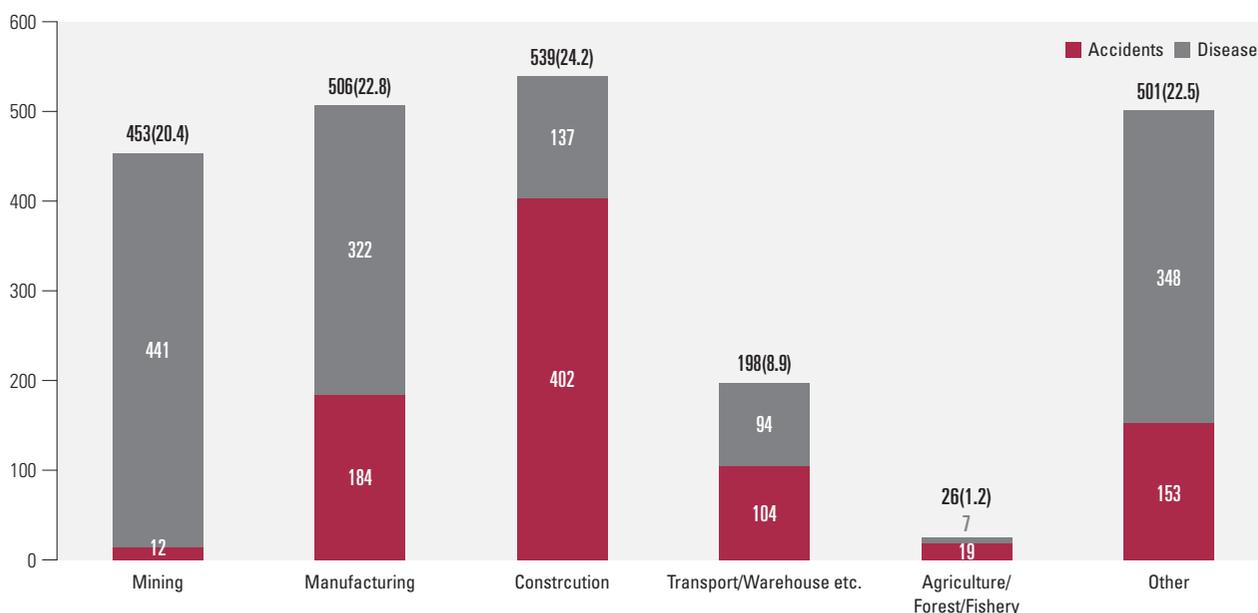
Category	2020	2021	2022	2021-2020		2022-2021	
				Change	Change(%)	Change	Change(%)
No. of Victims	108,379	122,713	130,348	14,334	13.2	7,635	6.2
- Accidents	92,383	102,278	107,214	9,895	10.7	4,936	4.8
- Disease	15,996	20,435	23,134	4,439	27.8	2,699	13.2
No. of Deaths	2,062	2,080	2,223	18	0.9	143	6.9
- Accidents	882	828	874	-54	-6.1	46	5.6
- Disease	1,180	1,252	1,349	72	6.1	97	7.7

Source: Ministry of Employment and Labor, Industrial Accident Status, each year

Note : The number of victims refers to the sum of deaths and injuries affected by occupational accidents or diseases.

Number of Deaths from Industrial Accidents by Industry, 2022

(Unit: No. of persons, %)

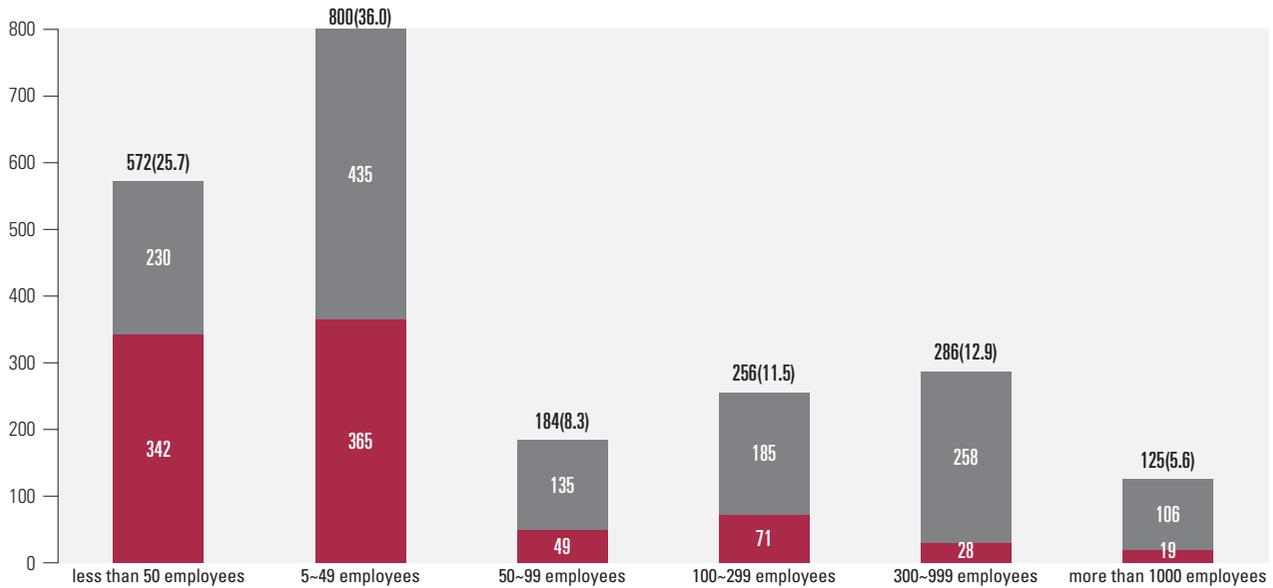


Source: Ministry of Employment and Labor, 2022 Industrial Accident Status

Note : Other includes electricity, gas, steam, and water, finance and insurance, wholesale and retail, health and social services, food and hospitality, etc.

Number of Deaths from Industrial Accidents depending on Workforce Size, 2022

(Unit: No. of persons, %)



Source: Ministry of Employment and Labor, 2022 Industrial Accident Status

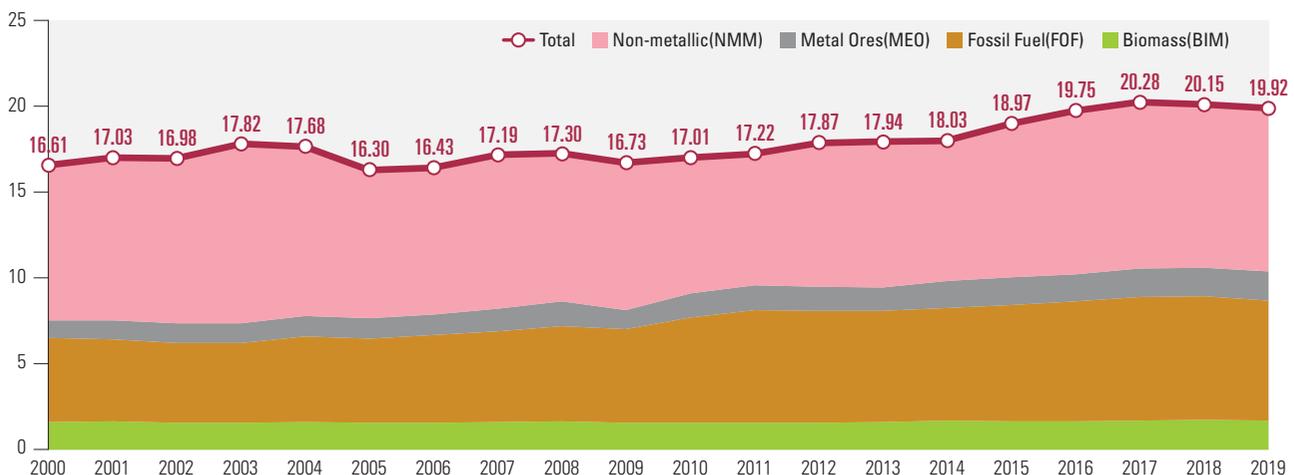
“improve resource efficiency, through 2030, in consumption and production on a global scale and inhibit environmental degradation” has been achieved. It is necessary to keep track of flows of major input materials and measure the final consumption, in order to accomplish the goal of ‘sustainable economic growth’ beyond simple economic growth.

The domestic material consumption is a standardized indicator that represents material consumption within the national economy of material flow accounting and follows the 2012 System of Environmental-Economic Accounting (SEEA). The domestic material consumption is primarily classified into the following four and tallied up by the UNEP,

OECD and EUROSTAT: biomass, fossil fuels, metal ores and non-metallic. The per capita domestic material consumption in Korea was on a steady increase in the aftermath of the global economic crisis in 2008 and 2009 and peaked at 20.28 tons in 2017, followed by a decline. The domestic material consumption of fossil fuels per capita continued to rise since 2002, with a reduction once in 2009. Afterwards, it maintained a growing trend in overall, but it again went down and stood at 6.96 tons in 2019 after reaching the pinnacle at 7.22 tons in 2018. However, it is too early to discuss future trends as statistics have not been collected since 2020 that the effects from COVID-19 are addressed.

Domestic Material Consumption per capita, 2000~2019

(Unit: tons/person)



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved in Aug 2022)



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



A smart robot farmer working on a farm

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG 9 seeks out inclusive and sustainable development by further creating additional value through industrial development and innovating science and technology. The COVID-19 pandemic has accelerated the world into paying more attention to importance of industrialization, technical innovation and resilient infrastructure, in order to pursue recovery and sustainable development. Countries equipped with the diversified industrial structure and robust infrastructure have been less affected by the pandemic and have recovered fast. In addition, the fact that industries based on sophisticated technologies can benefit from better outcome and faster recovery shows how important SDG 9 is.

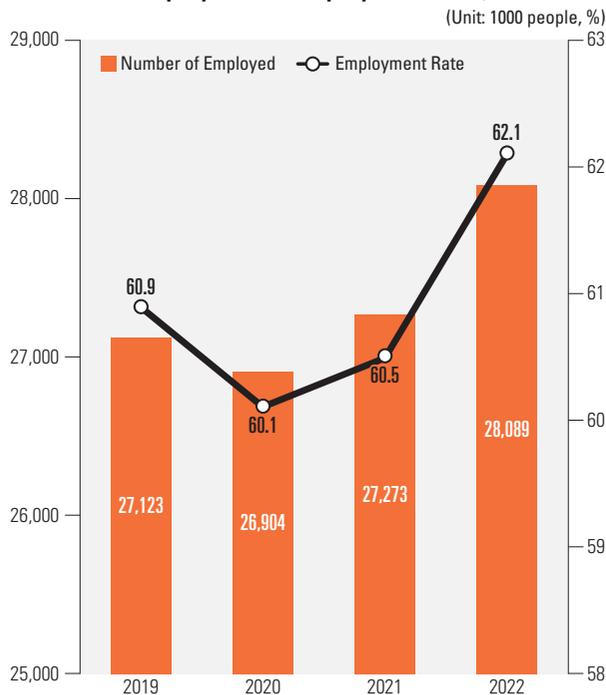
The manufacturing sector around the world has recently recovered back to the pre-COVID level. However, the recovery seems to vary depending on countries or industries. The manufacturing in less developed nations has suffered from a decline in global demand and unstable global supply networks. In 2021, the per capita added value for the manufacturing sector in Europe and North America amounted to more than USD 5,000, but the number was just USD 134 in underdeveloped nations. The government's support is urgent for SMEs as they are vulnerable to crises such as COVID-19. Unlike advanced nations, underdeveloped nations are normally financially strapped that SMEs haven't received enough support. Furthermore, recovery was also slower in developing nations than in advanced counterparts equipped with mid/high-level technologies. It is urgently required to establish infrastructure for telecommunications and technologies, combined with innovative and diverse industrial ecosystems in place.

Recovery of employment and sales (SDG 9.2.2)

On the back of economic recovery from COVID-19, the number of new hires has recently been on a rise. After a dramatic drop in hires in 2020 under the influences of COVID-19, the number of the employed started to rise from 2021 and almost reached the pre-COVID level at the year-end in most industries. In response, the employment rate

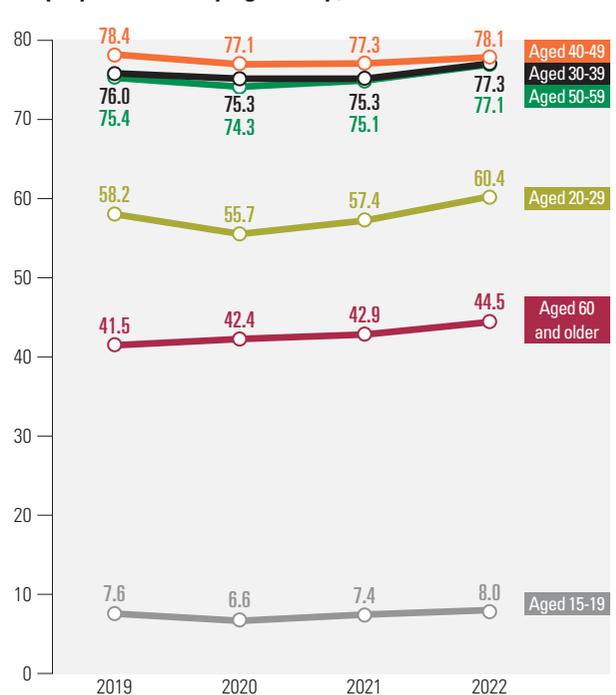
which is a critical indicator in the labor market went up in all ages. The employment rate of 60.1% in 2020, down 0.8 percentage points from the previous year due to COVID-19, increased to 60.5% in 2021 and 62.1% in 2022. By age group, those in their 20s experienced the largest year-on-year increase in employment, 3.0 percentage points, followed by those in their 30s and 50s, 2.0 percentage points.

Number of Employed and Employment Rate, 2019~2022



Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)

Employment Rate by Age Group, 2019~2022 (Unit: %)



Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)



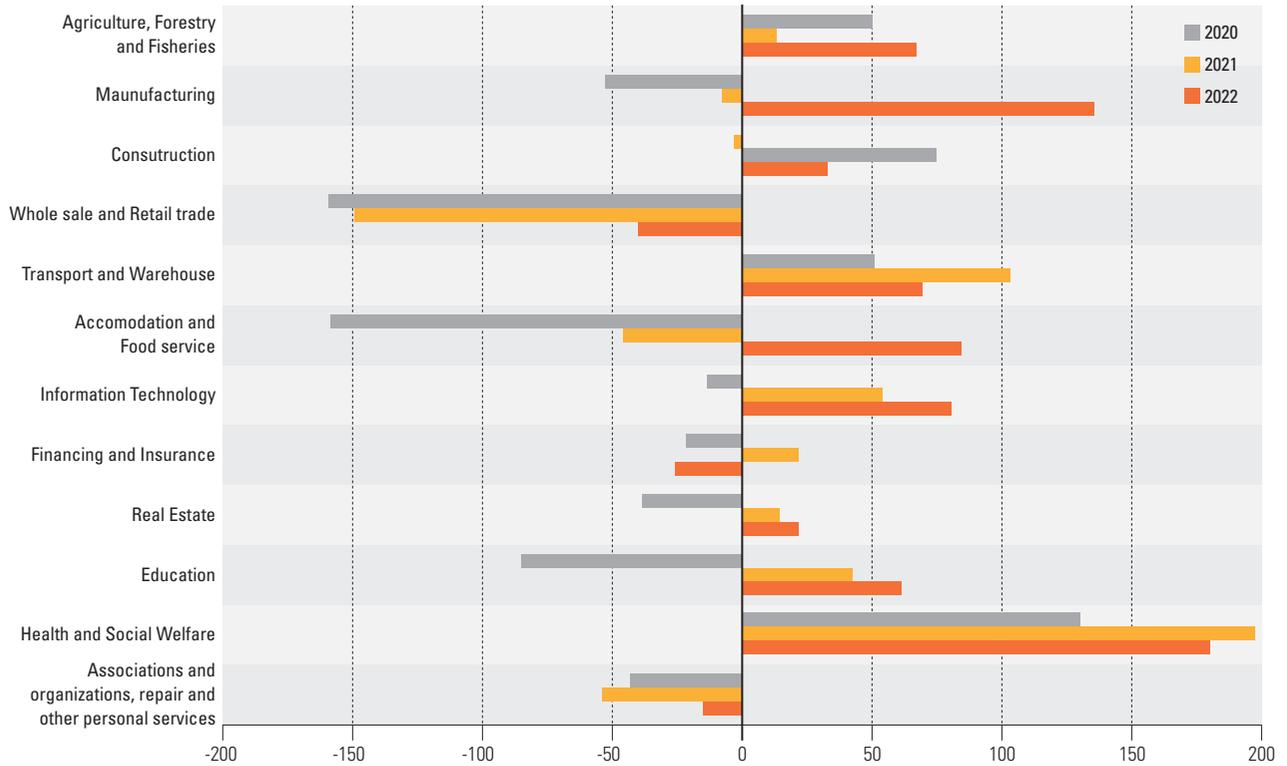
In 2022, the number of new hires further largely increased throughout all industries. Over the year, job gains were seen in manufacturing (135k), health care and social assistance (180k), and accommodation and food services (84k), while losses were seen in wholesale and retail trade (41k), finance and insurance (26k), and associations and organizations, repair and other personal services (16k). There

was some delay in recovery of face-to-face services due to the re-spread of COVID-19 in the labor market, the positive improvements seem to have continued thanks to vibrant employment in the health and businesses that direct contact is not required.

Sales is one of indicators that quickly tell companies' business conditions and economic situations. At the early

Changes in Number of Employed

(Unit: 1000 people)

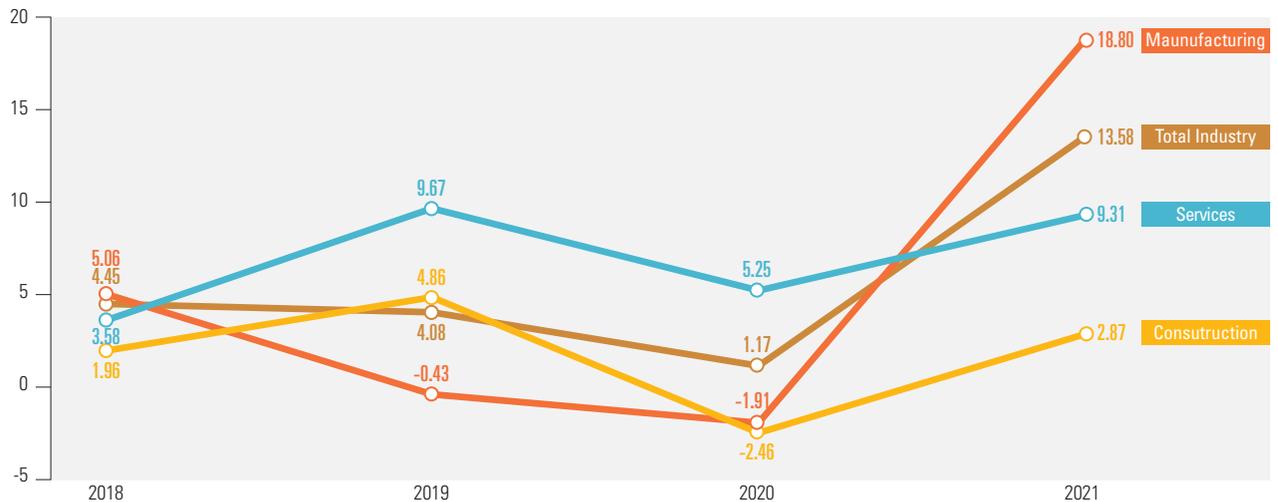


Source: Statistics Korea, Economically Active Population Survey (<https://kosis.kr>, retrieved on Jan 20, 2023)

Note : The industrial classification was based on the 10th revision of the Korean Standard Industrial Classification (2017).

Growth Rate of Sales by Industry, 2018~2021

(Unit: %)



Source: Korea Institute for Industrial Economics and Trade (KIET), Industrial Statistics Analysis System (<https://www.istans.or.kr/su/newSuTap.do?scode=S171>, retrieved on Jan 10, 2023)

stage of the COVID-19 outbreak, it was the face-to-face service industry that first suffered from a reduction in sales due to crumbled global supply networks and health regulations. As COVID-19 was prolonged, a decline in sales spread to all industries. Starting from 2021, there was a big jump in sales mainly from the manufacturing sector, and the service and construction industries also saw their sales increasing. It is considered that it is manufacturing that has driven economic recovery after COVID-19.

A need to promote growth of SMEs for sound ecosystems (SDG 9.3.1)

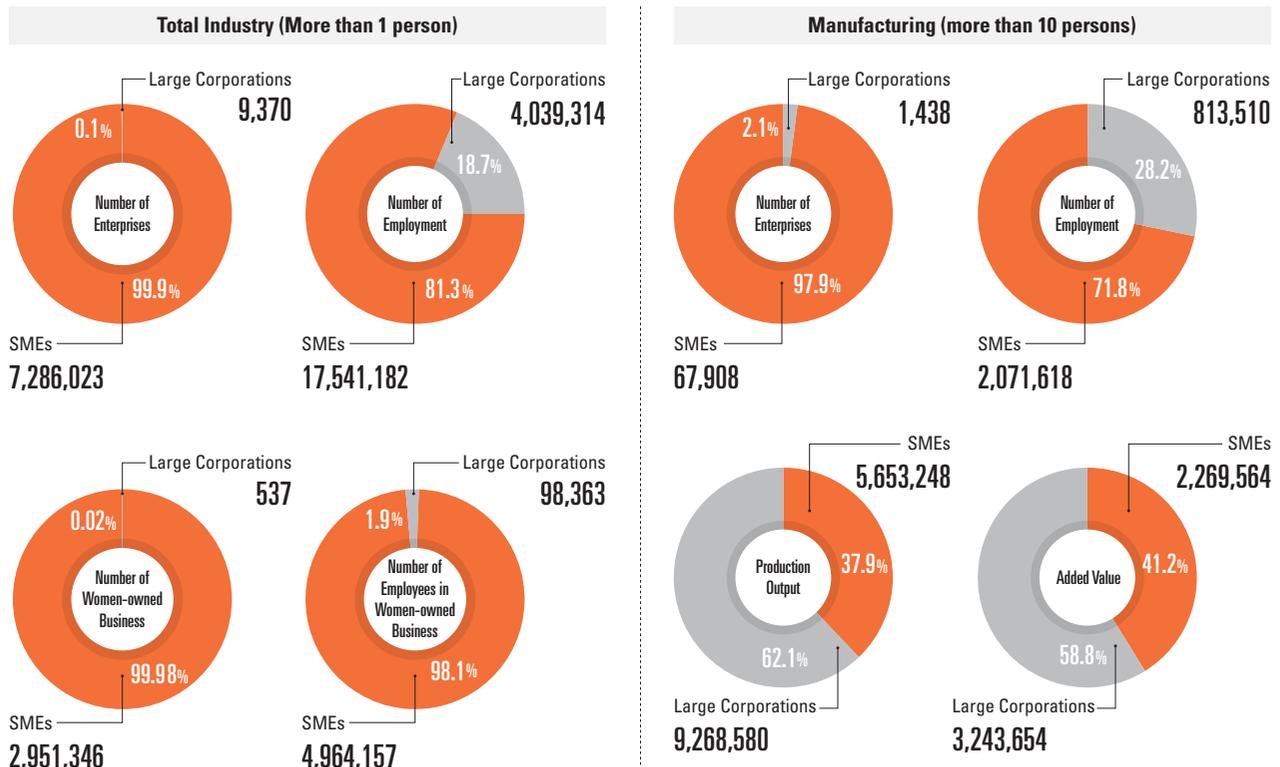
In 2020, SMEs accounted for 99.9% out of total enterprises and 81.3% of employment, positioning themselves as a backbone of the national economy in Korea. In manufacturing alone, SMEs took up 97.9% out of total enterprises and 71.8% of employees. In terms of production output (37.9%) and added value (41.2%) of manufacturing, SMEs made a huge contribution to the national economy. On the other hand, the share of women-owned businesses is overwhelmingly small and medium-sized. Out of 2,951,883 companies,

only 537 are large corporations, that is 0.02%, which is less than 0.1% of all businesses.

However, SMEs in Korea tended to have lower productivity than large conglomerates, making less contributions to economic growth and worsening a wage gap among workers. In 2019, the comparison of labor productivity with OECD countries showed that Korea was one of countries with the largest productivity gap between large companies and SMEs.

In order to narrow down such a productivity gap, it is necessary to come up with various policy measures such as innovative activities to enhance productivity of SMEs and administrative cost savings. In particular, it is desirable to identify supportive measures so that SMEs can benefit from state-of-the-art technologies and innovation such as the digital transition and smart factory. SMEs still suffer from the absence of contentable automation, organizational capacities, funds and human resources. Even if an AI-based system is established, a lot of training and time would be required to be equipped with skills and capacities to analyze data. Furthermore, policies focusing too much on support and fostering of SMEs could rather undermine their competitiveness

Rate of SMEs in Total Industry and Manufacturing Sectors, 2020



Source: Ministry of SMEs and Startups, Basic Statistics for SMEs (<http://kosis.kr>, <https://www.mss.go.kr>, retrieved on Jan 14, 2023)



and self-reliance. Rather than excessive support, it is more important to put in place a flexible and sound ecosystem that ensures free access and exit.

World-class R&D investments in Korea

(SDG 9.5.1 / 9.5.2)

For sustainable industrialization, what matters is investments in technological development which results in innovative activities. The total R&D spending refers to the sum of expenses used for research and development throughout the year both in the public and private sectors including companies, public research institutes and universities, serving as an

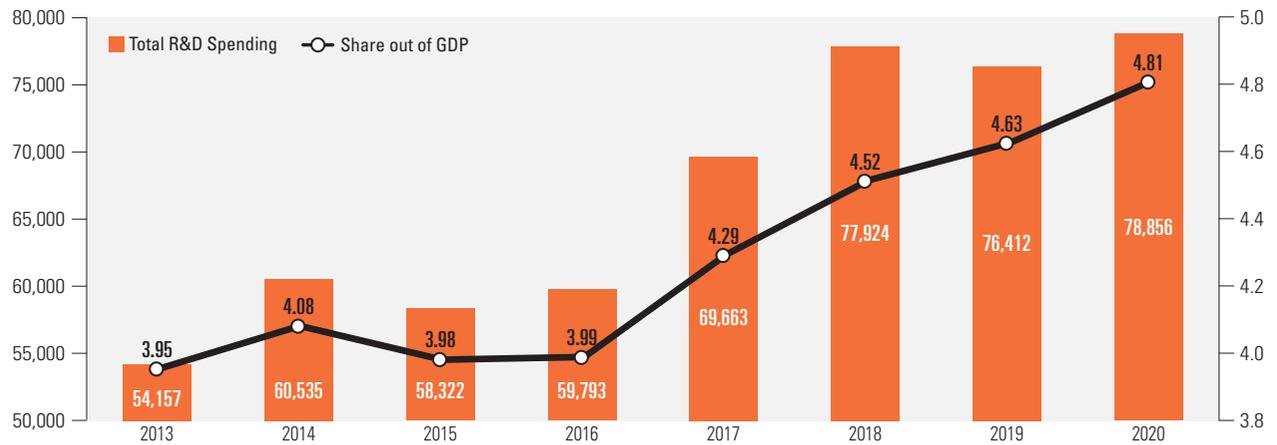
indicator that shows how active R&D activities have been conducted.

The R&D expenditures in Korea have been on a rise each year. The R&D expenditures in Korea in 2020 were ranked at 5th with KRW 78.86 billion across the globe. The rate of R&D expenditures in GDP stood at 4.81%, becoming the world's second. In terms of the size of R&D expenditures, the United States topped the list while Israel had the highest share of R&D spending out of GDP (5.44%).

The R&D personnel have also been on a steady increase. Considering the rate of research participation, the number of researchers in Korea on full time equivalents (FTE) stood

Total R&D Spending and Share of R&D Spending out of GDP, 2013~2020

(Unit: KRW 100 M, %)

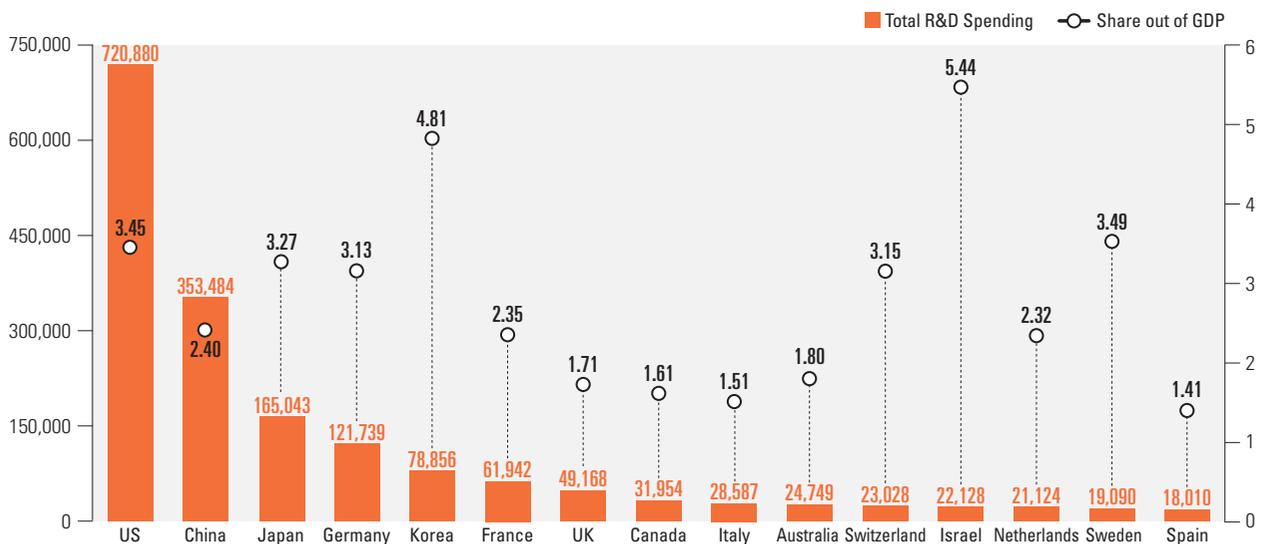


Source: Ministry of Science and ICT, Survey of Research Development(2022), Bank of Korea, National Account

Note : Ratio of R&D investment to GDP = (Total R&D spending ÷ GDP of the year) × 100. The GDP was based on data of national accounts with the revised baseline year (2015).

Total R&D Spending and Share of R&D Spending out of GDP in Major Countries, 2020

(Unit: KRW 100 M, %)



Source: Ministry of Science and ICT · KISTEP, Statistics of Science and Technology (<https://www.ntis.go.kr/mdst/Main.do>, retrieved on Jan 16, 2023)

Note : Data for UK, Australia, and Switzerland are as of 2019

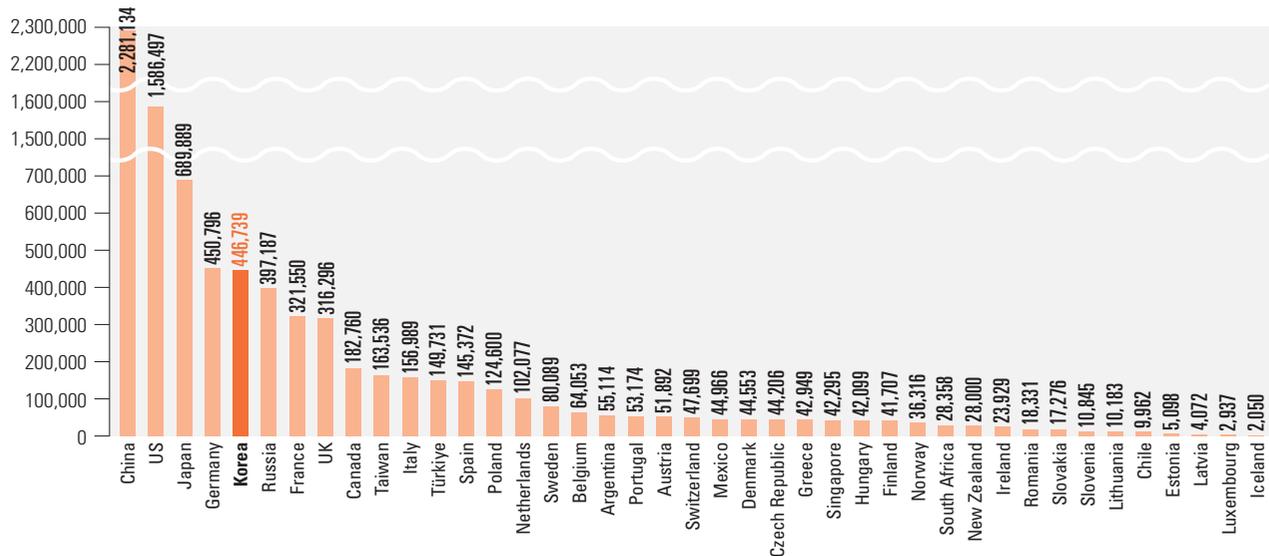
at 446,739, following China, U.S.A., Japan and Germany. If the number of researchers is calculated per 1,000 economically active population for international comparison, it rose from 15.4 in 2019 to 16.0 in 2020. This was the highest figure out of comparable countries in 2020. Korea was followed by Finland, Denmark and Sweden. In a nut shell, Korea's R&D has reached the world's highest level in terms of financial resources and workforce, along with continuously growing financial investments and manpower. This is supported by the recently released Global Innovation Index 2022, which ranks Korea as the sixth most innovative country in the world, behind Switzerland, the United States, Sweden,

the United Kingdom, and the Netherlands (WIPO, 2022). However, the absolute scale of investment is small compared to developed countries, so there is a view that R&D investment should be increased to advance science and technology to a higher level.

Together with quantitative expansion of research and development, Korea has pursued promotion of goal-oriented R&D as well as marketability-based R&D. In particular, it aims at reinforcing autonomy and efficiency during the R&D process in industrial technology, promoting innovative activities, and driving economic growth through achievements.

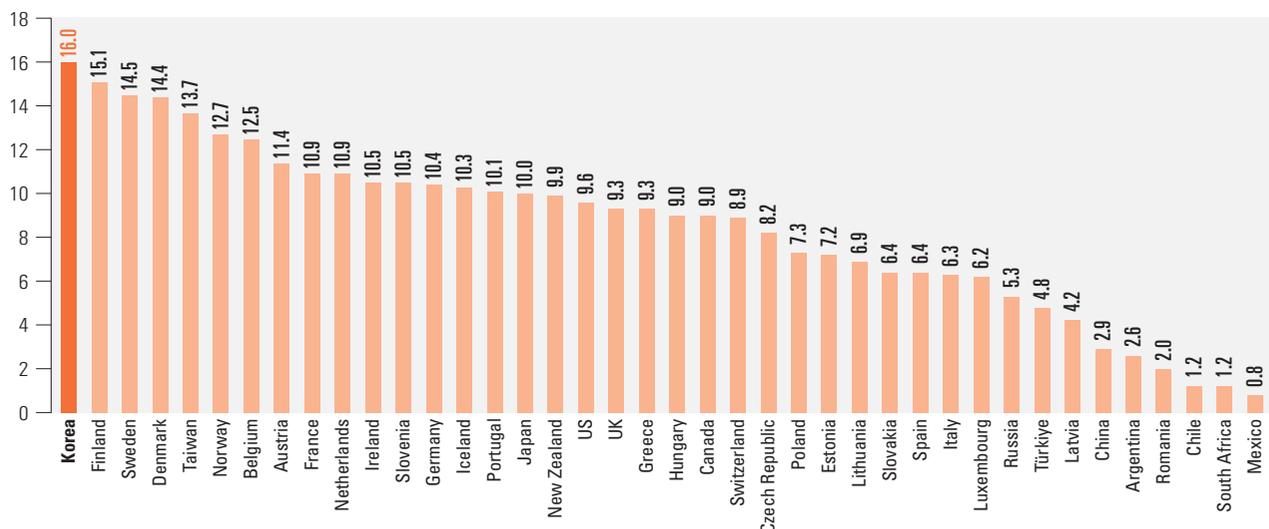
International Comparison of Full Time Equivalent (FTE), 2020

(Unit: No. of persons)



International Comparison of Researchers per Economically Active Person, 2020

(Unit: 1000 people)



Source: Ministry of Science and ICT - KISTEP, Statistics of Science and Technology (<https://www.ntis.go.kr/rndst/Main.do>, retrieved on Jan 16, 2023)
 Note : based on Full Time Equivalent (FTE)



10 REDUCED INEQUALITIES



Reduce inequality within and among countries

SDG 10 seeks to 'reduce inequality in all forms within and among countries.' It is domestically aimed at improving laws, systems and practices that cause inequality of opportunities, processes and results, along with mitigation of income inequality. On a global front, it also contains flexible labor mobility and advanced nations' assistance for developing and underdeveloped nations.

In Korea, the Gini coefficient of net wealth has been recently on an increase. Wealth polarization is perceived to be worsening. It has been reported that the poverty rate is also higher than other OECD countries. In the bottom quintile of income earners, the debt to asset ratio continued to increase from 2017 to 2020. The share of assets has been on a steady decrease in the bottom 40%, showing aggravating wealth polarization. Although the relative poverty rate has reduced, it hasn't showed a big change. It is considered that poverty has been still a serious issue.

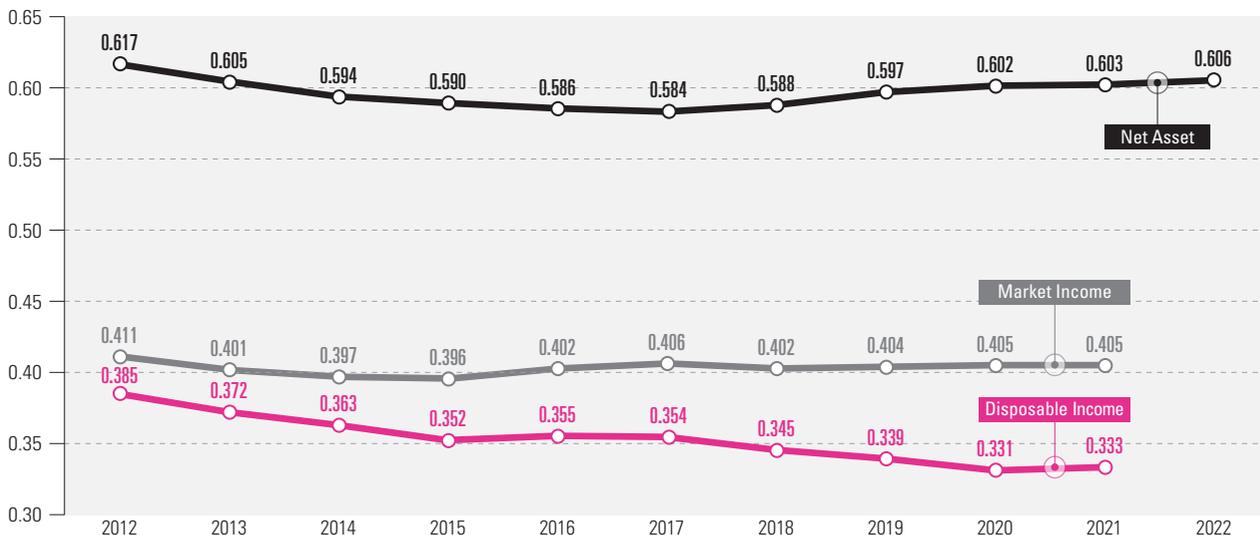
The loan balance of the self-employed soared in 2020 when the pandemic was at its peak, and the number of the self-employed who took out a loan heavily increased during the same year. Considering the negative impacts on the self-employed from the gathering ban due to COVID-19, an increase in their loans could lead to worsening of inequality in the future. For this reason, continuous monitoring is needed in this matter. Meanwhile, the financial soundness indicator showed that Korea was in good shape. It's currently positioned at a mid-level among OECD countries.

The inequality rose, but the debt ratio recently reduced (🕒 SDG 10.4.2)

Generally speaking, the Gini coefficient is one of major indicators that show the level of inequality in a nation. It has a scale of 0 to 1, with closer to 0 meaning equality and closer to 1 inequality. The Gini coefficient of disposable income in Korea shrank from 0.385 in 2012 to 0.333 in 2021 during a decade. The government's distribution policies can be evaluated in reference to the coefficient. Since 2012, the overall effectiveness of distributional policies has tended to increase.

However, in 2021, the disposable income Gini coefficient increased by 0.002 year-on-year, while the market income Gini coefficient remained unchanged, resulting in a year-on-year decrease in the distributional policy effect of 0.223. A metric that can shed light on inequality in other ways than income is wealth. Wealth refers to financial power that an individual owns such as real estate, interests and stocks. Unlike income, wealth can be created by inheriting assets from parents. Unlike the Gini coefficient on income, the coefficient on net wealth has worsened a little by little over the past

Gini Coefficient of Income and Net Asset, 2012~2022

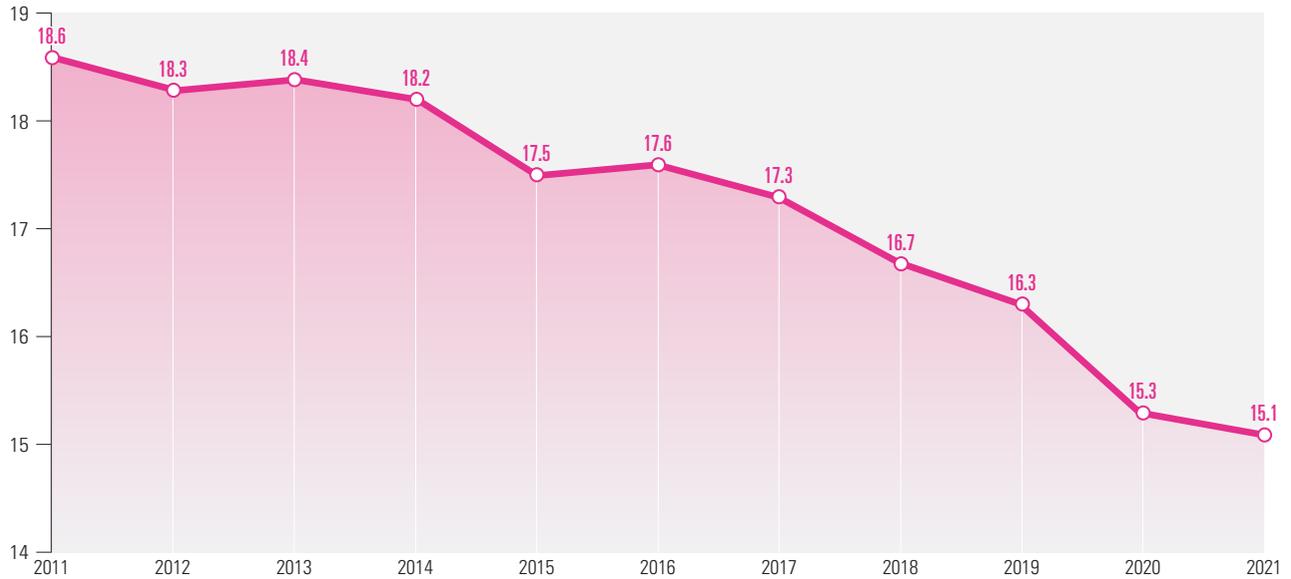


Source: Statistics Korea, Bank of Korea, Financial Supervisory Service, Survey of Household Finances and Living Conditions (<https://kosis.kr>, retrieved on Jan 03, 2023)



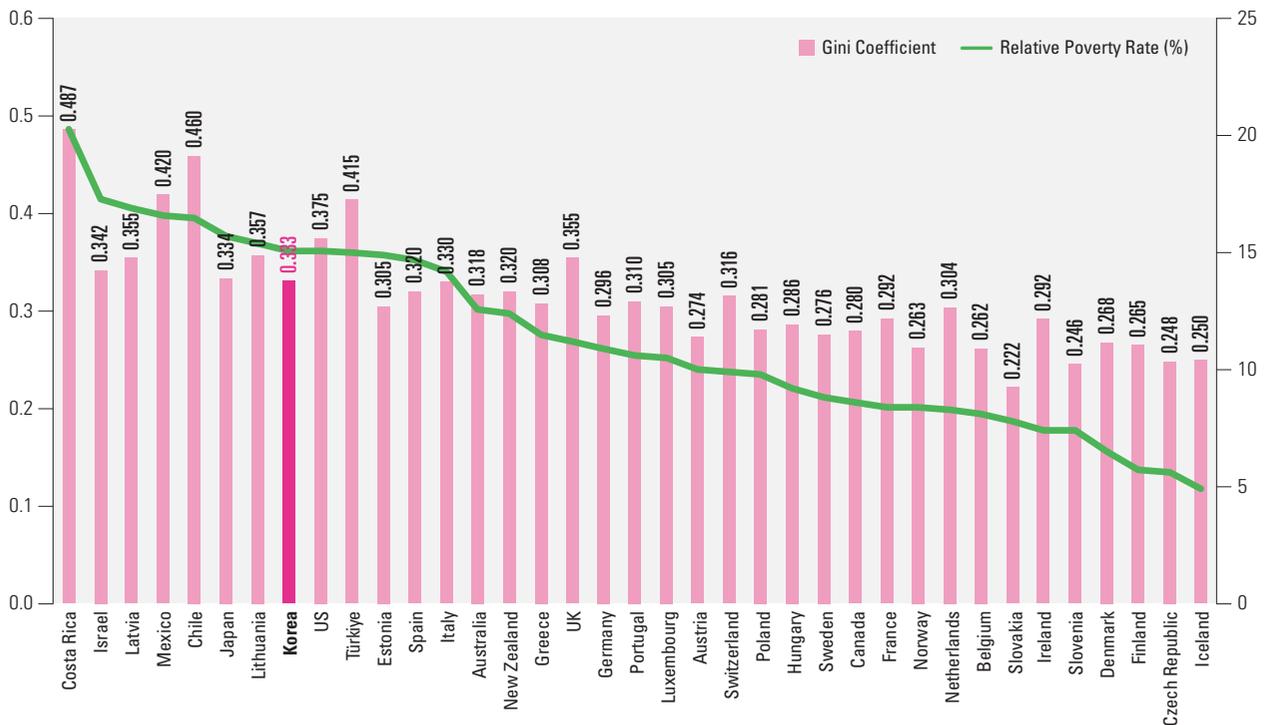
Relative Poverty Rate, 2011~2021

(Unit: %)



Source: Statistics Korea, Bank of Korea, Financial Supervisory Service, Survey of Household Finances and Living Conditions (<https://kosis.kr>, retrieved on Jan 03, 2023)

Disposable Income-based Gini Coefficient and Relative Poverty Rate by OECD Country



Source: OECD Society Data, income inequality & poverty rate (<https://data.oecd.org/society.htm#profile-inequality>, retrieved on Jan 02, 2023)

Note : This was based on the most recent years (2017 to 2021) with data available for each country. There was no data for Colombia out of 38 OECD members.

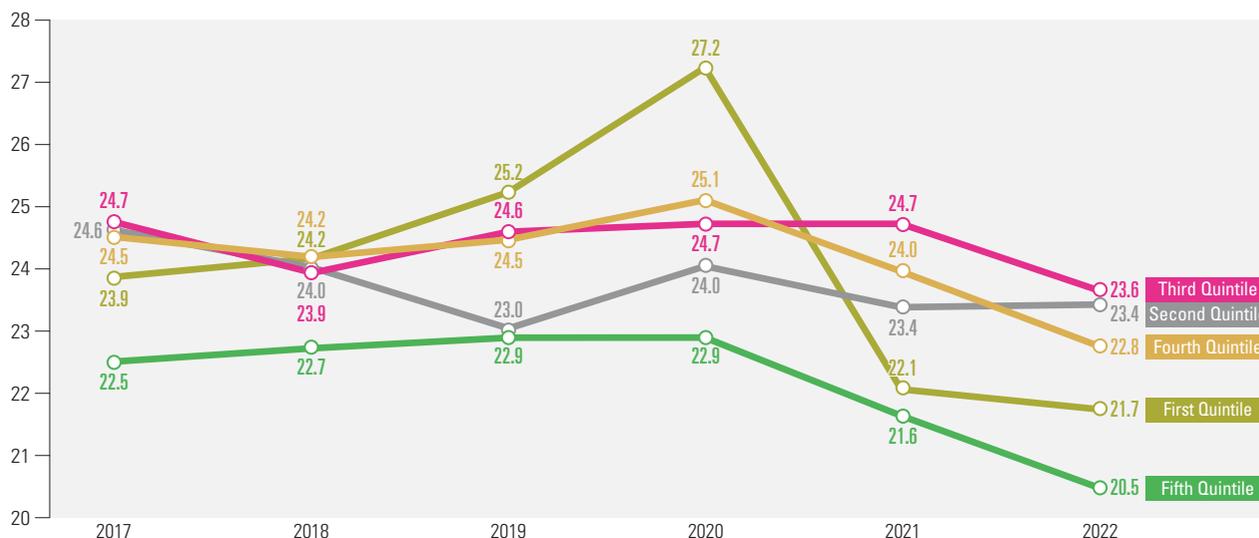
several years. The Gini coefficient on net wealth declined from 0.617 in 2012 to 0.584 in 2017. However, it rose each year from 2018 and reached 0.606 in 2022. In terms of net worth, Korea's Gini coefficient is still considered to be high, indicating that wealth imbalances are becoming serious and

policy solutions are needed.

Globally, Korea's income inequality was ranked high among OECD countries. Out of 37 countries with available data, Korea was posted at 11th in terms of Gini coefficient (0.333 in 2021). Korea's Gini coefficient was higher than

Debt to Asset Ratio by Income Quintile, 2017~2022

(Unit: %)



Source: Statistics Korea, Bank of Korea, Financial Supervisory Service, Survey of Household Finances and Living Conditions (<https://kosis.kr>, retrieved on Jan 07, 2023)
 Note : This was calculated by the author based on the debt to asset ratio by income quintile out of households with debts.

that of Norway (0.263), Finland (0.265), Sweden (0.276), Canada (0.280), the Netherlands (0.304), Australia (0.318) and New Zealand (0.320) while it was lower than the United Kingdom (0.355), Latvia (0.355) and Mexico (0.420). The relative poverty rate indicates a ratio of households living below the poverty line (50% of the median income) out of total households. It was equal to 15.1% (based on disposable income) in 2021. This is the 8th highest level among 37 OECD countries, tied with the U.S.

Among households with debt, the debt-to-asset ratio for the lowest income quintile has steadily increased since 2017, with 2020 showing the highest debt ratio of all income groups. In particular, it increased by 2%p in a single year, from 25.2% in 2019 to 27.2% in 2020. However, in 2021, the debt-to-asset ratio for the first quintile dropped significantly. It remains to be seen whether this decline is temporary or the result of policy efforts. Among households with debt, the top income quintile had the lowest debt-to-asset ratio from 2017 to 2022.

A reduced share of net asset in the bottom 40% and an increase in loans of the self-employed
 (SDG 10.4.1)

The share of asset in the bottom 40% has kept diminishing since 2017 in Korea, worsening the wealth polarization. The

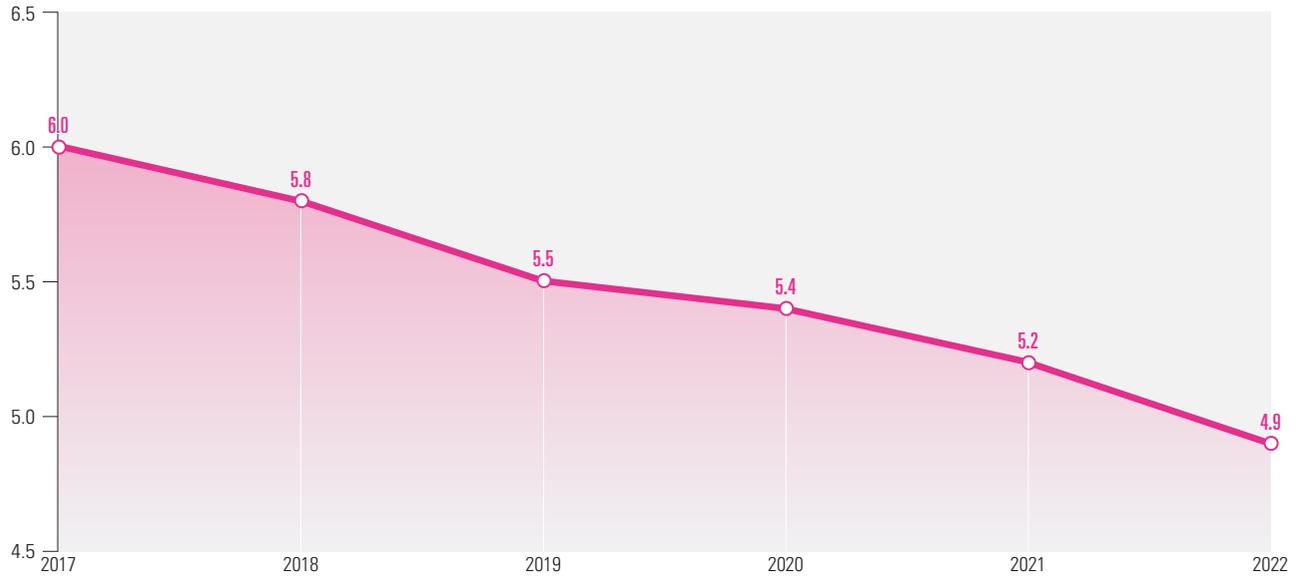
share of the net asset in the bottom 40% that had been 6.0% in 2017 decreased to 5.8% in 2018 and 5.5% in 2019. Recently, it even went down to 4.9% in 2022.

On top of that, a larger number of the self-employed suffered from the ban on gathering due to COVID-19. In 2021, the number of the self-employed in Korea accounted for 20.2% (or 5,510,000) out of total employees, Compared to the World Bank, South Korea has a higher rate of self-employment than the United States and the United Kingdom. Loan balance of self-employed has risen continuously since 4Q 2016. The growth rate indicates that loans sharply jumped in 2020 when COVID-19 was widely spread. In 2020, the number of loanees, who are self-employed taking out a loan, greatly rose compared to the previous year (4Q) (Minjeong Kang, Jaehee Lee, 2022). A rise in the number of the self-employed who received a new loan is a tell-tale sign that their income has not been stabilized since 2020. If the income of the self-employed is not restored, it could serve as a factor worsening inequality in the Korean society. While this analysis is a short-term phenomenon related to the COVID-19 pandemic, we believe it is necessary to analyze the recovery of self-employed businesses in the future, including the distributional effects of various government support measures for the self-employed.



Net Asset Share in Bottom 40%, 2017~2022

(Unit: %)



Source: Statistics Korea, Bank of Korea, Financial Supervisory Service, Survey of Household Finances and Living Conditions (<https://kosis.kr>, retrieved on Jan 03, 2023)

Loans of the Self-employed, 2016~2021

Baseline	Loan Balance (KRW Tril.)	Y-o-Y (%)	No. of Loanees (10,000)	Average Loan Balance (KRW 100 Mil.)
4Q 2016	480.2	13.66	143.0	3.36
4Q 2017	549.2	14.37	159.0	3.45
4Q 2018	624.3	13.67	177.0	3.53
4Q 2019	684.9	9.71	191.4	3.58
4Q 2020	803.5	17.32	238.4	3.37
4Q 2021	887.5	14.16	257.2	3.45

Source: Minjeong Kang · Jaehee Lee, Report on Financial Market Trends for Micro Enterprises Vol.2, p.6

Stable trends of financial soundness with no big fluctuations (SDG 10.5.1)

Typical indicators that measure financial soundness are the ratio of Tier 1 capital to total assets and the ratio of Tier 1 capital to risk-weighted assets. The tier 1 capital means safe assets including ordinary shares, non-cumulative/redemptive preferred shares and retained earnings. In Korea, the ratio of Tier 1 capital to the total assets has remained stable without a noticeable change. The ratio continued to go up and down from 7.04% in 2011 and rose to 7.93% in 2017 and then fell to 7.51% in 2020. However, the fact that it stayed at the 7% range from 2011 to 2020 with no big fluctuation indicates that the ratio of safe assets in Korea has been stably

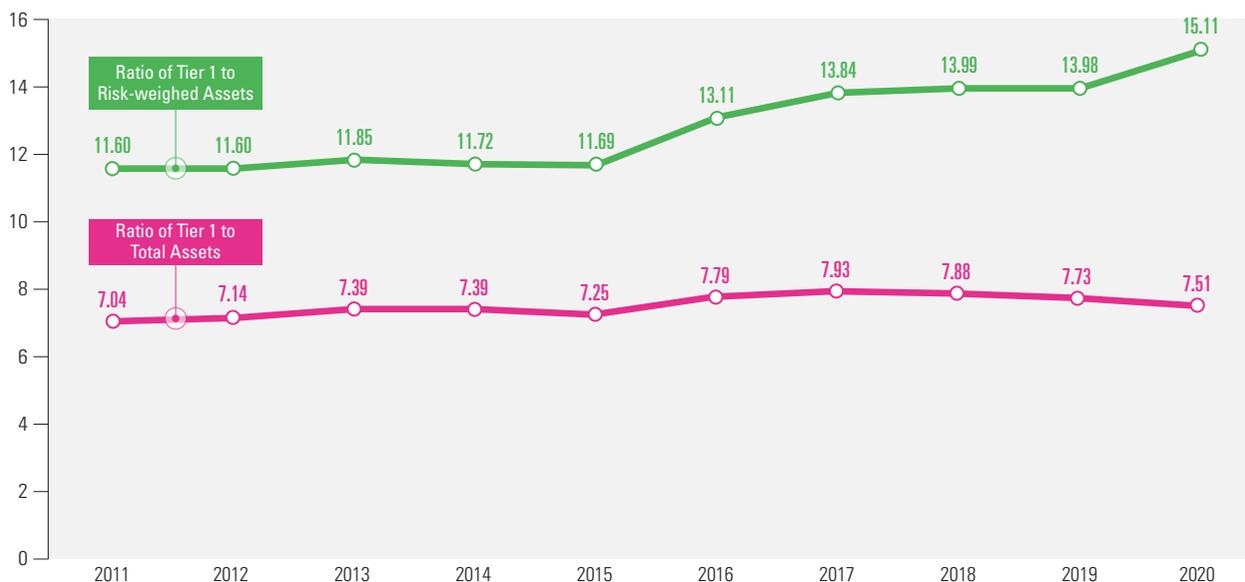
maintained.

The ratio of Tier 1 capital to risk-weighted assets has been on a rise. The ratio stayed at around 11% from 2011 to 2015. However, it rose to the 13% range in 2016, maintained the level until 2019 and reached 15% in 2020. Although there was no large fluctuation in the ratio of Tier 1 capital to risk-weighted assets, its steady rise (11.6% in 2011 to 15.1% in 2020) shows that the size of risk-weighted assets relatively shrank.

Compared to 35 OECD countries, Korea was ranked 20th in terms of the ratio of Tier 1 capital to the total assets and 10th in the ratio of Tier 1 capital to risk-weighted assets.

Financial Soundness Indicators, 2011~2020

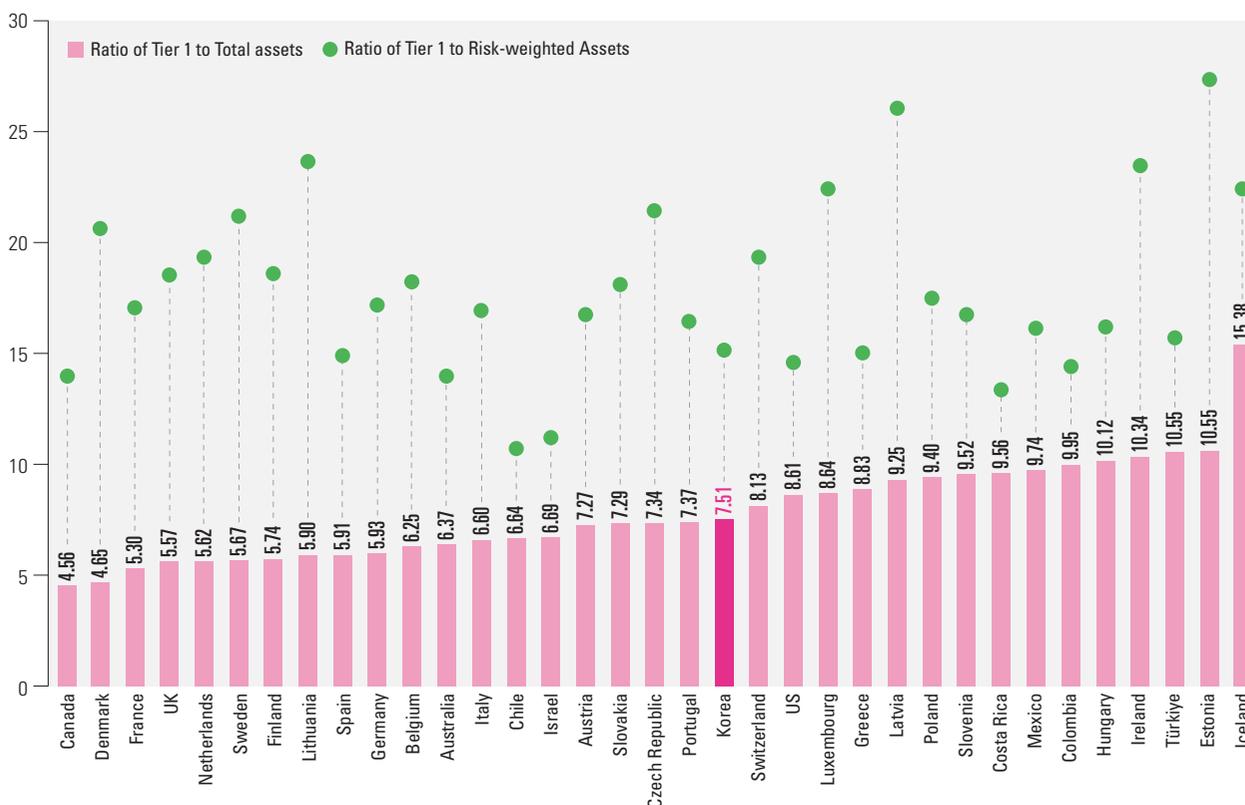
(Unit: %)



Source: IMF, Financial Soundness Indicators(FSIs) (<https://data.imf.org/?sk=51B096FA-2CD2-40C2-8D09-0699CC1764DA>, retrieved on Oct 25, 2022)

Financial Soundness by OECD Country, 2020

(Unit: %)



Source: IMF, Financial Soundness Indicators(FSIs) (<https://data.imf.org/?sk=51B096FA-2CD2-40C2-8D09-0699CC1764DA>, retrieved on Oct 25, 2022)

Definition

- **Gini coefficient** : It is a measure that measures unfairness of a nation, with closer to 0 indicating equity and to 1 meaning inequality.
- **Relative poverty rate** : the percentage of the total population whose income is below the poverty line (50% (or 60%) of median equivalized disposable income).
- **Tier 1 capital** : It refers to safe assets including ordinary shares, preferred shares (not cumulative/redeemable) and retained earnings.



11 SUSTAINABLE CITIES AND COMMUNITIES



A neighborhood in Gyeonggi Province in Korea with a high density of banjiha(semi-basement) and rooftop rooms

Make cities and human settlements inclusive, safe, resilient and sustainable

According to the 『World Cities Report 2020』 of UN-Habitat, as of 2020, 56.2% of world population dwelled in cities. The report forecast that the rate would go up to 60.4% by 2030 and two thirds of the entire mankind would live in cities in 2050. Over 80% of global GDP also comes from cities. However, as seen from the COVID-19 pandemic, cities' vulnerability is a threat that humankind has to overcome. Urban infrastructure and administrative system are crucial in preempting and complementing urban issues caused by sprawling cities and their intensive structure. An inclusive social system is required not to alienate people living inside cities. Around the world, the poor living in cities' slums are expected to reach 2.2 billion in 2030. In addition, there are also other problems that we have to get over for sustainable cities and places of residence, such as 156 million urban residents with no adequate access to water and USD 314 billion worth of economic losses inflicted by urban disasters every year (UNESCO Cities Platform).

Urban population in Korea has soared since the 1960s, exceeding 90% of the total population. But still, problems with the vulnerable living in urban areas are pervasive. In the process of devising the Basic Urban Planning and Urban Management Plan based on citizen participation, it has been specified that a public hearing, meeting and/or survey has to be conducted in each city/county(gun); however, an effective improvement is needed. The urban park area per capita more than doubled compared to 2000, and the accessibility to public transit was excellent, with just 8 minutes apart on foot. Under the steady downward trend each year, the number of households below the minimum residential standards reached a national average of 4.6% as of 2021. However, households below the minimum residential standards that correspond to the vulnerable including the youth households (7.9%) and low-income households (7.3%) are normally concentrated in metropolitan areas (2.3%). In particular, suburbs have little access to public transit and transport facilities for convenience of vulnerable road users. Thus, it is necessary to improve the quality of urban living conditions from a microscopic viewpoint.

Despite a steady reduction, households living below the minimum residential standards are concentrated in the vulnerable groups and metropolitan areas (SDG 11.1.1)

Housing is one of the most crucial elements in maintaining individuals' stable living. Not only does it cover physical space, but it also encompasses community life herein with family members and neighbors. One can grasp the size of

classes with no access to adequate housing by measuring both quantitative size of the area and qualitative aspects of housing including facilities. The minimum residential standards are specified in Article 5-2 of the Housing Act and Article 7 of its Enforcement Decree of the Act to ensure pleasant and livable life. They include the minimum housing area; a dedicated stand-up kitchen furnished with waterworks and sewerage facilities; dedicated flush toilet(s) and bathing facilities;

Rate of Households below Minimum Residential Standards, 2006~2021

(Unit: %)



Source: Ministry of Land, Infrastructure and Transport, Housing Survey (Statistics Korea's Online Indicators Portal, <https://www.index.go.kr/unity/potal/indicator/IndexInfo.do?cdNo=2&clasCd=8&idxCd=8014>, retrieved on Jan 04, 2023)



materials with structural strength, heat-resistance, fireproof, protection against heat and moisture-proof; well lighted facilities with soundproof, ventilation and heating facilities; electricity facilities that are adequate to legal standards of environmental elements such as noise, vibration and odor and safe from natural disasters like tsunamis, floods, landslides and collapse of a cliff; and safe shelters in case of fire. The minimum housing area for single-person households should be no less than 14m², furnished with a stand-up kitchen, dedicated flush toilet(s) and bathing facilities.

The rate of households living below the minimum residential standards in Korea was on a steady decrease. The ratio dropped from 16.6% in 2006 by 10%p to 5.4% in 2014 in a matter of 8 years. Afterwards, it stayed at the 5% range until 2019 and went down to around 4% in 2020. In 2021, it stood at 4.5%.

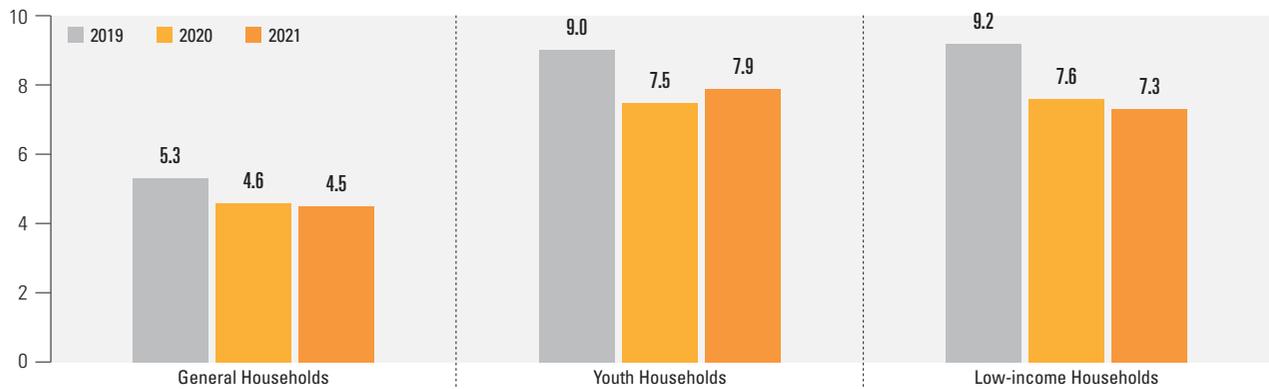
By regional distribution of households below the minimum residential standards, more than half (59.5%) lived in the greater Seoul area, followed by 26.8 % in provincial areas and 13.7% in metropolitan cities. The rate of households below the minimum residential standards in the greater Seoul area went down from 12.8% in 2006 to 5.5% in 2021 and, for the same period, the rate declined from 17.7% to 3.1% and from 21.6% to 3.9% in metropolitan areas and provincial areas respectively.

The rate of households below the minimum residential standards was relatively high in the disenfranchised class. In 2021, the rate was just 4.5% in general households, but it went far up in youth households and low-income households with 7.9% and 7.3% respectively. It justifies the need for measures to improve living conditions of the vulnerable.

Nationwide, the rate of households living in basement/

Rate of Households below Minimum Residential Standards by Household Type, 2019~2021

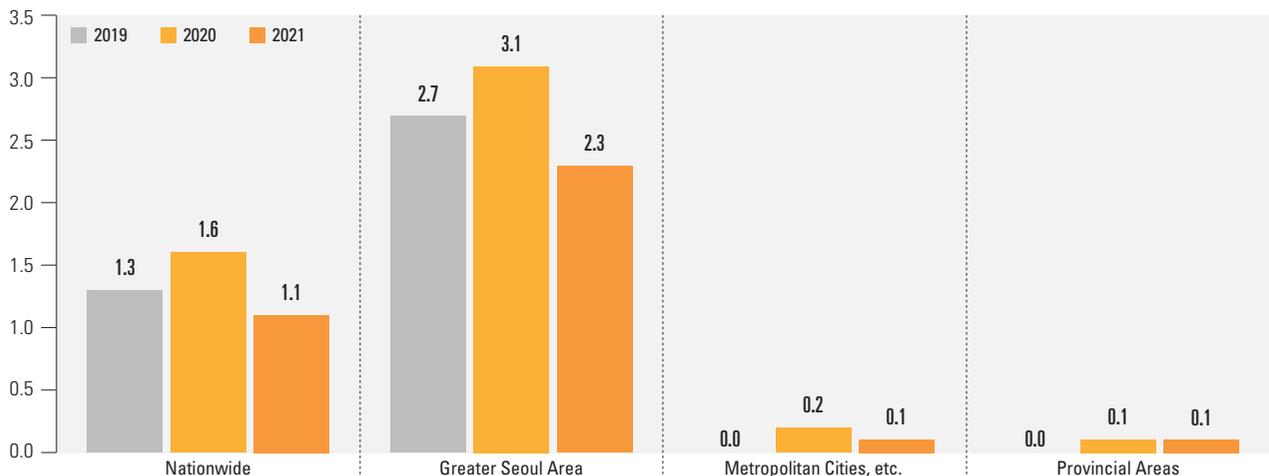
(Unit: %)



Source: Ministry of Land, Infrastructure and Transport, Housing Survey, each year

Rate of Population Living in Basement/Semi-basement/Roof-top Houses, 2019~2021

(Unit: %)



Source: Ministry of Land, Infrastructure and Transport, Housing Survey, each year

semi-basement/roof-top houses stood at 1.1% in 2021. By region, it is 0.1% in metropolitan cities and provinces, and 2.3% in metropolitan areas. In particular, the proportion of people living in underground, semi-underground, and roof-top rooms in metropolitan areas increased in 2020, immediately after COVID-19, and then decreased again in 2021. These areas should be considered first when urban housing issues are addressed.

With 8.18 minute distance to public transit on average, there are still some areas with access vulnerability (SDG 11.2.1)

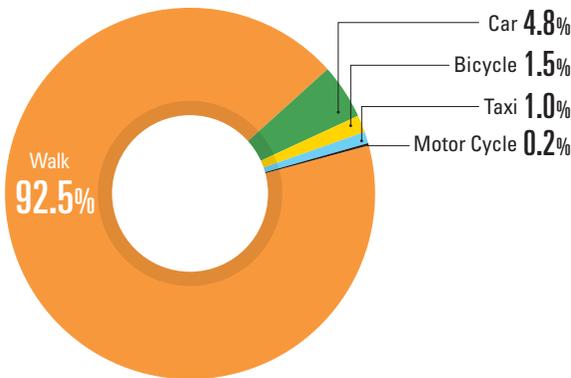
The 2020 Survey of Public Transit Accident showed different means of accessibility to public transit. Walking topped the list with 92.5%, followed by passenger cars (4.8%), bicycles (1.5%) and taxis (1.0%). The access time for each mode

was 8.03 minutes for walking, 9.87 minutes for driving, and 10.14 minutes for biking, with an overall average of 8.18 minutes.

In terms of use of public transit by region, the frequency of using public transit per week was 9.86 times in Seoul, followed by 9.67 times in Busan and 9.63 times in Gyeonggi. In Gangwon, it normally took 9.16 minutes to get to public transit from the original departure, which was the longest access time while Sejong had the shortest access time (7.73 minutes).

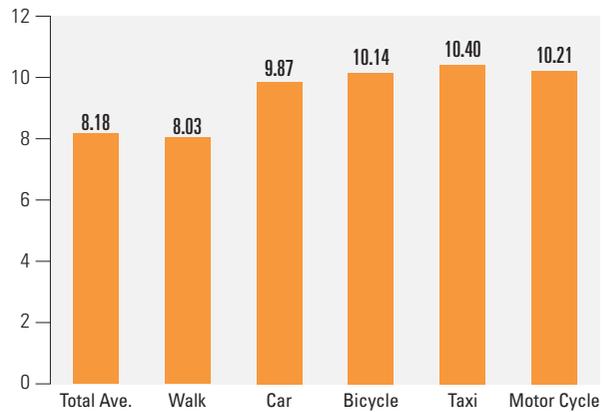
In Seoul which only accounts for a mere 0.6% out of the total area (15,699 population per an area of 1km², 18% of total population), concentrated are over ten urban railways and more than 600 bus routes. According to microscopic analysis of census output areas, there are some areas vulnerable to access to public transit across extensive areas such as southwest area, Seodaemun-gu, northern area of Jongno-gu, and outskirts of

Access Mode to the First Public Transportation, 2020 (Unit: %)



Source: Ministry of Land, Infrastructure and Transport, 2020 Public Transit Accident Report

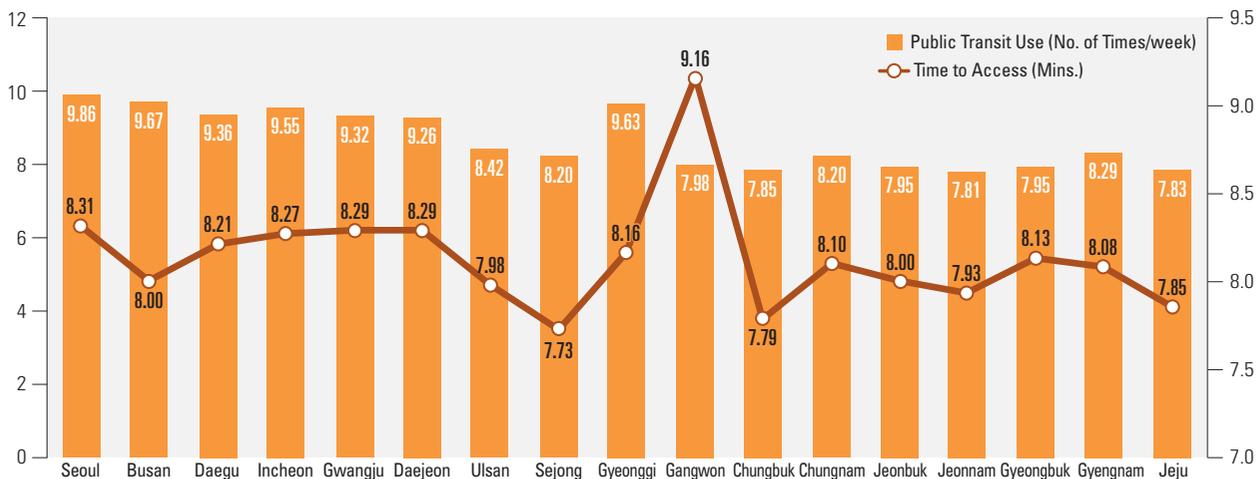
Access Time to The First Public Transportation, 2020 (unit: minute)



Source: Ministry of Land, Infrastructure and Transport, 2020 Public Transit Accident Report

Use Characteristics of Public Transit by Region, 2020

(Unit: No. of Times/week, Mins.)



Source: Ministry of Land, Infrastructure and Transport, Comprehensive Result Report of Public Transportation Investigation (2020)



Gangnam/Seocho-gu. The population classified as vulnerable road users such as senior citizens, pregnant women, those accompanied by babies and toddlers and children under Article 2 of the Act on Promotion of the Transportation Convenience of Mobility Disadvantaged Persons increased from 24.3% in 2007 to 30.0% in 2021 (Survey of Vulnerable Road Users for Mobility Convenience). In this sense, it is necessary to improve the quality of public transit services for mobility convenience, an improvement in walking environments, introduction of low-floor buses and mobility connectivity.

The per capita urban park area almost doubled compared to 2000, but it needs to be effectively implemented (🎯 SDG 11.7.1)

In accordance with Article 2(3) of the Act on Urban Parks and Green Areas, urban parks are prescribed as public space to contribute to protecting the urban natural sceneries and

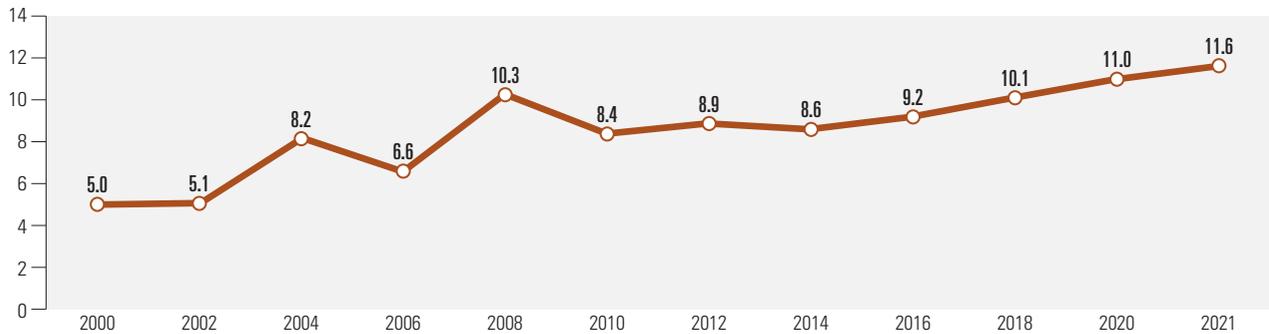
enriching health, recreation and feelings of citizens. Under Article 15 of the Act, urban parks are divided into national urban parks, neighborhood parks (small parks, children parks, and community parks) and theme parks (historical parks, cultural parks, waterside parks, cemetery parks, sports parks, urban agricultural parks, disaster prevention parks) for better management depending on their functions and themes.

The per capita urban park area in Korea more than doubled from 5m² in 2000 to 11.6m² in 2021. Urban parks, green areas and amusement parks are considered as planned facilities in cities/counties determined under the Urban/County Management Plan in accordance with the National Land Planning and Utilization Act. They are created for recreation and relaxation of urban citizens befitting urbanized settlement conditions.

Looking at the areas determined as a park in each city/county, Gyeonggi (167.3km²) came in first, followed by Busan (59.3km²), Gyeongnam (58.3km²), and Seoul (50.7km²). The

Urban Park Area per capita, 2000~2021

(Unit: m²/person)

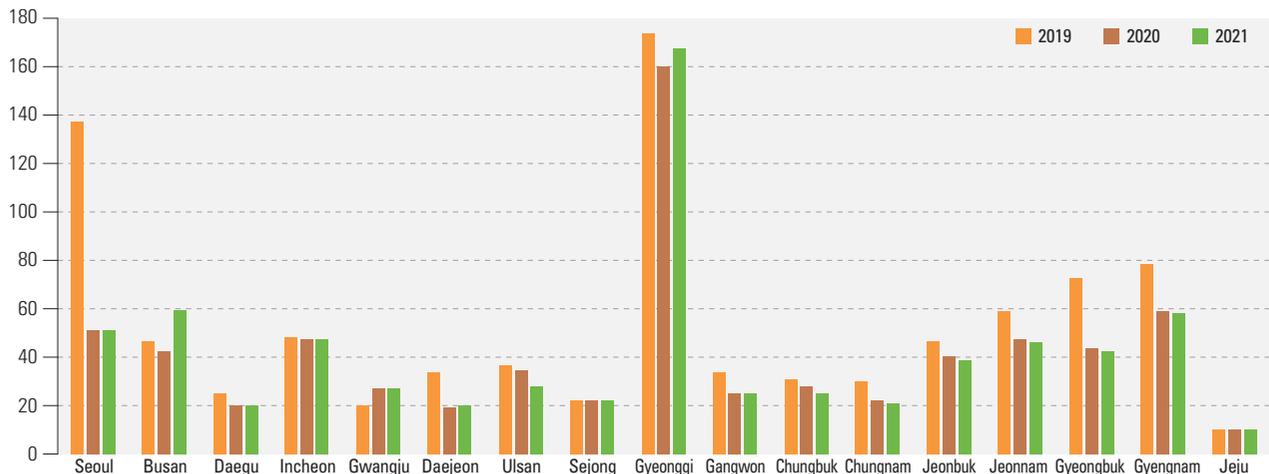


Source: Ministry of Land, Infrastructure and Transport, 2021 Statistics of Urban Planning

Note : Urban park per capita is calculated by dividing the urban parkland area by the city's population. Here, the urban park area refers to the area of urban parks created after city and county planning facilities are determined.

Urban Park Area by Province for Recent Three Years, 2019~2021

(Unit: km²)



Source: Ministry of Land, Infrastructure and Transport, 2021 Urban Planning Status

urban park area in cities and counties slightly reduced in 2021 compared to 2019, except for Busan, Gwangju and Sejong. This seems to be a result of release of some park areas designated as an urban planning facility since the urban planning automatically lapsed due to the absence of implementation for long time. As a public green area easily accessible within the residential area tends to have direct impacts on better quality of life and a rise in the urban value, we need to continue to come up with effective measures to secure public green areas.

Among them, green areas expanded by more than twice from 96km² in 2000 to 203km² in 2021, indicating that positive improvements were made in terms of provision of ecosystem services. However, they still fell short of the level of large cities in major OECD countries. In addition, even if an area is designated as a planned urban facility, it is difficult to consider it as an actual functioning park, if not executed for long time.

Citizen participation through a public hearing in accordance with Urban Planning Guideline (SDG 11.3.2)

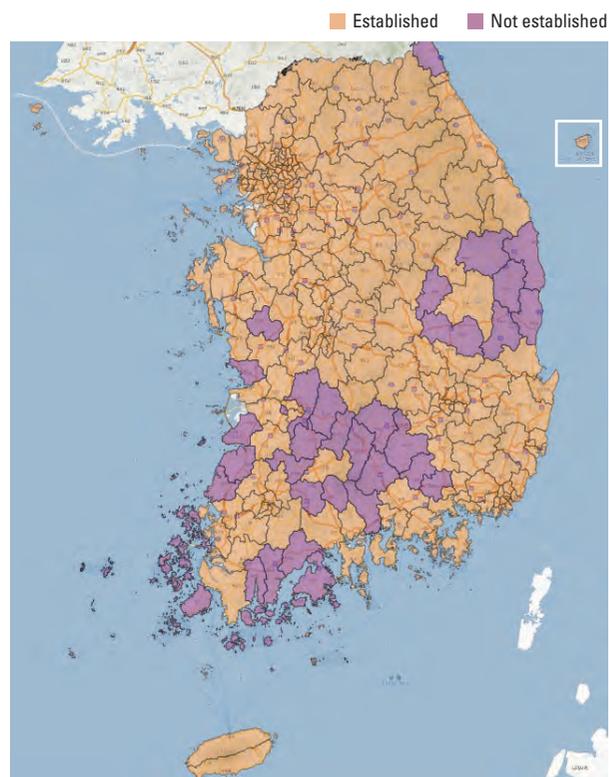
All cities and counties in Korea come up with urban/county-specific management plans regarding land use, transportation, the environment, scenery, safety, industries, information and communications, health, welfare, security and culture, to put the urban management structure in place that reflects opinions of citizens.

According to Article 14 of the National Land Planning and Utilization Act and Article 12 of its Enforcement Decree of the Act, the Urban Basic Plan and Urban Management Plan shall collect opinions of resident-oriented experts through a public hearing when the metropolitan urban plan is devised or amended. Moreover, they also specify that once the opinions suggested at the public hearing are redeemed as reasonable, they have to be addressed in the metropolitan urban plan.

The Urban/County Basic Planning Guideline, Section 5.2.1 (Promotion of Residents Participation) and Urban/County Management Plan Guideline, Section 8.1.3 (Enactment Process) specify that decision-makers (mayors or governors) shall actively listen to opinions of residents through a briefing, public hearing, meeting and/or survey on citizenship in which residents can take part. This is legally binding as an administrative rule.

As of 2021, there were no urban/county basic plans in 34 counties out of 161 cities/counties. These counties with no basic plan include 2 counties in Chungnam, 7 in Jeonbuk, 10 in Jeonnam, 7 in Gyeongbuk and eight in Gyeongnam. Meanwhile, the Urban/County Management Plan has been created in all cities/counties.

Urban/County Basic Plan Status (Unit: m²/person)



Source: Ministry of Land, Infrastructure and Transport, 2021 Urban Planning Status

Definition

- **Urban/County Basic Plan** : It is a plan that serves as a guide to urban management planning as a comprehensive plan that suggests basic spatial structure and long-term development directions for the jurisdiction of the Special City/Metropolitan City/City or County.
- **Urban/County Management Plan** : It is a planning regarding land use, transportation, the environment, scenery, safety, industries, information and communications, health, sanitation, security and culture devised for development, refinement and conservation of Special City/Metropolitan City/City or County.
- **Urban park** : It is space designed to contribute to protecting natural urban sceneries and enhancing health, recreation and feelings of citizens in urban areas.
- **Green area** : It is space designed to promote improvements in urban sceneries by conserving and enhancing national environments and preventing pollution or disasters in urban areas.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Recycled artwork featuring dolphins made from plastic bottle caps

Lee Yu Tung/Shutterstock.com

Ensure sustainable consumption and production patterns

SDG 12 aims to 'ensure sustainable consumption and production patterns.' The "throwaway economy" that simply consumes and discards limited resources leads to depletion of resources and an increase in greenhouse gas emissions and waste, accelerating pollution of the living environments. Thus, the transition to the circular economy is needed to get away from economic growth that simply relies on consumption of resources. This can be predicted through decoupling between economic growth and waste generation. In Dec 2020, Korea also established the K-circular Economy Implementation Plan. It pursues a society that has a closed loop of material circulation throughout the society including transition, industries, transportation, buildings, agriculture and forests beyond just waste. Due to the spread of COVID-19 which has become a pandemic around the world, however, the decoupling economic growth from generation of waste has been weakened. Nevertheless, Korea showed outstanding performance in terms of per capita domestic waste generated and recycling ratio among OECD members.

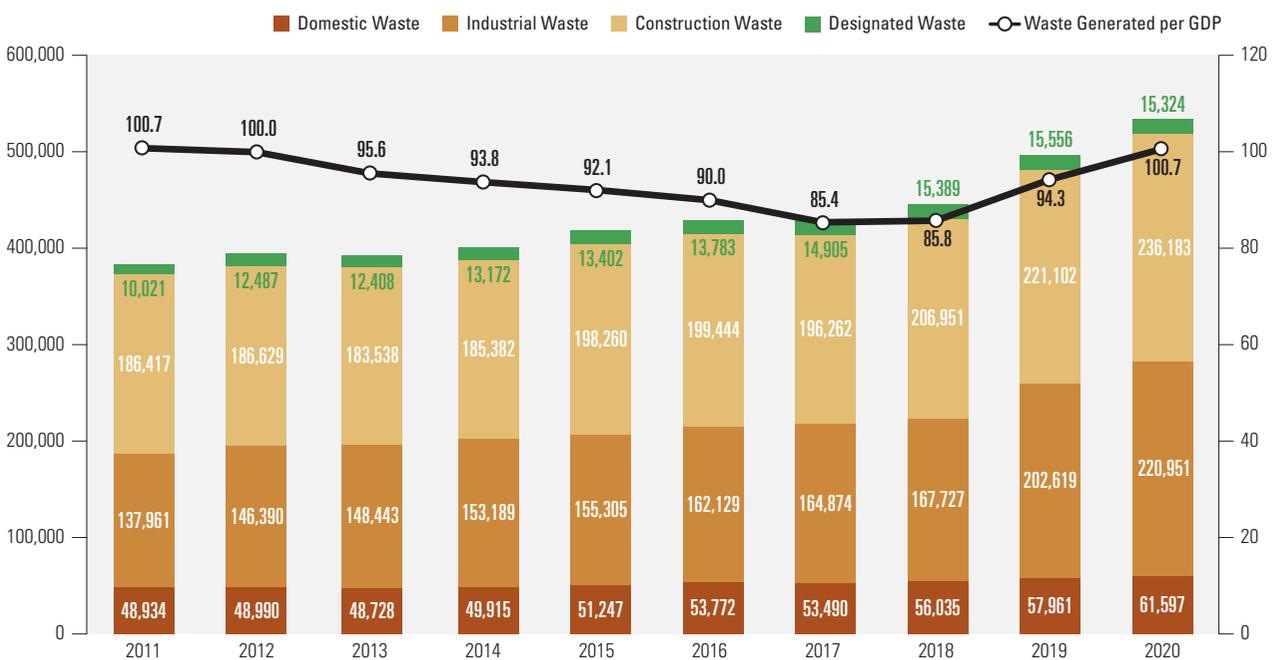
Although the COVID-19 pandemic didn't cause much impact on domestic waste generation in 2020, the amount of packaging materials for courier services and delivery food skyrocketed due to the spread of contactless consumption. In 2020, the courier volume jumped by 20.9% compared to 2019. For the same period, other waste such as recyclable parcel boxes and paper also went up by 21.1% out of domestic waste. Expanded polystyrene (EPS) used to pack delivery food saw an increase by 27.2%, and others including waste synthetic resins used for courier or food delivery services also jumped by 59.9%. As the patterns of waste generation has been changed due to shifting consumption patterns, it seems necessary to first make effort to prevent and reduce waste generation before endeavoring to promote recycling.

Faltering decoupling between economic growth and waste generations (🔄 SDG 12.5.1)

Generally speaking, a rise in production leads to an increase in waste. However, we have to break off the correlation between economic growth and an increase in waste, so as to

realize sustainable economy. Waste generated per GDP is an indicator that monitors decoupling between economic growth and generation of waste. The amount of waste generated per GDP that had been on a steady decrease since 2011 turned into growth in 2018, and it stood at 100.7 tons per

Waste Generation (by Type) and Waste Generation per GDP, 2011~2020 (Unit: Ton/day, Ton/KRW 1 billion)



Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal & Designated Waste Generation and Disposal, each year; Bank of Korea, National Income
 Note 1: The total amount of waste is the sum of domestic waste, industrial waste, construction waste and designated waste.
 Note 2: The waste generated per GDP was calculated based on the formula 'total waste generated/GDP (KRW 1 billion)'.
 Note 3: 'Designated Waste Generation and Disposal' has been integrated into the 'National Waste Generation and Disposal' since 2018.



KRW 1 billion in 2020, which is almost comparable to that of ten years ago. Such a rise in waste generation is assumed to have occurred due to a jump in the use of packaging materials for delivery and courier services, combined with the spread of COVID-19 and economic downturn.

In 2020, the total amount of waste per day amounted to 534,055 tons, 7.4% up from the previous year. This is a far higher figure compared to 5.2%, the average growth rate over the past ten years. During the same year, the amount of domestic waste per day was equal to 61,597 tons, 6.3% up from the last year. The growth rate is almost three times higher than the 10-year average of 2.3%.

Industrial waste whose amount is normally affected by the industry's growth skyrocketed starting from 2019 and reached 220,951 tons per day in 2020, 9.0% up from the previous year. Out of the total waste, the proportion of industrial waste continuously increased to 41.4% in 2020 from 36.0% in 2011.

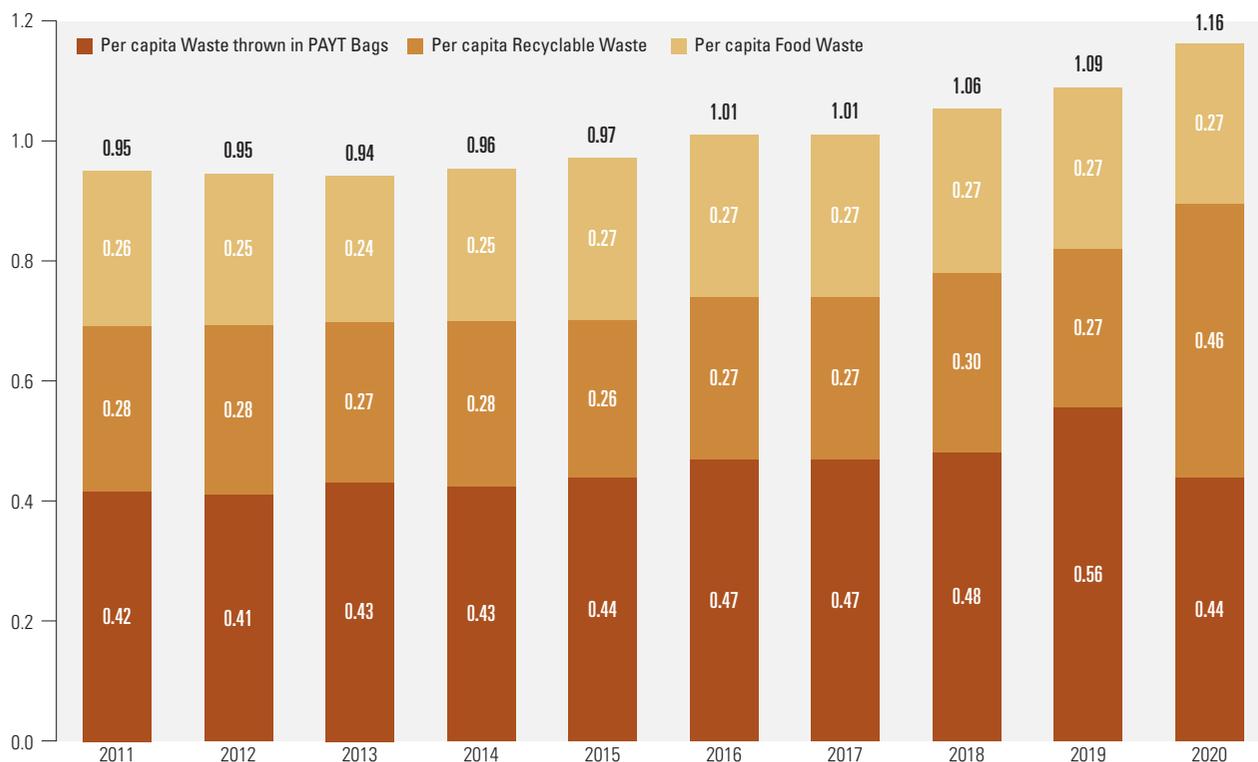
In 2020, the per capita domestic waste increased by 6.4% y-o-y to 1.16kg per day, posting the record-high growth rate

in ten years. By disposal type, the amount of waste disposed of in a mixed form like a pay-as-you-throw (PAYT) bag and that of food waste separately discarded saw a decrease while recycling of waste noticeably increased. This phenomenon was affected by the recent change in classification and counting methods. Out of domestic waste, some non-industrial wastes such as paper, wood waste and other combustible waste used to be discarded in a PAYT bag; however, their disposal type was switched to separate sorting for recycling. As a result, the proportion of per capita domestic waste thrown away in a PAYT bag reduced from 50.9% in 2019 to 37.8% in 2020.

A shift in the way of life due to virus prevention/control practices such as social distancing has affected domestic (household) waste generation since the spread of COVID-19. Out of recyclable domestic waste, the generation of waste synthetic resins such as vinyl, EPS, PET bottles and other waste synthetic resins rose to 3,166 tons per day in 2020, up 21.6% from the previous year. Especially, the amount of EPS used for delivery or food packaging jumped by 27.2%

Domestic Waste Generated per capita, 2011~2020

(Unit: kg/day/person)



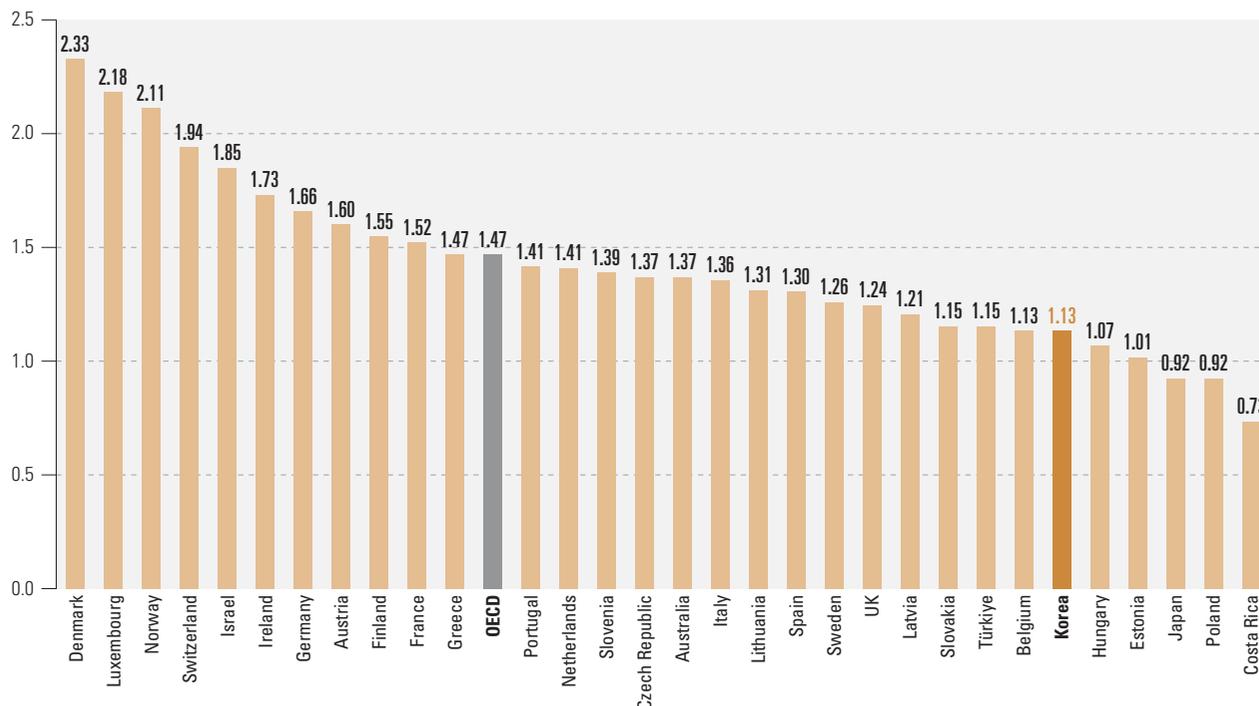
Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal, each year

Note 1: Domestic waste is comprised of household waste and non-industrial waste. The non-industrial facilities refer to installations that discharge a large amount of domestic waste (300kg or more per day) at the workplace (previously, referred to as 'domestic waste at the workplace').

Note 2: Considering disposal characteristics, recycling of non-industrial waste has been renamed into 'recycling except for mixed disposal' since 2020.

Domestic Waste Generated per capita in OECD Countries, 2019

(Unit: kg/day/person)



Source: OECD.Stat, Municipal Waste Generation and Treatment, "municipal waste generated per capita" (<https://stats.oecd.org/Index.aspx?QueryId=51347>, retrieved on Aug 10, 2022)
 Note : Out of 38 OECD countries, seven were excluded due to unavailability of their 2019 figures.

from 2019. Besides that, the generation of other waste synthetic resins also saw an increase by 59.9%. In addition, out of waste discarded in a PAYT bag, the amount of other combustible waste that was not recyclable such as containers or vinyl tainted with food amounted to 5,410 tons per day, 13.7% up from 2019.

Starting from Jan 2026, the Korean government will ban the landfill of domestic waste contained in PAYT bags in metropolitan areas which will be expanded nationwide by 2030. Should domestic waste thrown in a PAYT bags be buried without going through incineration or recycling, the head of the local government could face a sentence of imprisonment for 3 years or less or a fine of KRW 30 million or less in accordance with the Wastes Control Act. In response to the ban on landfill in the metropolitan areas, the Seoul Metropolitan Government which has currently operated 5 incineration facilities (2,898 tons/day) plans to additionally operate a metropolitan incineration facility (1,000 tons/day). With an incineration facility (960 tons) in operation, Incheon Metropolitan City is also set to newly establish two metropolitan incineration facilities (540 tons/day) to make up for insufficient capacity. Eight cities in Gyeonggi province plan to newly build or expand

their facilities with a capacity of 2,300 tons which is 1.6 times bigger than that of seven existing incineration facilities (1,436 tons/day) currently operational.

In OECD countries, the average per capita domestic waste generated per day stood at 1.47 kg in 2019. Korea disposed of the 6th lowest waste per capita (1.13kg) out of 31 countries, after Costa Rica, Poland, Japan, Estonia and Hungary.

The overall recycling rate increased, but the amount of domestic waste remained stagnant
 (🔄 SDG 12.5.1)

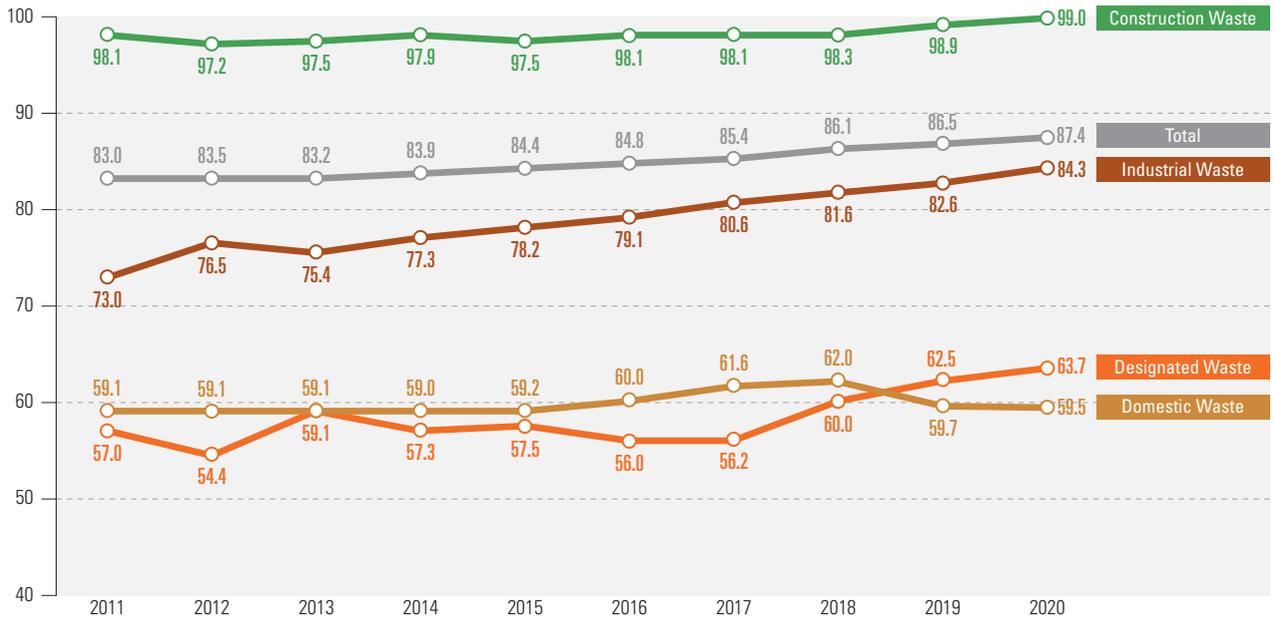
Waste recycling is helpful in increasing sustainable consumption of resources. In 2020, the total waste recycling rate was 87.4%, up 0.9%p from the last year. This largely hovered the 10-year average growth rate (0.5%p). By waste type, the recycling rate of domestic waste stood at 59.5% in 2020, a slight reduction from the previous year, but the recycling rate of industrial waste went up to 84.3% during the same year, up 1.7%p from the previous year. Over the past five year, the recycling rate of designated waste was on a steady increase.

Among OECD countries, the average recycling rate of



Recycling Rate by Waste Type, 2011~2020

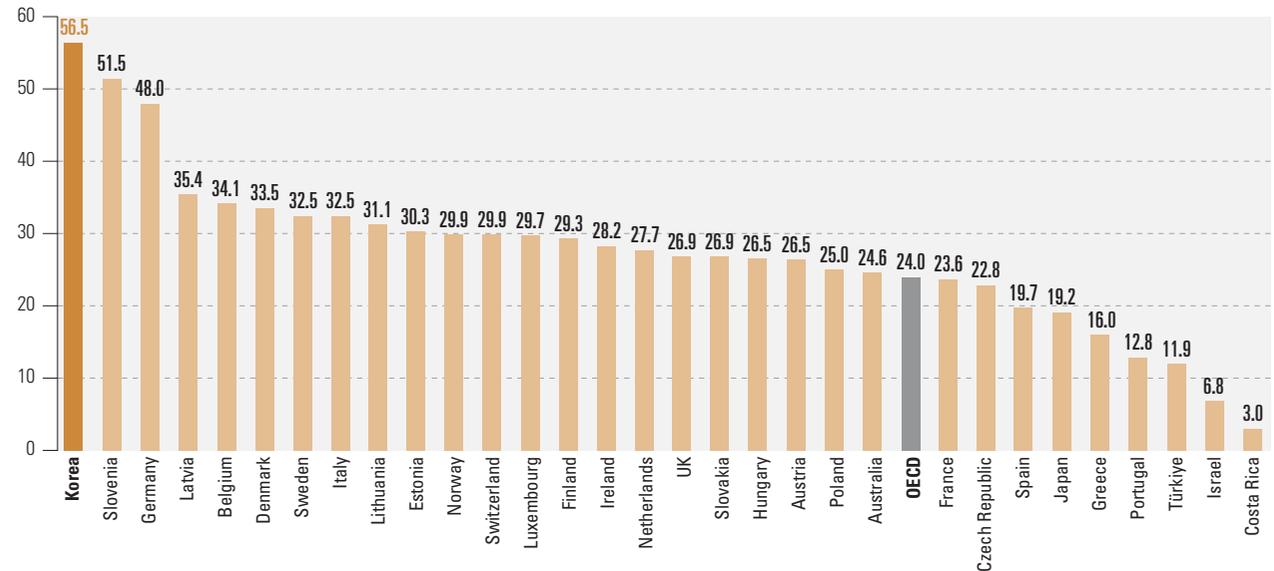
(Unit: %)



Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal & Designated Waste Generation and Disposal, each year

Domestic Waste and Recycling Rate by OECD Country, 2019

(Unit: %)



Source: OECD.Stat, Municipal Waste Generation and Treatment, "% recycling" (<https://stats.oecd.org/Index.aspx?QueryId=51347>, retrieved on Aug 10, 2022)

Note : Out of 38 OECD countries, seven were excluded due to unavailability of 2019 figures.

domestic waste was equal to 24.0% in 2019. The recycling rate in Korea was ranked the top with 56.5% out of 31 countries, twice higher than the OECD average. Meanwhile, actual recycling ratio of waste that goes into the recycle center and its quality of recycled products are still a problem. In order to prevent degradation of selected items for recycling, the Ministry of Environment has implemented a scheme in which plastic bottles are separately recycled in apartments and single-family houses since 2020. Furthermore, it sup-

ported KRW 23.5 billion in 2021 and KRW 28.1 billion in 2022 to expand and modernize public recycle centers.

COVID-19 and changing lifestyles have led to a reduction in food waste (SDG 12.5.1)

The food waste generation increased by 1.4% on an annual average from 2011 to 2020. Even after the nationwide implementation of the pay-as-you-throw (PAYT) system for food waste in 2015, there was a steady increase in food waste,

followed by a decline from 2019. Plus, when food waste discarded in PAYT bags was added to statistics, the recycling rate went down temporarily. Since then, it has maintained the stable level without a big change.

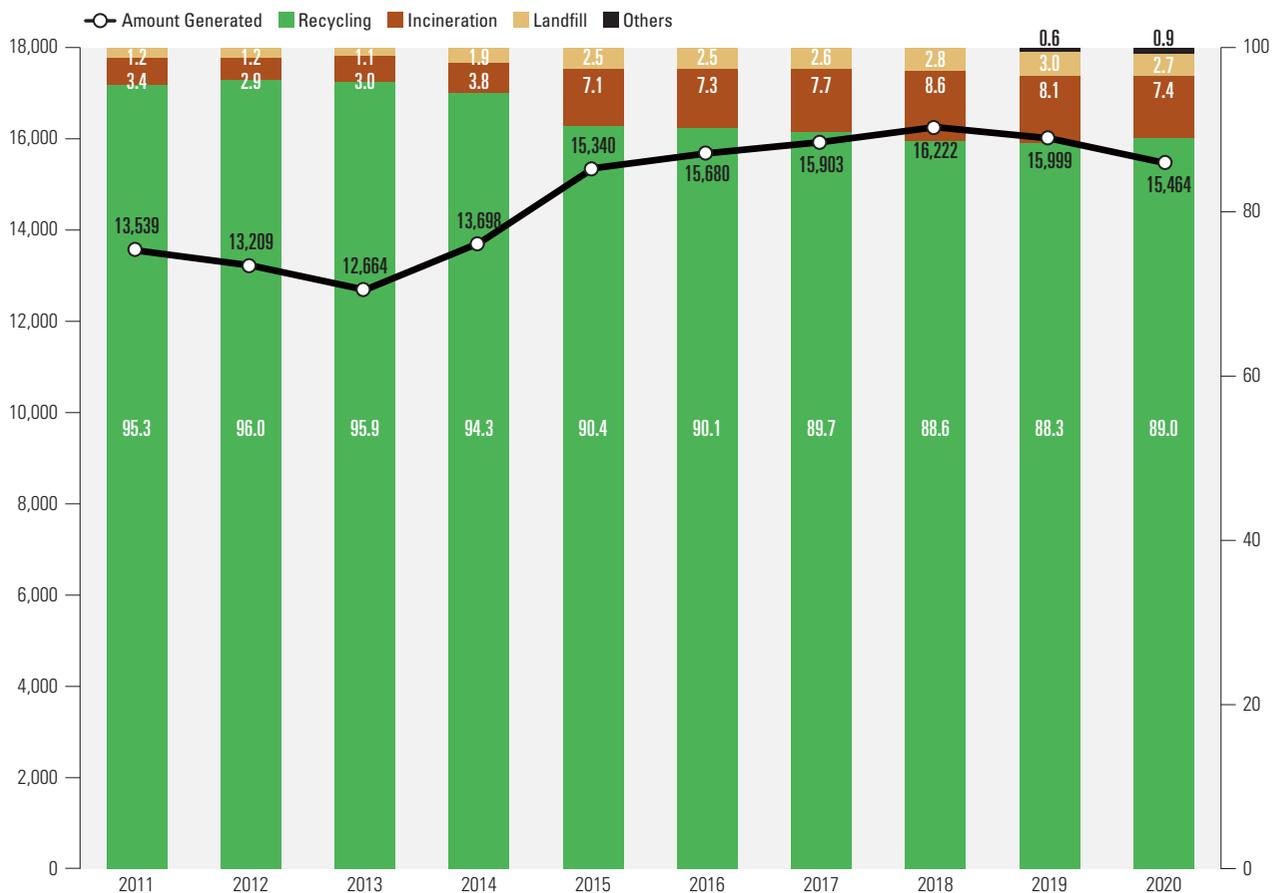
In 2020, the per capita food waste generation reduced to 15,464 tons, down 3.3% from the previous year. This seems due to the influence of an increase in food delivery in the fight against COVID-19 and preference for simple meals. In

2020, the recycling rate of food waste slightly rose to 89.0% compared to the previous year.

Looking at the different disposal types of food waste, separate disposal for recycling accounted for 91.2% (14,105 tons/day) while mixed disposal using PAYT bags took up 8.8% (1,360 tons/day). Out of waste thrown away in a PAYT bag, the majority is domestic (household) waste (1,317 tons/day). This corresponds to the amount of non-industrial

Food Waste Generation and Rate of Treatment Methods, 2011~2020

(Unit: ton/day, %)



Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal, each year

Food Waste by Disposal Type and Rate of Treatment Methods, 2020

(Unit: %)

Category	Disposal Type	Ratio out of Total Food Waste	Ratio of Treatment Methods by Disposal Type				
			Recycling	Incineration	Landfill	Others	
Food Waste	Total	100.0	89.0	7.4	2.7	0.9	
	Total (Domestic Wastes)	Mixed	8.8	8.2	70.1	20.2	1.4
		Separate	91.2	96.8	1.3	1.0	0.8
		Pay-as-you-throw	8.5	7.2	71.1	20.8	0.9
	Domestic (Household) Waste	Separate	82.5	97.6	1.4	1.0	0.0
		Industrial Waste	Mixed	0.3	38.5	40.9	2.6
	Separate		8.7	90.1	0.6	0.9	8.3

Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal, 2020



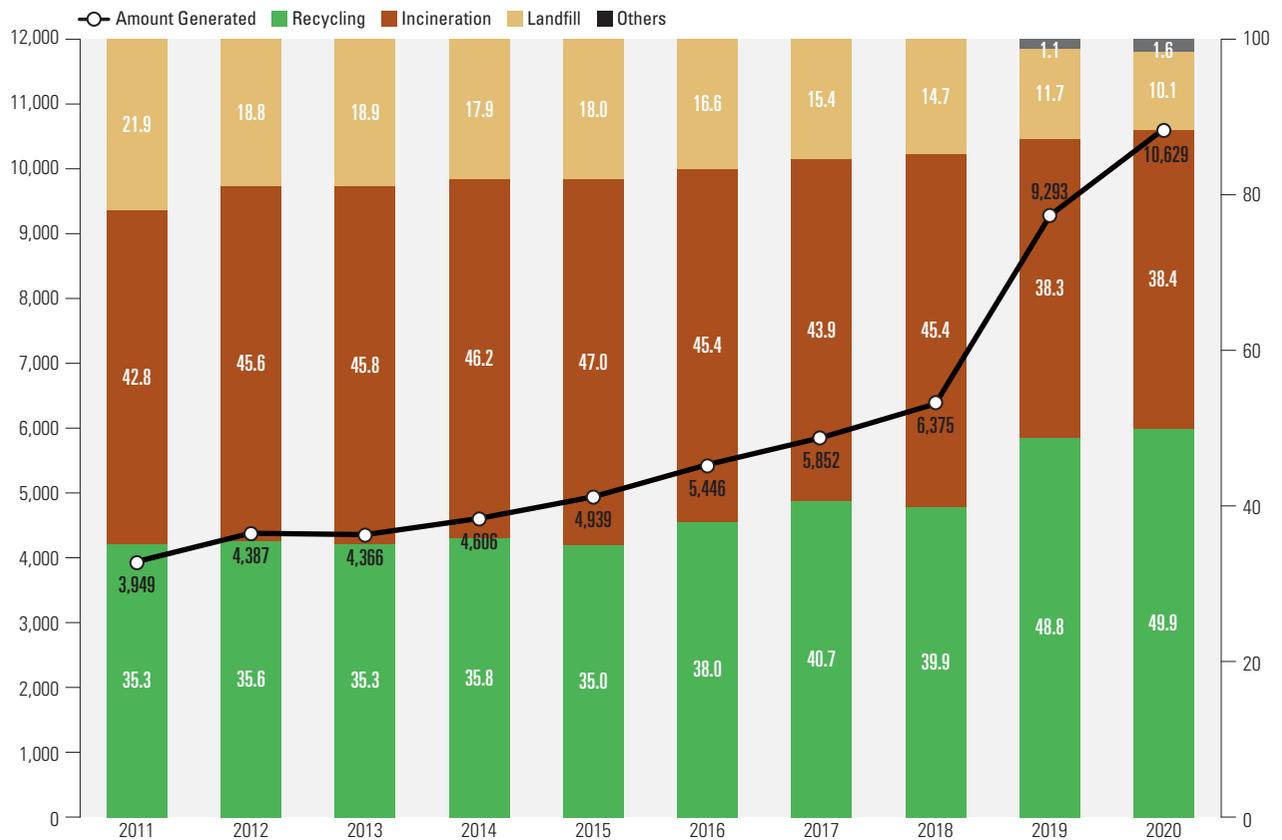
waste (previously, 'domestic waste at the workplace') generated from facilities that discharge a large amount of waste such as hospitals or schools. Most food waste discharged in a PAYT bag goes through incineration (70.1%) whereas food waste separately thrown away is almost recycled (96.8%). Out of non-industrial food waste, 90.1% of waste separately discharged is also almost recyclable while 40.9% of waste thrown in a PAYT bag are incinerated.

Complementary statistics have led to an increase in waste synthetic resins (SDG 12.5.1)

Statistics, previously counted as plastics, have been integrated into waste synthetic resins since 2019. As some waste that used to be counted as other inflammable waste was added to waste synthetic resins, the waste omitted has been included in the statistics. The waste synthetic resins generated per day in 2020 saw an increase by 9.4% to 12,052 tons compared

Plastic Generation and Rate of Treatment Methods, 2011~2020

(Unit: ton/day, %)



Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal, each year

Note : Plastics were separately collected until 2018, but have been integrated into waste synthetic resins starting from 2019. For time series comparison, plastics (PET bottles and others) were separated for calculation from statistics of waste synthetic resins in 2019 and 2020. For some mixed disposal, statistics of waste synthetic resins were used since there was no separate data for plastics.

Disposal Types of Waste Synthetic Resins and Rate of Treatment Method by Disposal Type, 2020

(Unit: ton/day, %)

Category	Disposal Type	Ratio out of Total Waste Synthetic Resins	Ratio of Treatment Methods by Disposal Type				
			Recycling	Incineration	Landfill	Others	
Waste Synthetic Resins	Total (Domestic waste)	Total	100.0	55.8	33.9	8.9	1.4
		Mixed	43.0	19.0	59.0	20.6	1.3
		Separate	57.0	83.6	14.9	0.0	1.4
	Domestic (household) waste	Pay-as-you-throw	38.7	13.9	63.0	22.5	0.6
		Separate	26.3	100.0	0	0	0
	Non-industrial waste	Mixed	4.3	64.6	23.5	3.9	8.0
Separate		30.7	69.6	27.7	0.0	2.7	

Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal, 2020

to 2019. This was a slightly higher than the annual growth rate (6.1%) of plastics from 2011 to 2018. During this period, there were some changes in statistics. In 2019, out of non-industrial waste (previously, 'domestic waste at the workplace'), waste synthetic resins counted as mixed disposal was started to be regarded as separate disposal in 2020, adding some of omitted waste. Out of non-industrial waste, in 2020, waste synthetic resins per day stood at 4,223 tons, up 5.8% from the previous year. Some of the waste synthetic resins turned out to be administratively executed by proxy in 2020. Furthermore, this also has to do something with the fact that illegal waste counted in industrial waste in 2019 has been integrated to non-industrial waste.

Given the separate collection of plastics from waste synthetic resins within the possible range for time series analysis with existing plastic statistics, the amount of plastics generated in 2020 accounted to 10,629 tons per day, out of which recycled waste corresponded to 5,306 tons. The recycling rate rose by 1.1%p to 49.9% compared to 2019 whereas the incineration rate made little change. Landfill saw a reduction by 1.6%p.

Out of waste synthetic resins of domestic waste, 43.0%

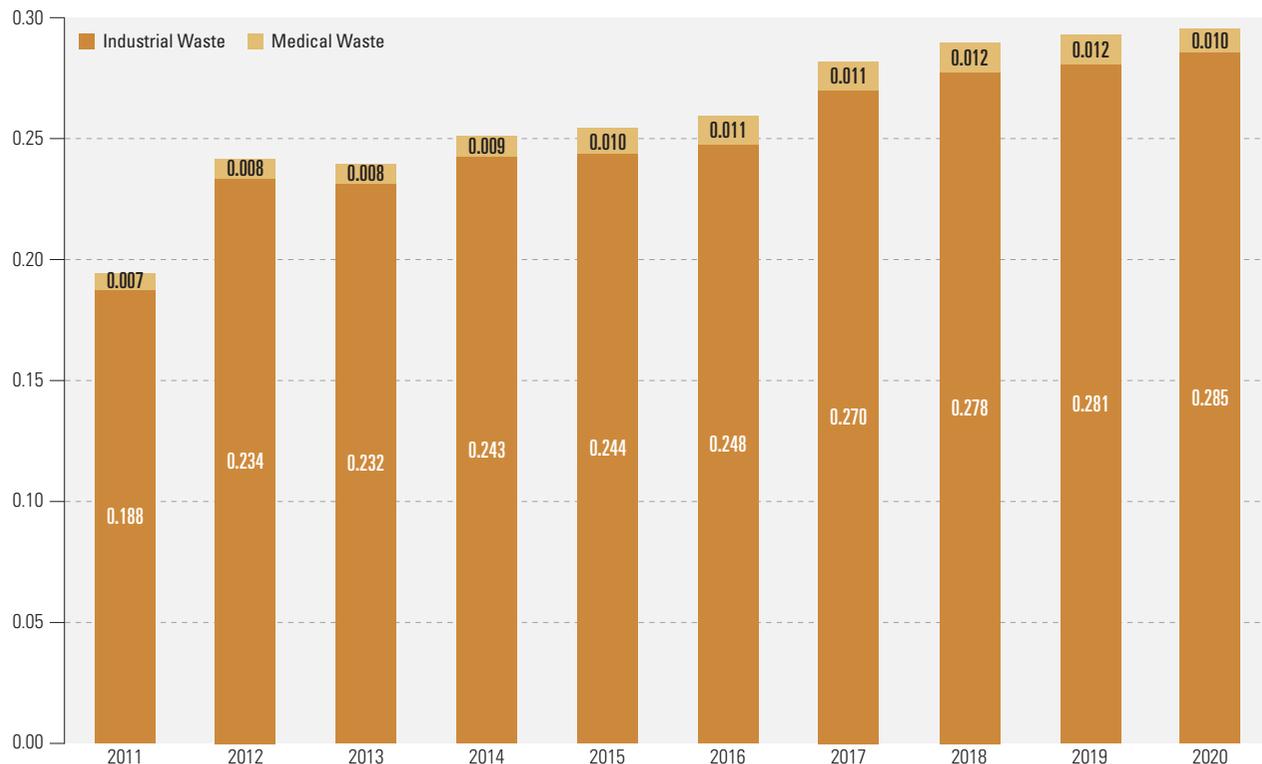
of that was discarded in a mixed form like PAYT bags while the remaining 57.0% was recessed. Among domestic waste, plastics and waste synthetic resins sorted out for disposal were all recycled; however, out of non-industrial waste, only 69.6% of waste synthetic resins sorted out were recycled.

A steady rise in hazardous waste released from workplaces (SDG 12.4.2)

Under the law, hazardous waste is classified as 'designated waste' and is divided into 'designated waste from the workplace' and 'medical waste.' Hazardous (designated) waste has been on an increase, generating 15,324 tons on a daily average in 2020. Among them, designated waste from the workplace took up 96.5% out of all designated waste while medical waste accounted for only the remaining 3.5%. The per capita hazardous waste generated went steadily up, reaching 0.296 kg on a daily average in 2020 and posting the highest record in the last ten years. The per capita medical waste has been also on an increase for the past decade, but its daily average dropped to 0.10kg in 2020 when COVID-19 was widely spread, by 15.4% down from the previous year.

Hazardous Waste Generation per capita, 2011~2020

(Unit: kg/person/day)



Source: Ministry of Environment, Korea Environment Corporation, National Waste Generation and Disposal & Designated Waste Generation and Disposal, each year
 Note : 'Designated Waste Generation and Disposal' has been integrated into the 'National Waste Generation and Disposal' since 2018.



13 CLIMATE ACTION



The closing session of the 27th Conference of the Parties (COP27) in Sharm el-Sheikh, Egypt, in 2022

Take urgent action to combat climate change and its impacts

SDG 13 aims to ‘make an urgent response to minimize adverse effects originated from climate change.’ The urgency and need to respond to climate change have been spread to the international community since the Paris Agreement in 2015 and IPCC (Intergovernmental Panel on Climate Change)’s approval on the 6th Special Report and Working-group Assessment Report dating back to 2018. As damage from climate change has continued, there is growing attention to resolution of the climate change issue throughout the globe. What is worth noting recently is that climate change is no longer an issue of experts and policymakers but citizens have started to recognize it as their own issue, which has led to the private companies’ growing interests in climate change.

According to the IPCC, the global temperature rose by 1.09°C compared to the pre-industrial level (1850 to 1900) and it is an unprecedented scale and speed of global warming over the past 100,000 years. The future climate change scenario warns that humanity’s current level of response would shape the climate that we will face at the end of this century. Even if the entire world reaches carbon neutrality by 2050, the global temperature rise is expected to reach 1.5°C before 2040. Thus, it is urgent to make efforts for climate adaption to reduce impacts from climate change, together with efforts to mitigate greenhouse gas emissions toward carbon neutrality.

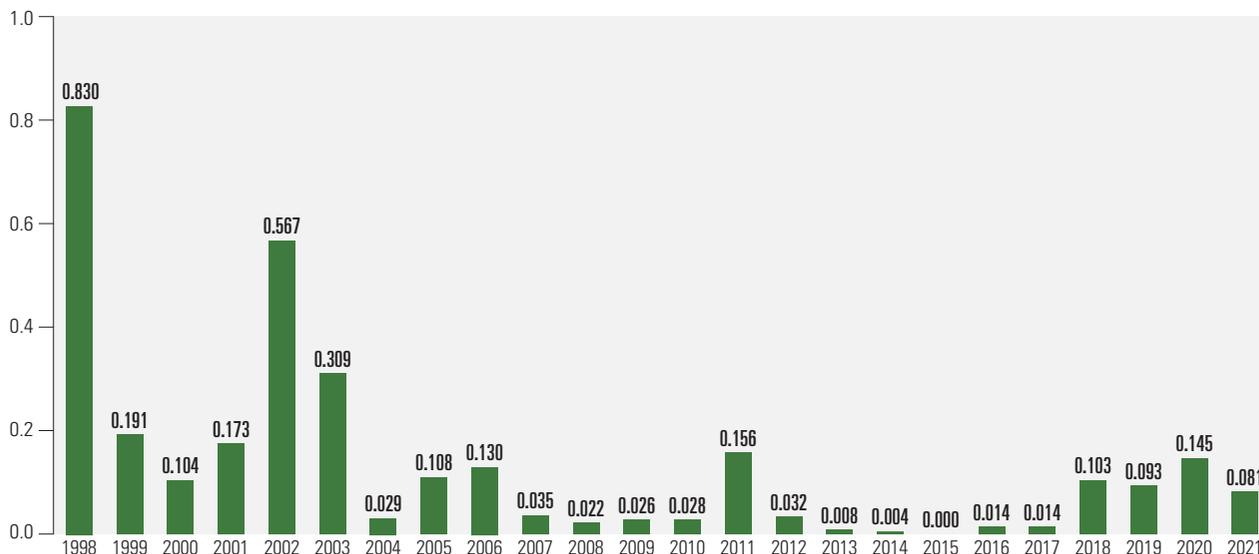
Korea has also experienced warming at a faster pace than the world average such as an increase in the number of summer days (20 days longer) over the past century. This has caused gradual damage such as a change in habitats under terrestrial and marine ecosystems. In addition, there is relentless damage related to climate change such as heavy rain and floods caused by typhoons and drought during summer as well as heatwave and cold spell. Under such a growing sense of crisis due to climate change, in 2021, Korea enacted in 2021 the Framework Act on Carbon Neutrality and Green Growth to Cope with Climate Crisis that clearly specifies the term ‘climate crisis’. All players including the national government, local governments, public institutes and private sector have put spurs to the response planning toward climate change

Climate change adaptation capacity needs to be strengthened (SDG 13.1.1)

Casualties due to natural disasters have diminished in overall since 1998 with an increase in 2018. As for the missing and dead due to natural calamities, there is a large difference by year. After posting the largest damage in 1998 with 0.83 casualties per 100,000 population, the size of human loss has

reduced to 0.57 in 2002, 0.31 in 2003 and 0.16 in 2011 even during which the impact from disasters was huge. In 2015, there was not even a single person who went missing or dead. This is a sign that the nation’s adaptation to extreme weather conditions and capacities to protect the people from natural disasters have continuously improved. As heatwave was included in statistics for natural disasters in 2018, the number of human

No. of the Missing/Dead due to Natural Disasters per 100,000 Population, 1998~2021 (Unit: No. of persons per 100,000 population)



Source: Ministry of Public Administration and Security, National Disaster and Safety Portal, Natural Disaster Statistics (<https://www.safekorea.go.kr/idsiSFK/neo/sfk/cs/sfc/tot/toteaiList.jsp?emg-Page=Y&menuSeq=111>, retrieved on Jan 10, 2023)
 Note : The number of dead/missing people each year was divided by the total population registered.



losses has slightly increased. With accelerating climate change, it is necessary to make more active efforts to enhance our adaptation capacities in case of an even more serious disaster.

According to the 'INFORM RISK', a risk assessment conducted by the EU on 191 countries around the world,

Korea's risk of suffering from a natural disaster was relatively high, being ranked 36th (Japan: 3rd, China: 7th) out of 191 countries. However, Korea came in the 160th in the comprehensive risk index considering all social vulnerability and responsive capacities, showing 'very low' risk level.

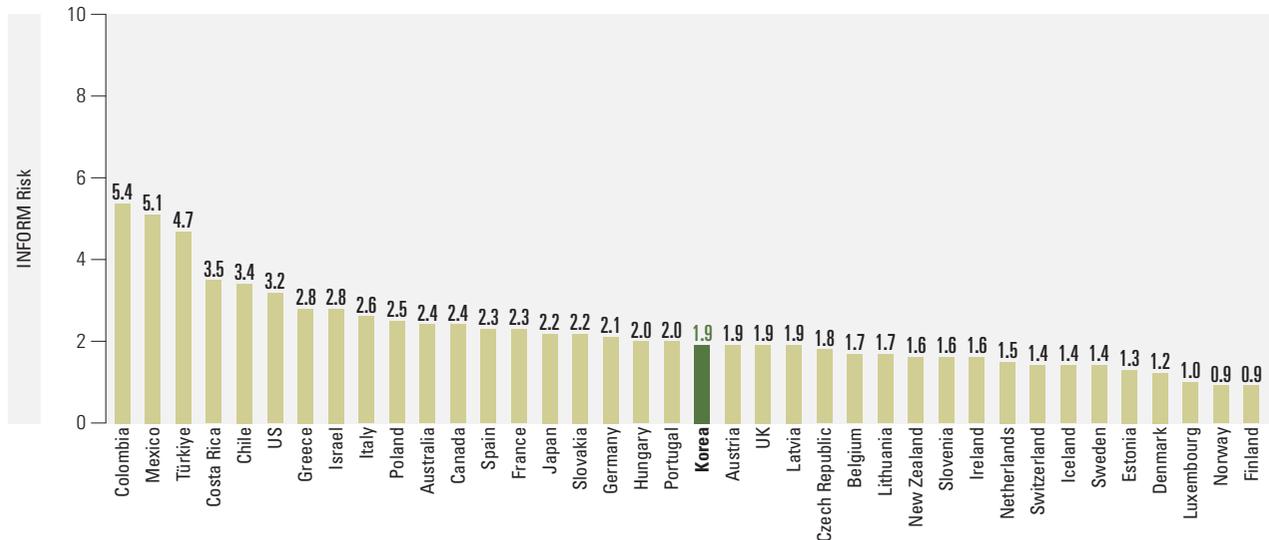
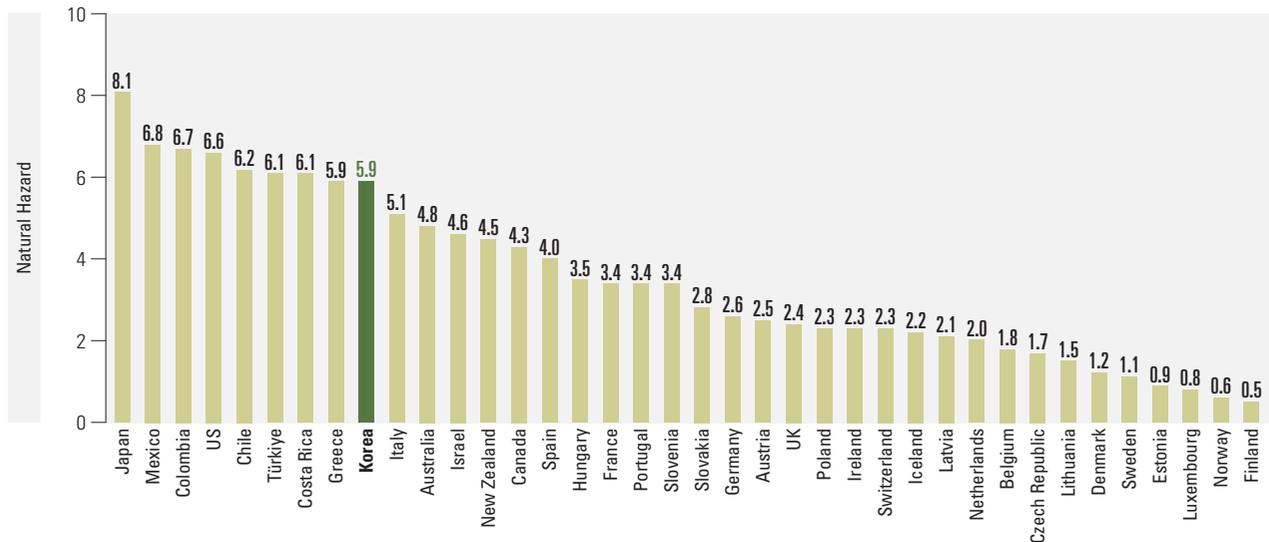
Number of the Missing/Dead by Type of National Disasters, 2012~2021

(Unit: No. of person(s))

Category	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
Heavy Rain	2	4	2	-	1	7	2	-	44	3	6.5
Typhoon	14	-	-	-	6	-	2	18	2	-	4.2
Typhoon/Heavy Rain	-	-	-	-	-	-	1	-	-	-	0.1
Heavy Snow	-	-	-	-	-	-	-	-	-	-	-
Heatwave	Not calculated (No statistics)						48	30	29	39	36.5
Total	16	4	2	0	7	7	53	48	75	42	25.4

Source: Ministry of Public Administration and Security, 2021 Disaster Yearbook: Natural Disaster, p.17

Occurrence Risk and Risk Index of Natural Disasters by OECD Country, 2022



Source: European Commission, INFORM RISK (<https://drmkc.jrc.ec.europa.eu/inform-index>, retrieved on Dec 25, 2022)

Note 1: The index ranges from 0 to 10, with higher numbers indicating a more dangerous condition.

Note 2: INFORM is a country-by-country index of humanitarian crisis and disaster risk, produced by a multi-stakeholder forum including the UN, research institutes and civil society.

Greenhouse gas emission decreased for two consecutive years (SDG 13.2.2)

As of 2020, the total GHG emissions in Korea amounted to 656.2 million tCO₂eq. This represents a 124.7% increase from 1990, and a 6.4% decrease when compared to the previous year. The GHG emissions was on a decrease for two consecutive years in 2019 and 2020. It was the first case that saw a reduction for two years in a row since 1990 when the statistics started to be collected. Although there are multiple elements that lead to a reduction in emissions, it is safe to say that the economic slump caused by COVID-19 could make a direct or indirect contribution.

The energy sector emitted the largest amount of greenhouse gases with 569.9 million tCO₂eq.(86.8%). The sector of industrial processes came in second with 48.5 million tCO₂eq. (7.4%), followed by agriculture with 21.1 million tCO₂eq. (3.2%) and waste with 16.7 million tCO₂eq. (2.5%). Compared to the previous year, energy and industri-

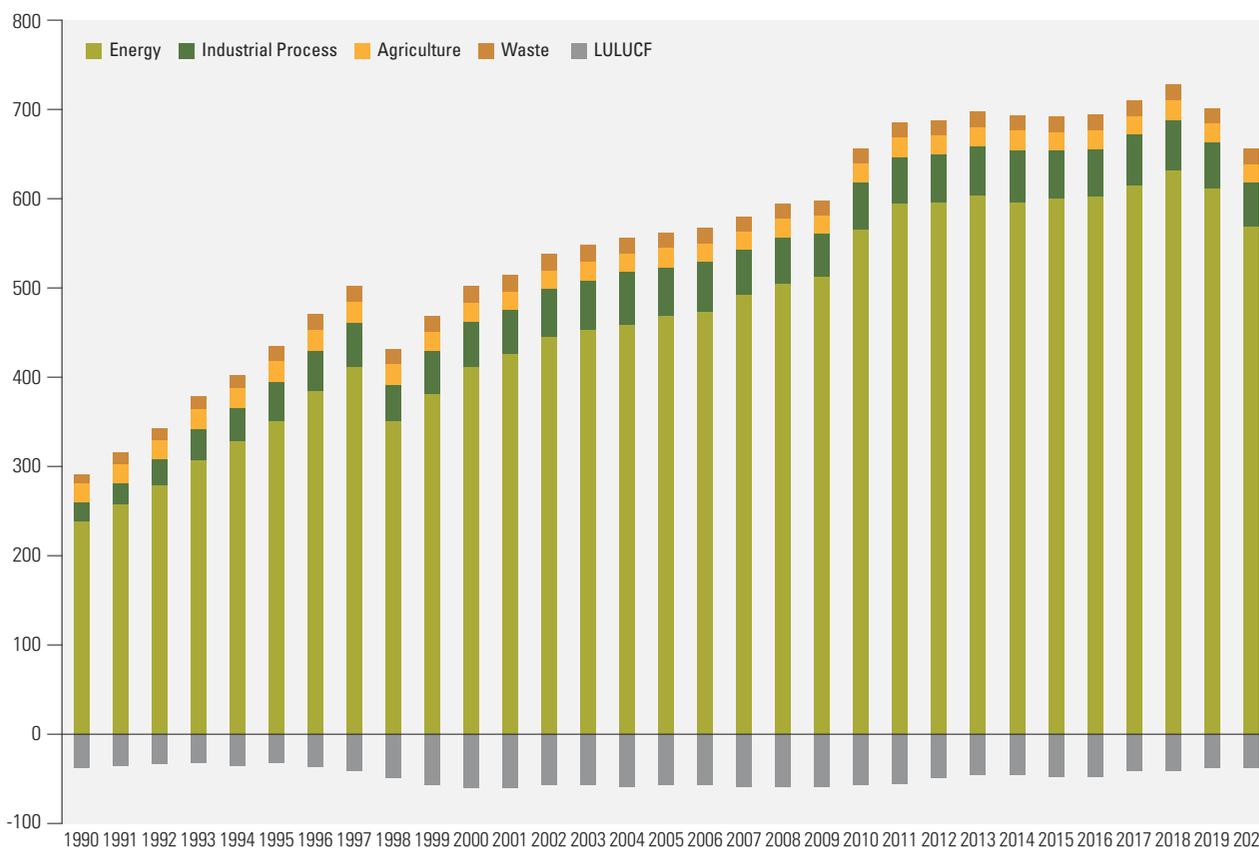
al processes decreased by 6.8% and 7.0%, respectively, while agriculture and waste increased by 0.4% and 1.3%.

It is the sector of power generation/heat production with 30.68 million tCO₂eq. (12.3%) that saw the largest reduction in emissions compared to the previous year. Emissions went down as well in sectors like road transport (4.21 million tCO₂eq., 4.3%) and other manufacturing (non-metallic, etc.) (3.38 million tCO₂eq., 8.6%). Meanwhile, emissions increased in some sectors such as the chemistry industry under the energy sector by 530,000 tCO₂eq. (1.1%) and energy consumption in agriculture and fishery by 440,000 tCO₂eq. (11.1%) from the previous year.

Emissions per unit of GDP has been on a steady decrease from 643 tCO₂eq. per KRW 1 billion in 1990. In 2020, it posted a record low with 357 tCO₂eq. per KRW 1 billion, down 5.7% from the previous year. That said, in overall, per capita emissions increased from 6.8 tCO₂eq. in 1990. It went up to 14.1 tCO₂eq. in 2018, but declined to 12.7 tCO₂eq. in 2020

GHG Emissions by Sector, 1990~2020

(Unit: million tCO₂eq.)



Source: Ministry of Environment, Greenhouse Gas Inventory and Research Center, Announcement of National GHG Inventory (1990-2020) (<https://www.gir.go.kr/home/index.do?menuld=36>, retrieved on Dec 25, 2022)

Note 1: The LULUCF refers to the sum of GHG removals in the sector of land use, land use change and forestry.

Note 2: The total emissions refer to the sum of all other emissions with no consideration of removals by the LULUCF.



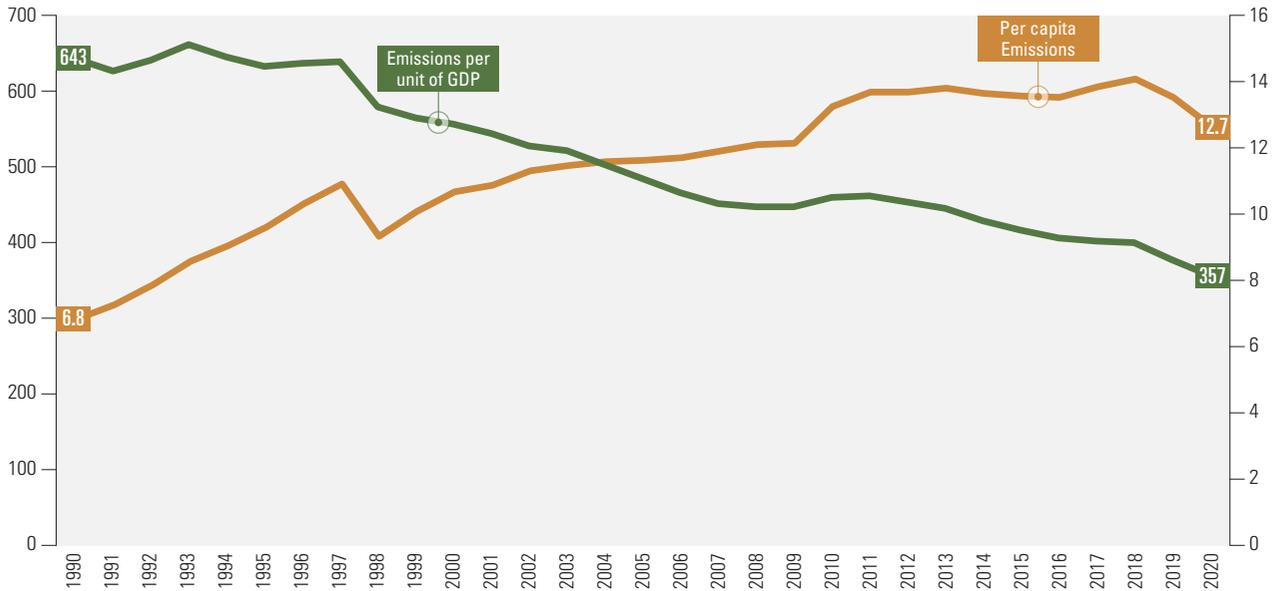
after a reduction in two consecutive years.

According to comparison of total GHG emissions with OECD countries, in 2019, Korea came in 6th, after the United States (6571.7 million tCO₂eq.), Japan (1210.2 million tCO₂eq.), Germany (799.7 million tCO₂eq.), Canada (738.3 million tCO₂eq.) and Mexico (736.6 million tCO₂eq.). As for per capita GHG emissions, the nation was also

ranked at 6th, following Australia (21.5 tCO₂eq.), the United States (20.0 tCO₂eq.), Canada (19.6 tCO₂eq.), Luxembourg (17.3 tCO₂eq.) and New Zealand (16.4 tCO₂eq.). It was in the fourth place together with the United States (0.33 tCO₂eq.), after Australia (0.45 tCO₂eq.), Canada (0.43 tCO₂eq.) and New Zealand (0.41 tCO₂eq.) in GHG emissions per USD 1,000 worth of GDP.

Greenhouse Gas Emissions per GDP and per capita Emissions, 1990~2020

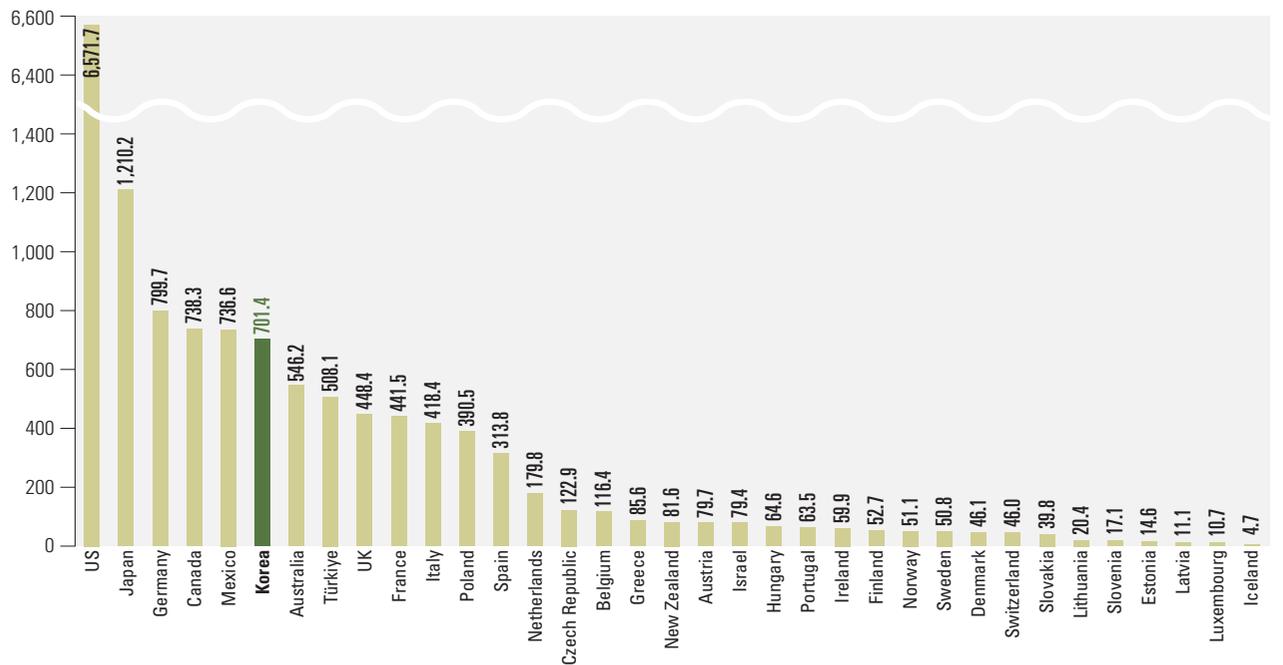
(Unit: tCO₂eq./KRW 1 billion, tCO₂eq./person)



Source: Ministry of Environment, Greenhouse Gas Inventory and Research Center, Announcement of National GHG Inventory (1990-2020) (<https://www.gir.go.kr/home/index.do?menuId=36>, retrieved on Dec 25, 2022)

Total GHG Emissions by OECD Country, 2019

(Unit: million tCO₂eq.)

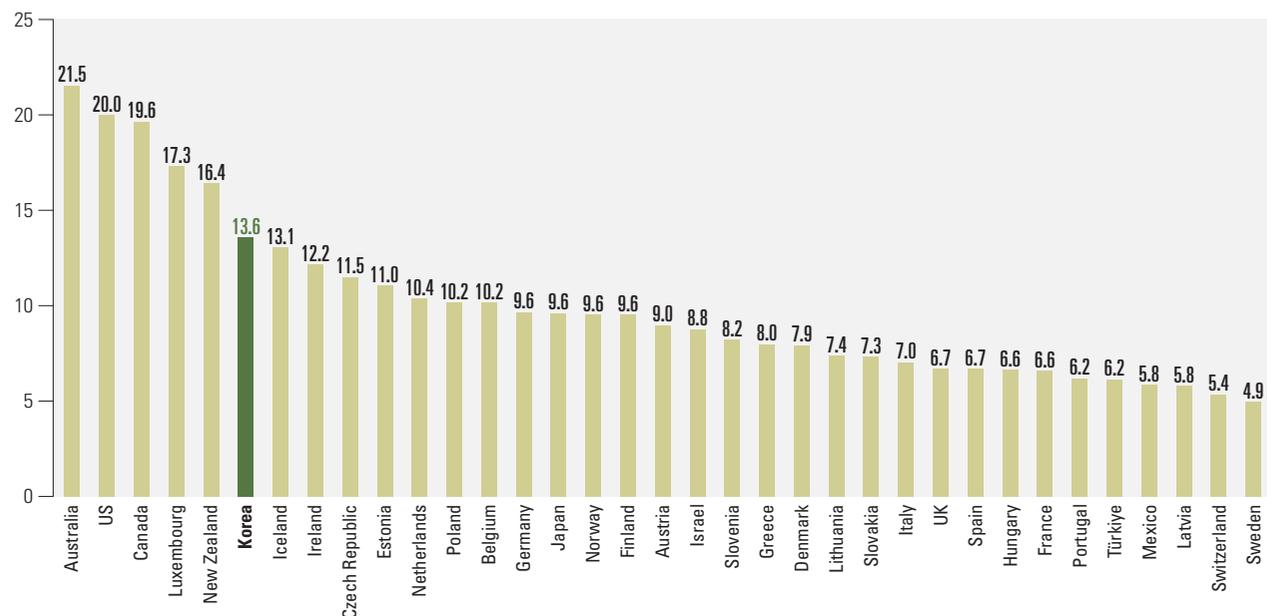


Source: OECD.Stat, Environment. (https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG, retrieved on Jan 20, 2023)

Note : This was based on 35 countries with available figures provided, out of 38 OECD countries (excluding Chile, Colombia and Costa Rica).

Total GHG Emissions per capita by OECD Country, 2019

(Unit: tCO₂eq./person)

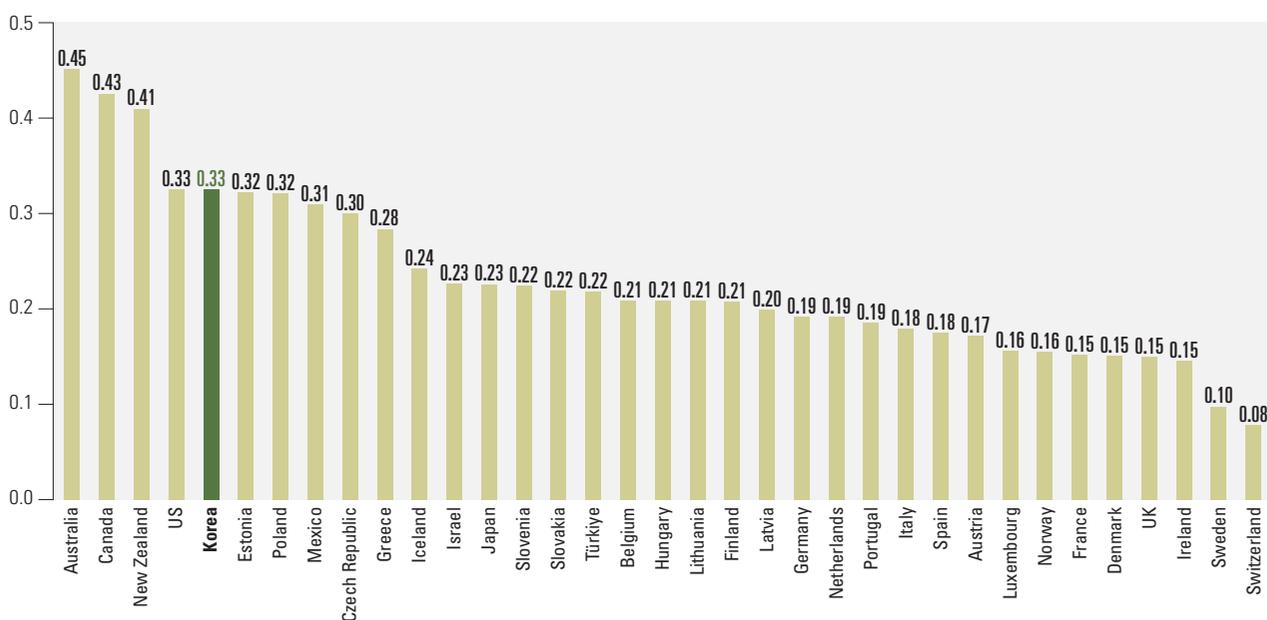


Source: OECD.Stat, Environment. (https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG, retrieved on Jan 20, 2023)

Note : This was based on 35 countries with available figures provided, out of 38 OECD countries (excluding Chile, Colombia and Costa Rica).

Total GHG Emissions per GDP by OECD Country, 2019

(Unit: tCO₂eq./USD1,000 (2015 PPP))



Source: OECD.Stat, Environment. (https://stats.oecd.org/Index.aspx?DataSetCode=AIR_GHG, retrieved on Jan 20, 2023)

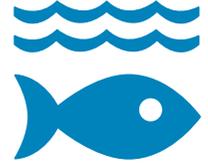
Note : This was based on 35 countries with available figures provided, out of 38 OECD countries (excluding Chile, Colombia and Costa Rica).

Definition

- **IPCC** : Founded by WMO and UNEP in 1988, the Intergovernmental Panel on Climate Change (IPCC) is an international organization associated with climate change. The goals of the IPCC are to provide evaluation on scientific facts related to anthropogenic climate change and predict and forecast its socio-economic effects.
- **GHG Emission Statistics (Inventory)** : It refers to a list of emissions from GHG sources and removals by sinks, attributed to anthropogenic activities
- **CO₂eq.** : It is a unit that converts major direct GHG emissions into CO₂, in accordance with the global warming potential in the 2nd Assessment Report announced by the IPCC in 1995.
- **Total emissions** : The total emissions of GHGs refer to the sum of emissions from other energy, industrial processes, agriculture and waste, without considering removals in LULUCF (land use, land use change and forestry).



14 LIFE BELOW WATER



Conserve and sustainable use the oceans, seas, and marine resources for sustainable development

A healthy sea refers to a state where a coastal/marine ecosystem is productive and resilient. SDG 14 aims to 'maintain health of seas for sustainable development.' This goal addresses various topics such as marine waste, coastal eutrophication, ocean acidification, marine sanctuaries and fisheries. Since it is essential to keep pollutants generated on land in control, in order to make a healthy sea, SDG 14 is highly related to other goals such as SDG 2, 3, 6, 8, 12 and 15.

According to the UNEP, across the globe, material consumption in households increased by 37% over the past 20 years. The amount of plastics produced each year amounts to about 400 million tons, out of which more than 800,000 tons of plastics are assumed to go into oceans. Marine waste is problematic as it leaves over 600 species of life forms living in seas indigestive and tangled. That said, as production of plastics, which take up the majority of marine waste, is expected to reach 1.1 billion tons around the world by 2050, plastics have emerged as a big issue that has to be tackled (UNEP, Beat Plastic Pollution).

Conservation of marine resources and sustainable use have an inseparable relationship. Only use of marine resources based on healthy marine ecosystems can guarantee sustainability. In order to achieve this goal, fishing activities should be maintained at a sustainable level; illegal, unreported and unregulated (IUU) fishing be eradicated; and sustainable fisheries be promoted.

The amount of marine waste collected declined for the first time in seven years (📍 SDG 14.1.1)

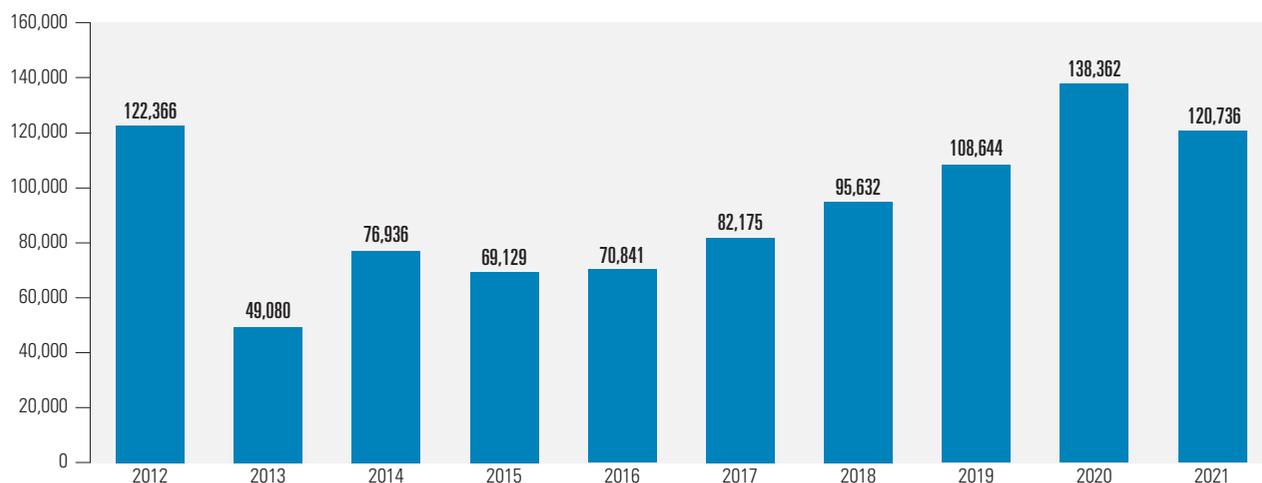
The first target of SDG 14 is to prevent and reduce marine pollution in all forms by 2050. One of indicators that measure this is eutrophication in coastal regions. Eutrophication refers to a state where the concentration of nutrients is higher than needed. It also causes harmful algal blooms in which phytoplankton or harmful algae propagate at a rapid pace. The UN SDG suggests the content of chlorophyll-a as an indicator of eutrophication. In Korea, this is measured in 425 coastal spots nationwide via the measurement networks

of marine environments. However, as major spots that can be used as a SDG indicator have not been determined, the amount of marine waste collected is used as an indicator herein, instead of chlorophyll-a.

The marine waste collected means the amount of marine waste collected through projects conducted by the national government and local governments to get rid of marine waste and retrieve sedimentary waste near coastal areas. The amount collected had increased each year since 2015 declined for the first time in seven years compared to the previous year. The total amount collected in 2021 reduced to

Amount of Marine Waste Collected, 2012~2021

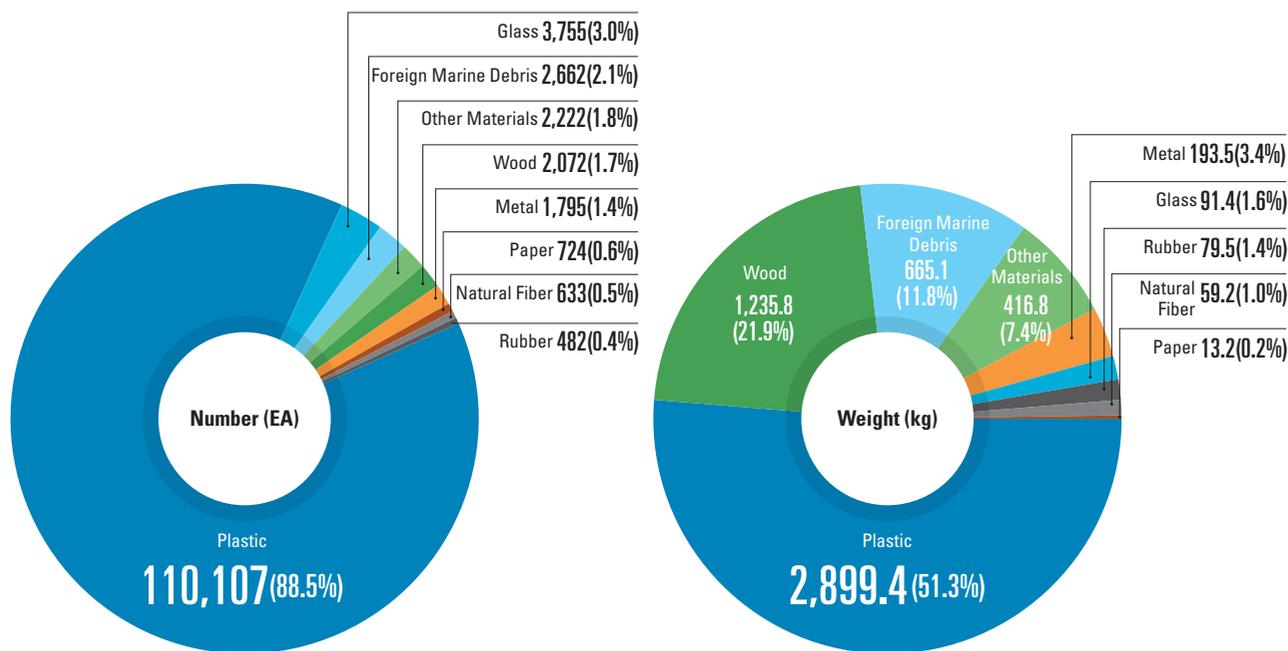
(Unit: Ton)



Source: Ministry of Oceans and Fisheries, Marine Environment Information Portal (<https://meis.go.kr/mli/business/collectStat.do>, retrieved on Sep 06, 2022)



Marine Waste by Type, 2021



Source: Ministry of Oceans and Fisheries, Marine Environment Information Portal (<https://meis.go.kr/mli/monitoringInfo/stat.do>, retrieved on Sep 06, 2022)

12,736 tons, down 12.7% from 2020. By region, Jeonnam (35,922 tons) topped the list, followed by Jeju (22,083 tons) and Chungnam (13,508 tons).

The UN SDG also suggests the density of floating plastic litter as yet another indicator. However, since there is no available data, this report used the proportion of plastics out of coastal waste as an indicator. Korea conducts a national monitoring on marine waste to identify waste types via a regular survey in every two months by selecting 60 coastal areas nationwide (40 areas from 2018 to 2020). In 2021, plastics accounted for 88.5% of the total number and 51.3% out of the total weight, taking up the largest share. Other types surveyed include wood, metals and glass. Plastics can be easily disassembled into microplastics and also ultimately affect health of human beings. Thus, it is necessary to promote civil awareness that encourages a cutback in plastic waste.

Decreasing IUU fishing activities by deep-sea fishing vessels (SDG 14.6.1)

The international community has engaged in various efforts to promote sustainable fisheries. Fish resources can be maintained at a sustainable level only when fishing activities are carried out in seas within the legal boundaries. However, what

seriously undermines these healthy practices is illegal, unreported and unregulated (IUU) fishing. As seen from SDG Indicator 14.6.1, all nations are required to faithfully implement international means adopted to eradicate IUU fishing. To this end, the FAO Committee on Fisheries devised the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing (IPOA IUU) in 2001. Following this, Korea also established the National Plan of Action to Prevent, Deter and Eliminate IUU Fishing in 2005. In addition, the regional fisheries management organizations (RFMOs) have devised resource management measures considering characteristics of the seas to eliminate IUU fishing in the international waters and asked member states to implement them.

The IUU fishing activities by deep-sea fishing vessels in Korea have increased since 2008 when violations were identified based on the catch per unit efforts in the Antarctic Ocean. For instance, a large number of illegal transshipments took place in Guinea Bissau of West Africa in 2011 and Guinea waters in 2013. However, such a violation hasn't recently occurred more than three times each year since 2015 when there was a total of 15 IUU fishing activities including 12 unreported closure of businesses. This proves that deep-water fishing vessels in Korea have engaged in

Number of IUU Fishing Activities by Deep-sea Fishing Vessels in Korea, 2008–2020

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No. of Occurrence	1	1	2	17	1	27	3	15	None	2	None	3	1

Source: Ministry of Oceans and Fisheries (Aug 2021), Survey on Deep-sea Fishing Industry (2016-2020), p.142

fishing activities in line with the international standards and Korea's implementation of international means have greatly enhanced.

Expanding fish species subject to Total Allowable Catch (TAC) (SDG 14.4.1)

In order to ensure biologically sustainable use of fishing resources, adequate management is needed. If public goods like fishing resources are used without proper management, it will lead to a tragedy of public goods and fishing resources be depleted. Management of fishing resources can be divided into regulations of inputs that control various input elements needed for fishing activities, regulations of outputs that control the catch, and technical regulations that control fishing time and allowable size.

The major input regulations in Korea include the limitation of the number of fishing vessels, and technical regulations are to control fishing time and size of catchable fish by

putting in place a closed season and a fishing ban on the specific fish weight. The most typical measure to keep outputs in control is the Total Allowable Catch (TAC). The TAC allows fishing resources to be sustainably maintained by setting up the annual amount of allowable catch by fish type. The TAC is determined to maintain the sustainable level of resources, considering biological elements such as the growth stage and size of fish. Introduced in 1999, the TAC embarked on 4 fish species at first and expanded into 15 different fish species (excluded fish species for the pilot) in 2022 when anchovies were selected as fish species subject to the TAC Pilot Project. The higher the rate of fishing species under the control of the TAC, the more sustainably fish resources can be used. Out of the total catch taken from Korea's coastal fishing, the rate of catch subjected to the TAC was tallied up as 29% in 2020. The government aims at raising this rate to 50% by 2025 and to 80% by 2030 (Ministry of Oceans and Fisheries, July 2021).

Fish Species Subject to Total Allowable Catch (TAC), 1999–2022

Year	No. of Fish Species	Subject Fish Species	Remark
1999	4	mackerel, saurel, sardine, snow crab	
2001	7	mackerel, saurel, sardine, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell	3 fish species added
2002	8	mackerel, saurel, sardine, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab	1 fish species added
2003	9	mackerel, saurel, sardine, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab	1 fish species added
2007	10	mackerel, saurel, sardine, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab, squid	1 fish species added
2009	11	mackerel, saurel, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab, squid, sailfin sandfish, mottled skate	2 species added, except for sardine
2019	14	mackerel, saurel, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab, squid, sailfin sandfish, mottled skate, manila crab, hairtail*, yellow corvina*	3 fish species added
2020	15	mackerel, saurel, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab, squid, sailfin sandfish, mottled skate, manila crab, hairtail*, yellow corvina*, Spanish mackerel*	1 fish species added
2022	16	mackerel, saurel, snow crab, Jeju conch, <i>Saxidomus purpuratus</i> , pen shell, queen crab, blue crab, squid, sailfin sandfish, mottled skate, manila crab, Spanish mackerel, hairtail, yellow corvina, Spanish mackerel, anchovies*	1 fish species added 1 fish species added

Source: Korea Fisheries Resources Agency, TAC Introduction (https://www.fira.or.kr/fira/fira_030601.jsp, retrieved on Oct 01, 2022)

Note : The fish species marked with * refer to those subjected to the pilot project.



No change in R&D investments in marine fisheries (SDG 14.a.1)

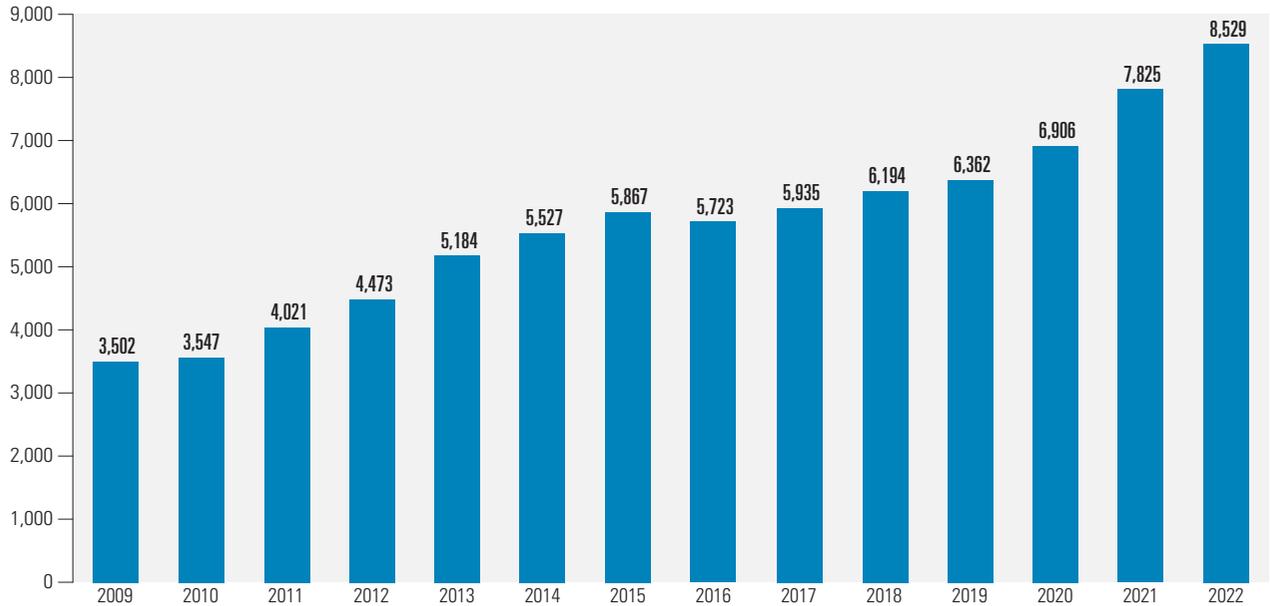
The continuous investments in R&D for marine science make seas healthy, raise biodiversity and underpin the modern economy that relies on the oceans through development of marine knowledge and technologies. The current marine science has been originated from R&D investments made by governments

around the globe for the past several decades. SDG Indicator 14.a.1 calculates the proportion of budgets allocated to the marine technologies out of the total research budget.

The R&D expenditures for marine fisheries steadily increased from KRW 350.2 billion in 2009 to KRW 852.9 billion in 2022. The proportion of Korea's R&D spending on marine fisheries decreased from 0.92% in 2009 by 0.18%

R&D Budget for Marine Fisheries, 2009~2022

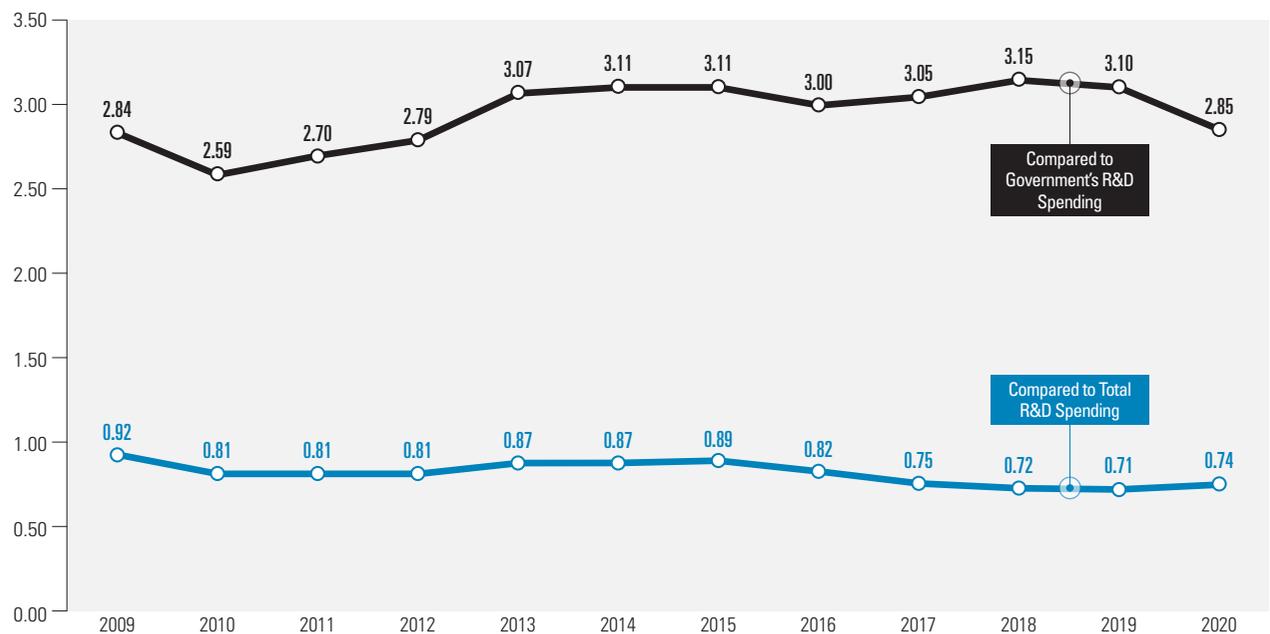
(Unit: KRW 100 million)



Source: Ministry of Oceans and Fisheries, Basic Plan on Fostering of Marine Fishery Science and Technologies (2018~2022) & Implementation Plan(2019, 2022)

Rate of Maritime Fisheries to R&D Budget, 2009~2020

(Unit: %)



Source: Ministry of Oceans and Fisheries, Basic Plan on Fostering of Marine Fishery Science and Technologies(2018~2022) and Implementation Plan(2019, 2022); Ministry of Science, ICT and Future Planning - KISTEP, Research and Development Activity Survey (Statistics Korea's Online Indicators Portal, <https://www.index.go.kr/enara>, retrieved on Sep 06, 2022)

over the past decade to 0.74% in 2020. However, this is not because of a reduction in research investments in marine fisheries but because that marine fisheries were not included in the scope of private R&D growing each year. The government-led investments are normally made in R&D for marine products. However, the proportion of research budget for marine fisheries to the government's total R&D budget, excluding private budget, has maintained 2.6% to 3.1% without a noticeable change over the ten years.

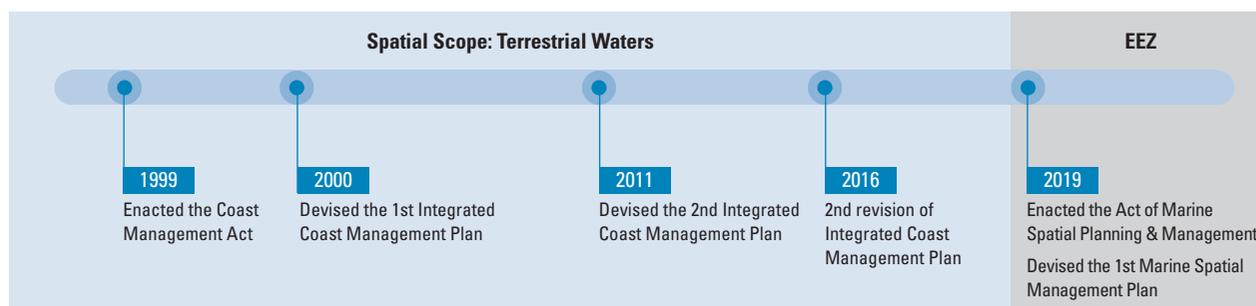
Expanded management scope from terrestrial waters to EEZ under the Integrated Coast Management and Marine Spatial Planning (SDG 14.2.1)

Korea enacted the Coast Management Act in 1999 and devised the 1st Integrated Coast Management Plan in 2000, initiating integrated management of both coastal sea and land. Major schemes include the Coastal Water Zoning System and Target-based National Coastline Management System. The spatial scope for the Integrated Coast Management Plan is limited to terrestrial waters while the scope for spatial planning has been expanded to exclusive economic

zone (EEZ) under the Act on Marine Spatial Planning and Management enforced in 2019.

Marine spatial planning is an ecosystem-based approach that comprehensively manages humans' marine activities and marine resources. The 1st Basic Plan on Marine Space (2019 to 2028) devised in 2019 suggests a vision "sea of coexistence and embrace and sea where economy and the environment coexist in harmony." The city/province-specific marine spatial management plans have been also sequentially devised. The integrated management of marine space encompasses activities of evaluating characteristics of marine space considering socio-economic needs, of suggesting usage and management directions in advance, and of reasonably distributing and continuously managing spatial use, development and conservation, (website of the Integrated Management Information System for Marine Space). The marine zoning is divided into 9 areas. They include the protected ① area for fishing activities; ② area for development of aggregate and mineral resources; ③ area for energy development, ④ marine tourism area, ⑤ environment/ecosystem management area, ⑥ research/education conservation area, ⑦ military activity area, ⑧ port/navigation area and ⑨ safety management area.

History of Acts and Plans regarding Integrated Coast Management and Marine Spatial Planning



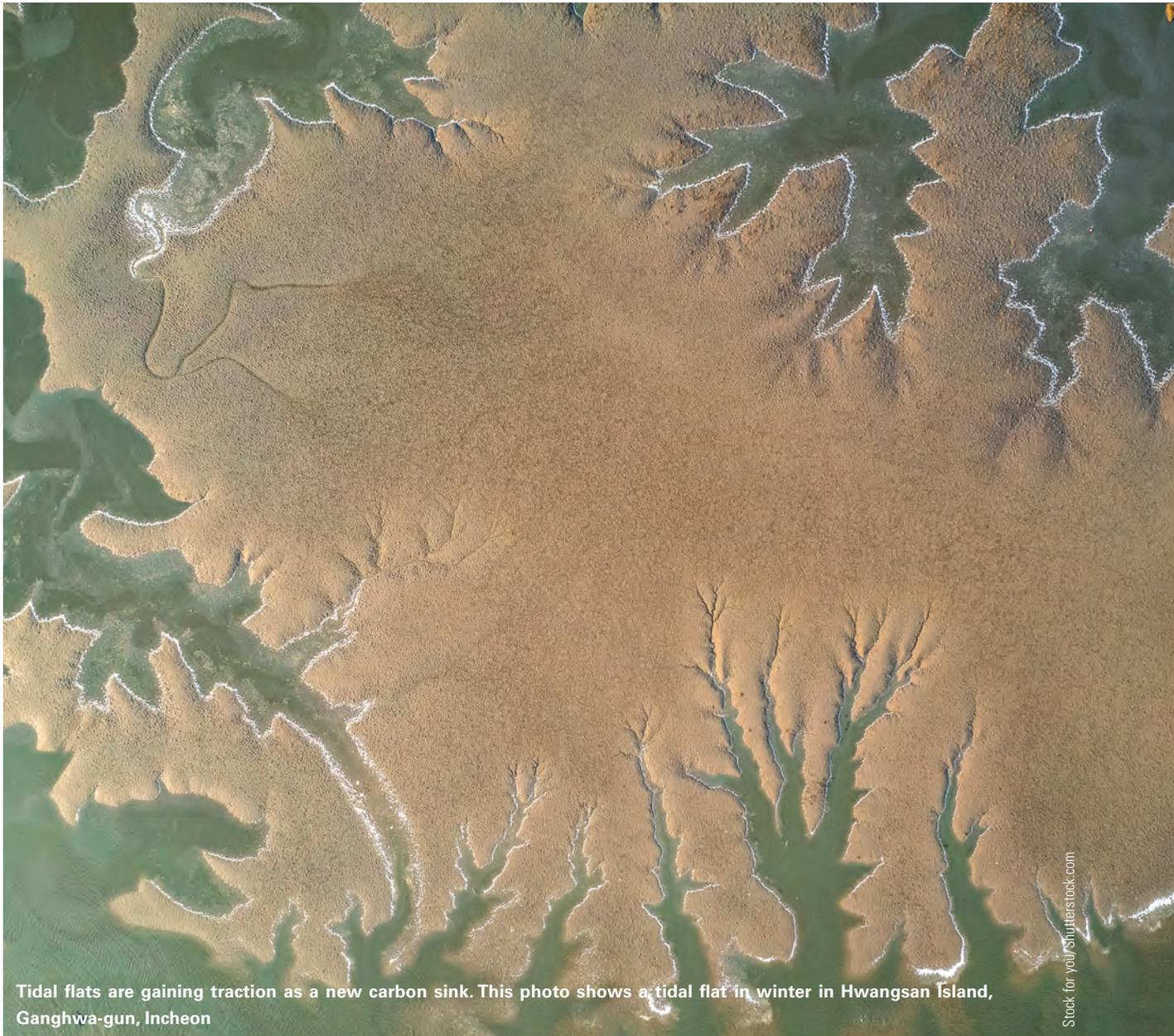
Source: Written by author

Definition

- **Eutrophication** : Eutrophication refers to excess nutrients loading into coastal environments from anthropogenic sources, resulting in excessive growth of plants, algae and phytoplankton.
- **Illegal, unreported and unregulated (IUU) fishing** : The illegal, unreported and unregulated fishing refers to (1) illegal fishing in violation of laws and regulations without an approval from the relevant authorities; (2) unreported fishing with no reporting or false reporting to the relevant authorities in violation of domestic regulations in a nation that oversees the waters and (3) unregulated fishing of vessels of non member states (including effectively non-members) of RFMO and/or stateless vessels without following conservation measures of the corresponding organization in its jurisdiction waters.
- **Regional Fisheries Management Organization** : The Regional Fisheries Management Organization refers to a multinational fisheries management organization aimed at sustainable management of fish resources in the jurisdiction waters.
- **Transshipment** : Transshipment refers to the process where containers are transferred from one vessel to another
- **Exclusive economic zone (EEZ)** : It refers to an area of sea, generally extending no more than 200 nautical miles from the terrestrial seawater base line based on the UN Convention on the Law of the Sea in 1982, excluding international waters. (Articles 55 and 57 of the Convention)



15 LIFE ON LAND



Tidal flats are gaining traction as a new carbon sink. This photo shows a tidal flat in winter in Hwangsan Island, Ganghwa-gun, Incheon

Stock for you/shutterstock.com

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

SDG 15 aims to 'conserve and promote terrestrial ecosystems, biological species and diversity of genes through protection and restoration of terrestrial ecosystems and sustainable use and management.' It has been implemented in close connection with relevant UN bodies such as UN Convention on Biodiversity (CBD) and UNFCCC. The CBD, which is the most crucial convention among them, has adopted and implemented 20 Aichi targets, together with '2011-2020 Strategic Plan for Biodiversity' in 2010, and also came up with the strategy for conservation and promotion of biodiversity for a new decade after 2020 via 'Kunming-Montreal Global Biodiversity Framework 2021-2030' adopted in 2022. In addition, conservation and restoration of forest ecosystems were highlighted at the Glasgow Climate Pact of the UNFCCC held in the United Kingdom in 2021 to cope with climate change. The International Union for Conservation of Nature (IUCN) also stressed conservation and restoration of ecosystems and sustainable use and management as a nature-based solution in response to climate change.

However, the Global Biodiversity Outlook 5 (GBO-5), published by the United Nations Environment Programme (UNEP) and CBD, predicted that at current pace achieving sustainable development goals would be on the line due to a steady depletion of biodiversity and its services (GBO-5, 2020). At the joint workshop, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and IPCC stated that 77% of the land has been deformed under the direct influence of human activities, which will cause a loss of wild mammals (83%, based on biomass) and an increase in endangered species. These reports emphasized conservation of endemic species, more conservation and restoration of endangered species, expansion of protected areas and challenging and innovative changes to reinforce sustainable management of forests, so as to put a stop to all the reduction and turn into recovery.

Since 2000, the proportion of forest areas to the land area and Red List Index have continuously worsened in Korea. Although the areas for sustainable forest management and protected areas for biodiversity have been on an increase, more active measures will be needed to conserve the forest areas; conserve/restore endangered species; and maintain an increase in protected areas for biodiversity, for the sake of conservation of terrestrial ecosystems and sustainable use.

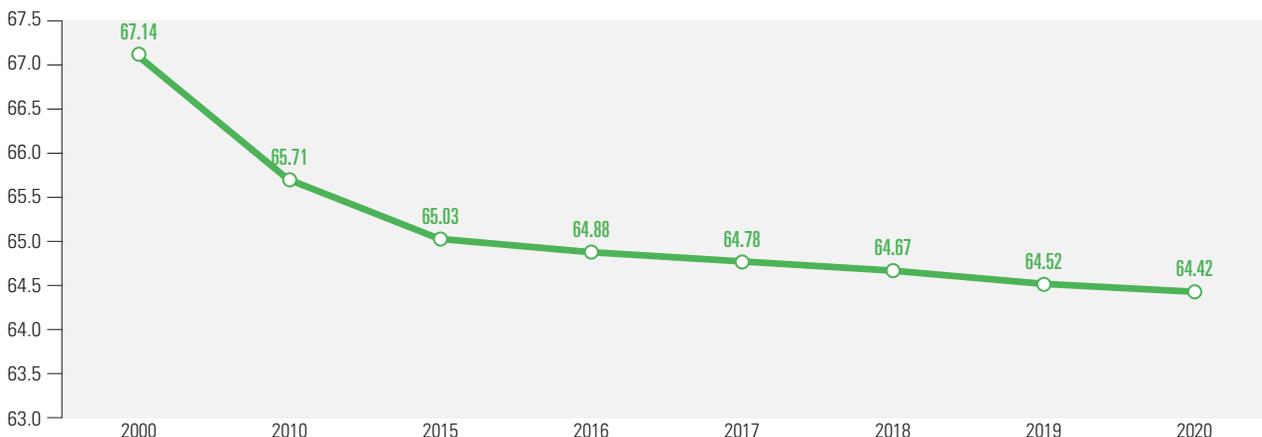
A steady reduction in forest areas (📍 SDG 15.1.1)

A decline in forest areas is a global phenomenon. Forest areas are shrinking in almost all continents except for Europe. In particular, such a decrease has been witnessed in most countries in Asia (incl. Korea), South America and Africa.

The forest area proportion in Korea continued to decline since 2000 and, in 2020, it reduced by 2.72%p (or 0.14%p on annual average) compared to 2000. Out of 38 OECD countries, there were six following nations including Korea that saw a reduction in the rate of forest areas between 2000

Proportion of Forest Area to Total Land Area, 2000~2020

(Unit: %)

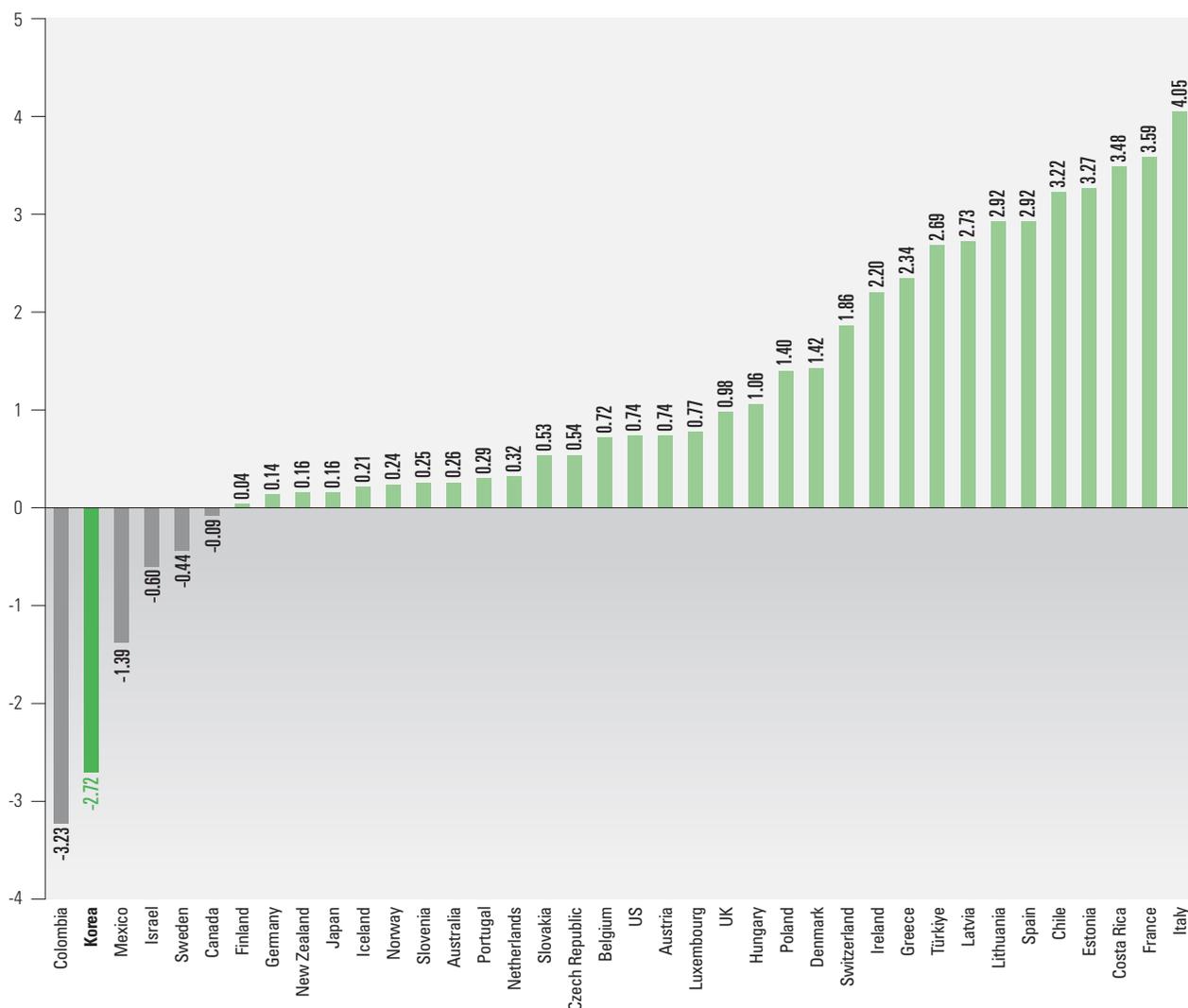


Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 11, 2022)



Change in Rate of Forest Area to Total Land Area by OECD Country, 2000~2020

(Unit: %p)



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 11, 2022)

and 2020: Colombia (-3.23%p), Mexico (-1.39%p), Israel (-0.60%p), Sweden (-0.44%p) and Canada (-0.09%p). Meanwhile, over the past five years (2015 to 2020), the rate of domestic forest areas declined by 0.61%p (or 0.12%p on an annual average). For the same period, 11 countries including Korea experienced a reduction in the rate of forest areas. They include Israel (-1.15%p), Colombia (-0.08%p), Slovenia (-0.49%p), Mexico (-0.33%p), Hungary (-0.08%p), Germany (-0.05%p), the United States (-0.03%p), Japan (-0.02%p), Canada (-0.02%p) and Finland (-0.01%p).

Korea's continuous reduction in forest areas is largely attributed to their use for other purposes. It has been confirmed that a forest area of 9,120 ha was converted into lots for housing, factory construction and roads on an annual average from 2001 to 2020. Considering the fact that for the

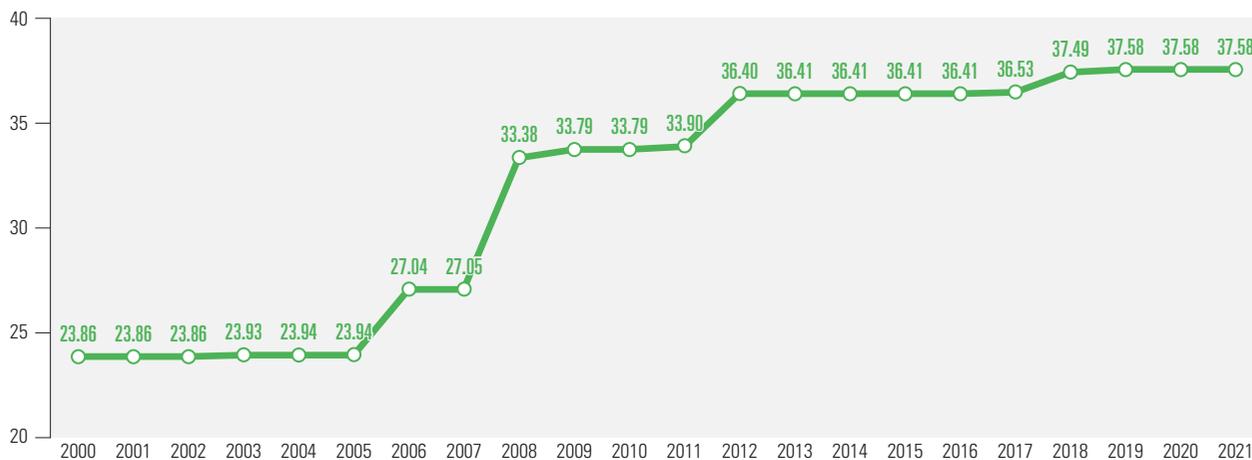
recent 20 years, the size of conversion for other usage has remained at a certain range from 8,000 ha to 9,000 ha and the population is shrinking, the pressure on conversion of forests is expected to further diminish down the road.

Sluggish growth in protected areas for biodiversity (SDG 15.1.2)

Major international conventions including the CBD for conservation of biodiversity have stressed how important the protected areas should be expanded. The Kunming-Montreal Global Biodiversity Framework newly established in Dec 2022 has adopted an increase in the proportion of protected areas both onshore and offshore up to 30% by 2030 as a major action plan. In accordance with 14 Acts including the Natural Environment Conservation Act, Korea also designat-

Rate of Protected Areas for Terrestrial Biodiversity, 2000–2021

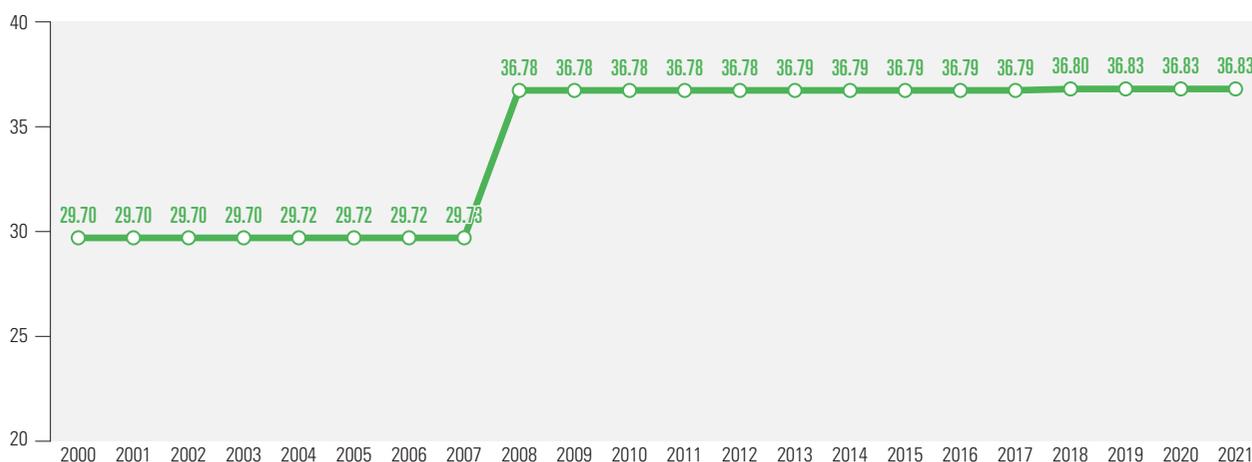
(Unit: %)



Source: Korea SDG Data Platform (kostat.go.kr/sdg, retrieved on Sep 11, 2022)

Rate of Protected Areas for Freshwater Biodiversity, 2000–2021

(Unit: %)



Source: Korea SDG Data Platform (kostat.go.kr/sdg, retrieved on Sep 11, 2022)

Note : This shows a ratio of protective areas for biodiversity to the total ecosystem area.

ed some spots crucial for conservation of ecosystems and biodiversity as a protected area. The protected areas for terrestrial and freshwater biodiversity have expanded since 2000. In 2021, the proportion of protected areas stood at 37.58% for terrestrial biodiversity and 36.83% for freshwater biodiversity out of the total area for ecosystems. It was expansion by 13.72%p for terrestrial biodiversity and by 7.13%p for freshwater biodiversity compared to 2000.

Among OECD countries, however, the proportion of biodiversity protected areas on land and freshwater for the same period grew by 25.47%p and 23.75%p on average. In addition, the proportion of protected areas for terrestrial and freshwater biodiversity among OECD countries amounted to 64.0% and 65.52% respectively out of the total ecosystem area in 2021. It indicates that the proportion of protected

areas in Korea and its growth rate pale next to international scale. To some degree, difficulties in expanding protected areas could be attributed to inadequate compensation paid to private landowners for land located in protective areas, their surroundings or ecologically crucial areas; therefore, it is necessary to put institutions in place such as a compensation system through Payments for Ecosystem Service.

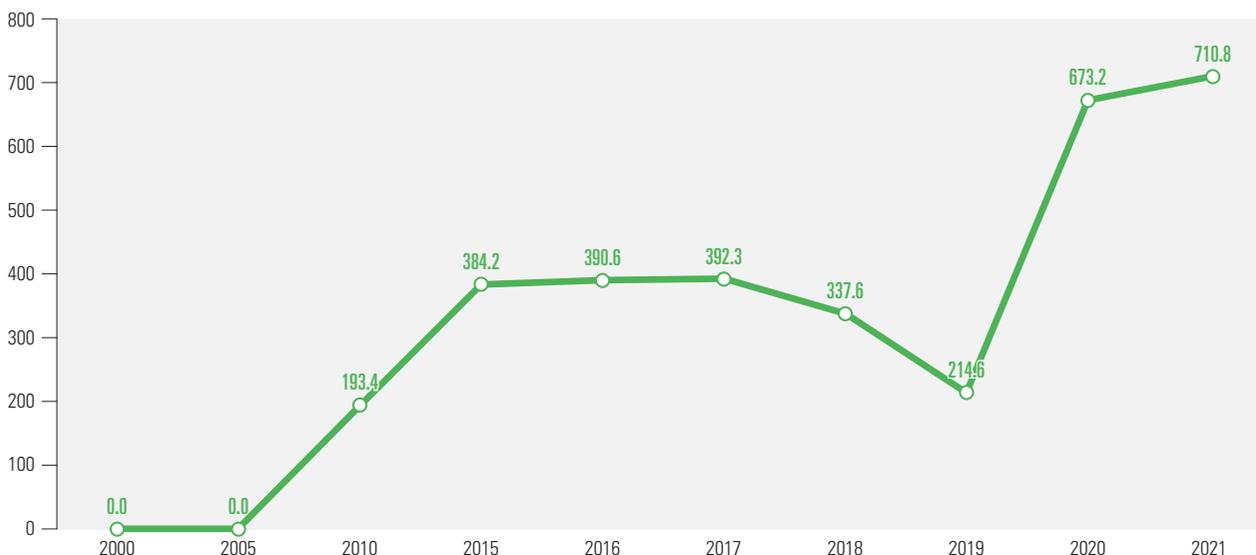
A marked increase in sustainable forest management areas (🔄 SDG 15.2.1)

Five indicators namely an annual net change rate of forest areas, total amount of terrestrial biomass in forests, rate of forest reserves, rate of areas with a long-term forest management plan and certified areas for sustainable forest management are used to check the progress of sustainable forest



Certified Areas of Forest Management, 2000~2021

(Unit: 1,000ha)



Source: UN SDG Indicators Database (<https://unstats.un.org/sdgs/dataportal>, retrieved on Sep 11, 2022)

Note : It refers to a forest area certified under the forest management certification schemes independently proven, and currently the certified areas of FSC and PEFC (including mutual cognitional) are calculated.

management. If the annual net change rate of forest areas, total amount of terrestrial biomass within forests and rate of forest reserves serve as an indicator to assess qualitative and quantitative changes in forests, the certified areas for sustainable forest management can be an indicator that can measure sustainable use in current forests. The UN CBD stressed the importance of sustainable forest management in order to preserve forest ecosystems and biodiversity and, to monitor this, also suggested the certified areas for forest management as a management indicator. The forest areas certified according to the forest management certification scheme increased by 710,800 ha in 2021 compared to 2000, showing clear growth. However, considering a high rate of forest areas to the land area (64.42%), it is necessary to lay more active political, scientific and institutional foundations and put them into practice for an increase in areas of sustainable forest management.

The internationally recognized certification schemes for sustainable forest management include the FSC(Forest Stewardship Council) mainly in North America and PEFC(Programme for the Endorsement of Forest Certification) in Europe. In 2015, Korea developed its own scheme called the Korea Forest Certification Council (KFCC) and has operated it since then. The KFCC was mutually recognized by the PEFC in 2018. Domestic bodies which had mainly

acquired certification from the FSC before started to register themselves to the KFCC since 2016. As the FSC certification was expired (5 years), many rapidly switched to KFCC certification in 2019. During this process, some abnormal statistics were created regarding certified areas due to missing data of 2019, and application of a new KFCC certification after 2019 seems to have affected a sudden increase in the certified areas in 2020.

Steadily deteriorating Red List Index

(📍 SDG 15.5.1)

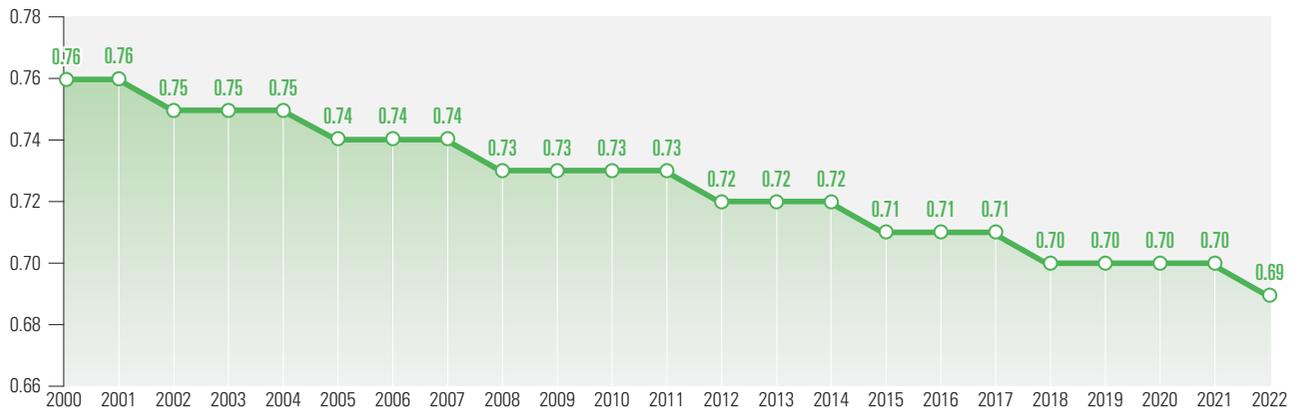
The IUCN utilizes the Red List Index that comprehensively evaluates and monitors the current state and threats of wildlife to prevent their extinction and conserve biodiversity. The Red List Index quantifies the trend of changing number of biological species classified in seven following categories based on the IUCN's list of endangered species (Red List): Extinct, Extinct in the Wild, Critically Endangered, Endangered, Vulnerable, Near Threatened and Least Concern. The Index is shown as a figure ranging from 0 (extinction of all species) to 1 (concern of all species). The closer to 0, it is more likely that endangered and indigenous species go extinct and biodiversity become low.

While the Index in most OECD countries including Korea has stayed the same or reduced, it went down on average.

The Red List Index of Korea declined by 0.07 from 0.76 in 2000 to 0.69 in 2022, which is 3.5 times higher than 0.02, the average reduction among OECD countries for the same period. Even with comparison to the Red List Index in 2022,

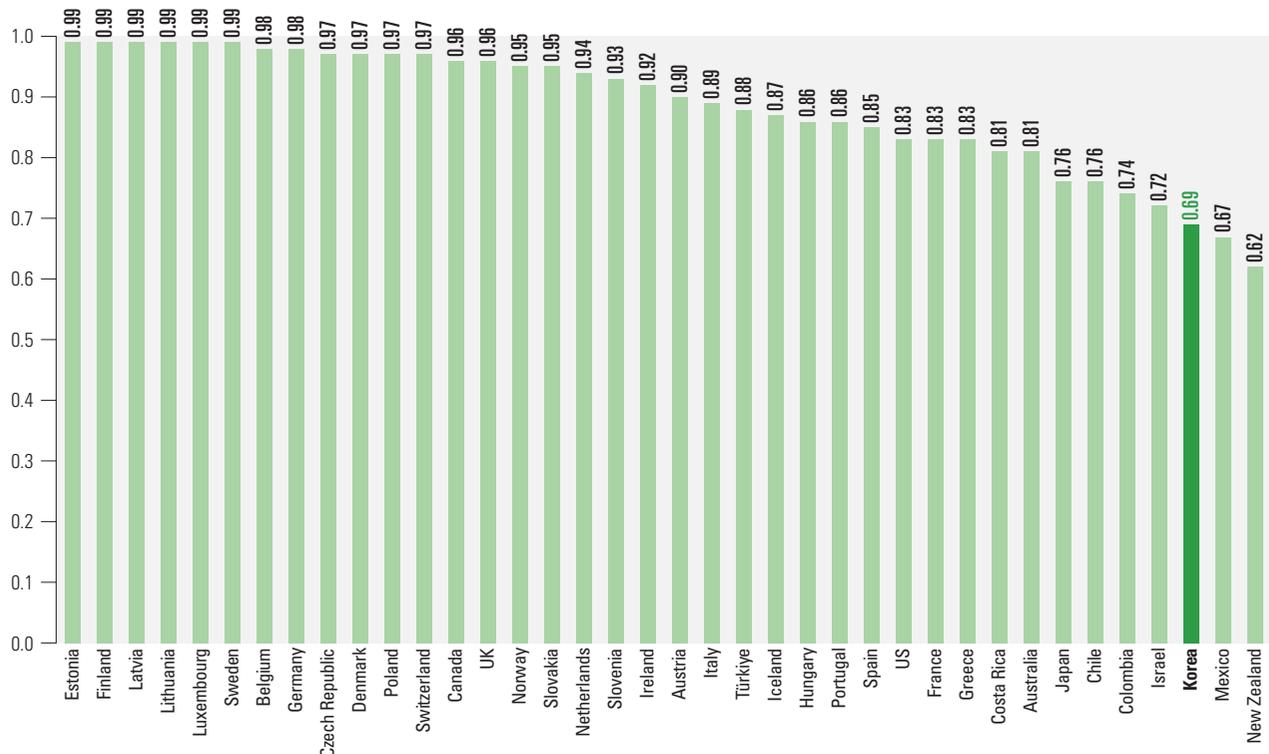
the OECD average was 0.88 but the Korean average was 0.69. Considering the fact that most OECD countries in Europe hovered 0.9, Korea has to actively put in place measures and implement them to conserve endangered species.

Red List Index, 2000~2022



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 11, 2022)
 Note : It has a scale of 0 to 1, with closer to 0 meaning higher risks of extinction for endangered and indigenous species and lower biodiversity.

Red List Index by OECD Country, 2022



Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal>, retrieved on Sep 11, 2022)
 Note : It has a scale of 0 to 1, with closer to 0 meaning higher risks of extinction for endangered and indigenous species and lower biodiversity.

Definition

- **Aichi targets** : Aichi targets refer to 20 targets that the international community agreed to promote biodiversity by 2020 and it was adopted at the CBD COP 10 held in Aichi, Japan in 2010.
- **Nature-based solution** : The nature-based solutions refer to protection and restoration of ecosystems and sustainable management as a solution to various nature and social issues such as climate change, food, water, disasters, health and biodiversity.



16 PEACE AND JUSTICE



A Ukrainian civilian housing complex in ruins after an attack by Russian militants in March 2022

Drop of Light/Shutterstock.com

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Regarding peace, justice and effective institutions, SDG 16 aims to 'eradicate violence and crimes, promote fairness and inclusiveness, and establish transparent and accountable institutions in order to operate public policies and private economy in an efficient and fair manner.'

To realize peace that SDG 16 pursues, we need to wipe out violent crimes such as homicides, robbery, violence and sexual assault and various organized crimes and protect the vulnerable including children. In Korea, the number of homicides has been on a decrease, but violent crimes including violence and sexual assault have recently grown. It is necessary to pay attention to the trend of violent crimes and seek out improvements. In particular, as many people are reluctant to report crimes to the police for various reasons, such as distrust in the police, anxieties over retaliatory crimes and social perception toward victims, it is necessary to make improvements.

In many cases, the corruption in the government sector is tangled with old practices, making it all the more difficult to be fixed. That said, there are some promising signs emerging from various indicators. The corruption rate is still higher in metropolitan local governments and municipalities compared to the national government, requiring to improve corrupt behaviors of public servants in the local governments.

A steady decline in homicides (SDG 16.1.1)

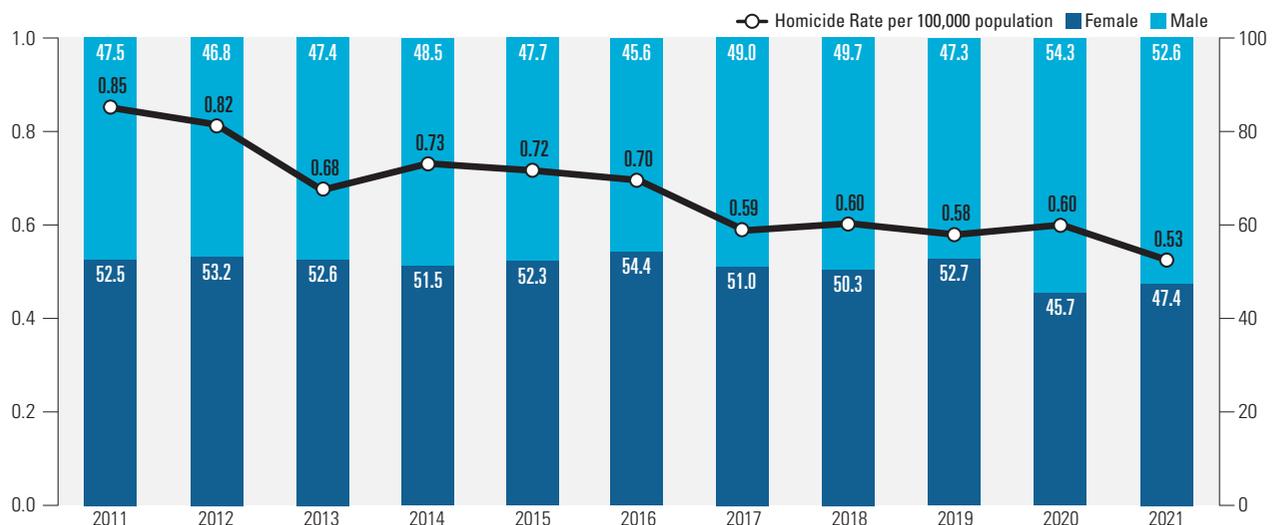
The number of homicides in Korea has been on a steady decline since 2000. The homicide rate is defined as the number of homicide victims per 100,000 population. In 2021, it again reduced by more than 10% compared to the previous year. With 270 homicides (committed) on annual average in Korea, the rate stood at 0.53 per 100,000 population which was 38.3% down from 0.85 in 2011, ten years earlier. Usually, there are more female victims than male counterparts; however, recently the rate has been reversed since 2020. In

2021, homicides against women accounted for 47.4% out of the total.

On a global front, the average homicide rate in 38 OECD countries is 3.09 per 100,000 population. Korea's homicide rate (0.53) is very low even compared to the average (1.51) calculated excluding three countries, namely Mexico (28.37), Colombia (25.34) and Costa Rica (11.15), that have a far higher homicide rate. The nation's homicide rate was ranked at 7th out of 38 OECD countries. By continent, the homicide rate in Asia tends to be lower with 2.3 per 100,000 population.

Homicide Rate and Victim by Sex, 2011~2020

(Unit: No. of persons per 100,000, %)



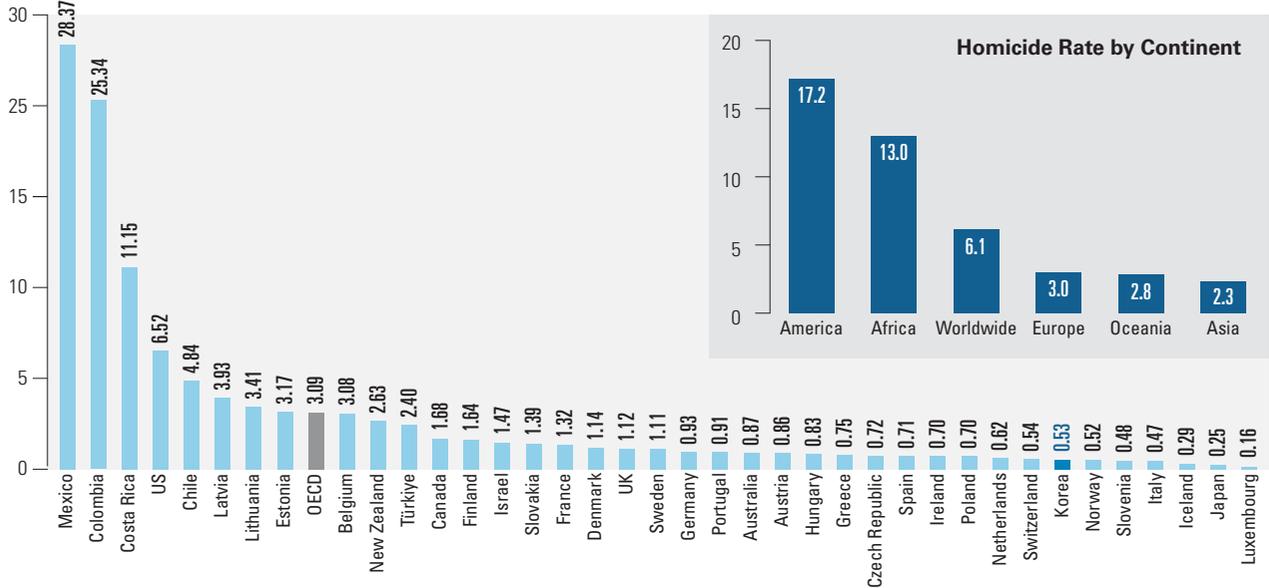
Source: National Police Agency, Crime Statistics Data (<https://kosis.kr>, retrieved on Sep 02, 2022); National Police Agency 2021 Crime Statistics Data

Note : The homicide rate was calculated based on the number of victims to homicides actually committed per 100,000 population, and mid-year population was used (Statistics Korea, Population Trend Survey). Cases with sex of the victim not identified were excluded.



Homicide Rate by OECD Country

(Unit: No. of person(s) per 100,000)

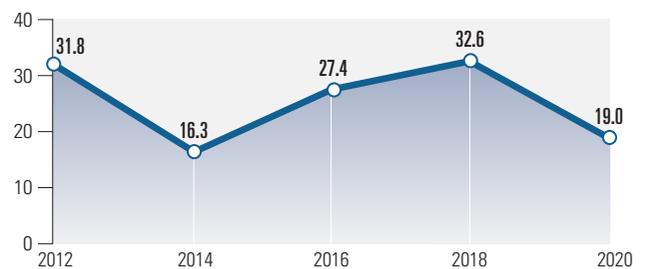


Source: UN SDG Indicators Database (<http://unstats.un.org/sdgs/dataportal> retrieved on Sep 12, 2022) National Police Agency 2021 Crime Statistics Data
 Note : Figures are for 2019-2020 except for Belgium (2002), Canada (2016), Colombia and UK (2018), and South Korea (2021). As for Korean cases, National Police Agency's 「2021 Crime Statistics Data」 and mid-year population data (Statistics Korea, Population Trend Survey) were used.

Violent crime is on the rise, but rate of the reporting to police remains low (SDG 16.1.3 / 16.3.1)

Recently, more people are falling victim to violent crimes. The overall rate of violent crimes more than doubled from 0.37% in 2014 to 0.88% in 2020 in just a matter of 6 years. It was even more than 50% up from 2018, two years earlier. By violence type, in particular, cases of violence and sexual

Reporting Rates of Violent Crimes, 2012~2020 (Unit: %)



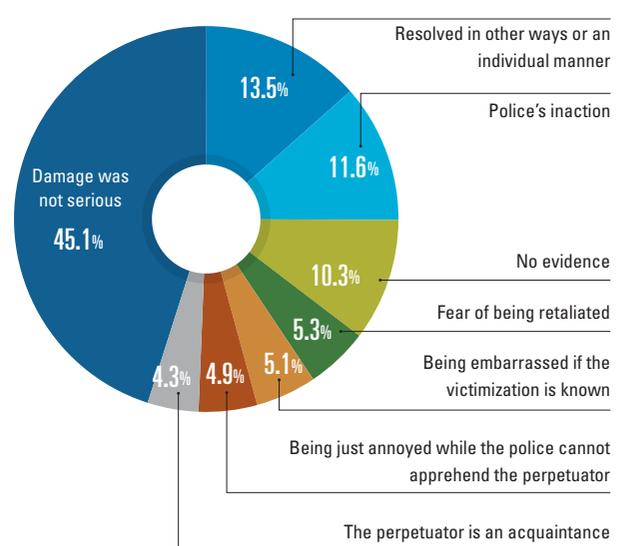
Source: Korean Institute of Criminology and Justice, National Life Safety Survey (<https://kosis.kr>, retrieved on Sep 06, 2022)

Rates of Violent Crime Victims (estimates), 2012~2020 (Unit: %)



Source: Korean Institute of Criminology and Justice, National Life Safety Survey (<https://kosis.kr>, retrieved on Sep 06, 2022)

Reasons for Not Reporting Violent Crimes, 2020



Source: Korean Institute of Criminology and Justice, National Crime Victimization Survey 2020 - Analysis Report, p.154
 Note : This was based on the first response among multiple responses.

assault noticeably increased. In fact, they soared more than twofold in 2020 compared to 2018.

Meanwhile, the rate of reporting violent crimes to the police was only 19% in 2020. Even during the year with the largest reporting rate since 2012, the rate fell short of a third. A lot has to be improved. Main reasons for not reporting violent crimes to the police include the police's inaction (11.6%), being just annoyed while not able to apprehend the perpetrator (4.9%), fear of being retaliated (5.3%) and being embarrassed if crime he or she fell victim to is known (5.1%). As seen these reasons, there are still a lot to be improved such as distrust in the police and anxieties over retaliatory crimes and social perception toward victims.

Decreasing corrupt behaviors such as bribery to public servants (SDG 16.5.1 / 16.5.2)

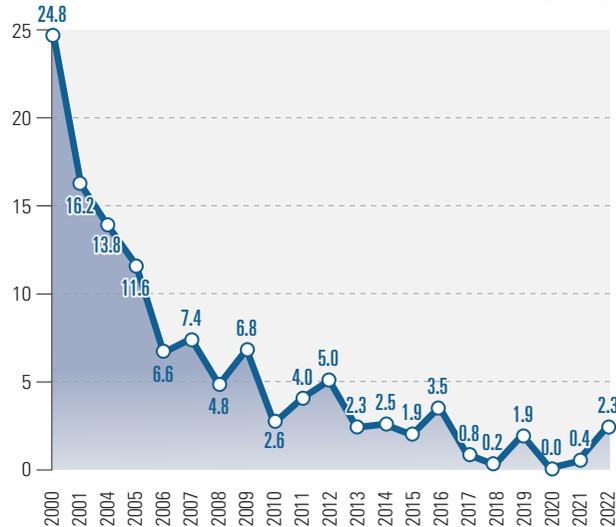
Since 2016, there has been a clear decline in corrupt behaviors of public servants in Korea. The rate of the general public experiencing corruption remained at 1.6% to 1.8% from 2014 to 2016, followed by a clear reduction to 0.4% range since 2019. It was the year 2016 when a noticeable decline started with the enforcement of the Improper Solicitation and Graft Act that prohibits public servants from engaging in any unlawful solicitation and bribery. Given the rate of the people experiencing corruption by organization type, the corruption rate of metropolitan and local governments

remained higher than that of the national government. This shows that efforts of public servants at local governments to prevent corruption were less than desirable.

Even in a survey conducted on business workers, there was a steady reduction in corruption experience rate. The corruption experience rate of business workers almost reached 25% in 2000; however, it dramatically reduced to around 5% since 2010. As recently as in 2022, it was recorded at 2.3%.

Corruption Experience Rate of Business Workers, 2000~2022

(Unit: %)

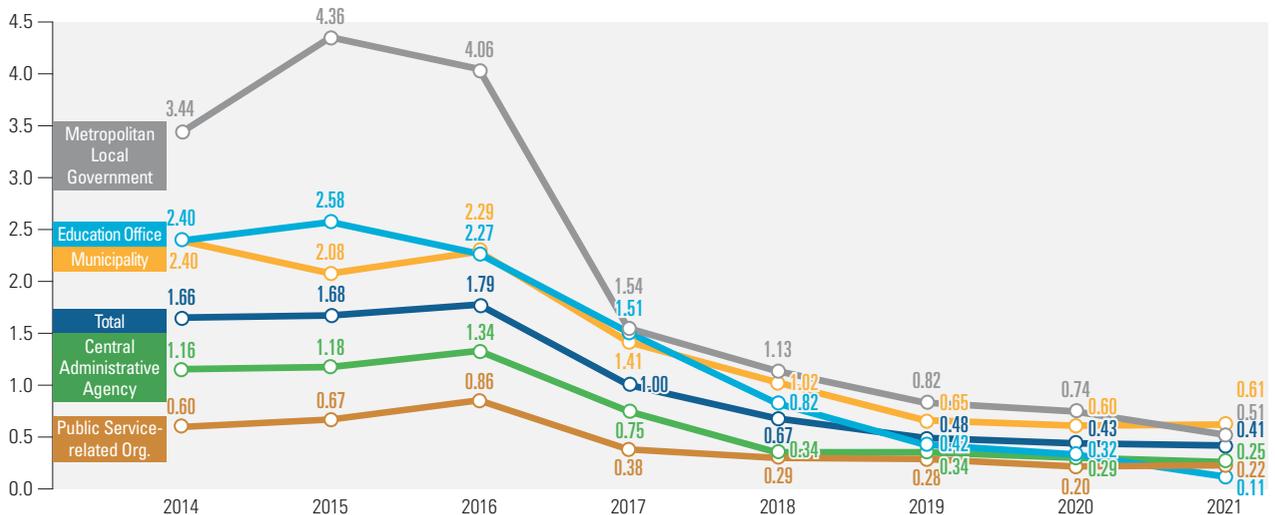


Source: Korea Institute of Public Administration, Survey on the Level of Public Sector Corruption (Korea SDG Data Platform, <https://kostat.go.kr/sdg> retrieved on Sep 07, 2022)

Note : It refers to the rate of workers providing money, entertainment and convenience to public servant over the past year. The survey was not conducted in 2002 and 2023.

Corruption Experience Rate of General Public, 2014~2021

(Unit: %)



Source: Anti-corruption and Civil Rights Commission, Results of Integrity Assessment for Public Institutions in 2021, p.15

Note : It refers to the rate of the people being asked or providing money, entertainment and convenience by/to public servants over the past year. The figures were the ratio of himself/herself providing bribery until 2017 while they were the ratio of herself/himself or colleagues being asked or providing bribery starting from 2018.



17 PARTNERSHIPS FOR THE GOALS



South Korean seven-piece boy band BTS speaks on behalf of the world's youth at the opening of the Sustainable Development Goals High-Level Meeting (SDG Moment), a special event of the 76th United Nations General Assembly in 2021

Strengthening the means of implementation and revitalizing the global partnership for sustainable development

SDG Goal 17 emphasizes the role of the international community to “strengthen the means of implementing the SDGs, vitalize global partnerships, and promote the participation of various development actors.”

Although economic difficulties continue as social and economic activities have been contracted due to the spread of COVID-19 and the global economic growth rate has declined significantly, the scale of international official development assistance (ODA) has increased to USD 167.9 billion in 2021 (based on net disbursement). In response to COVID-19, Korea also increased support for the health and medical sector, such as vaccines, quarantine supplies, and emergency loans, to developing countries, significantly increasing ODA in 2021 to USD 2.84 billion. In the same year, the ratio of ODA to Gross National Income (GNI) also recorded 0.16%, an increase of 0.02%p from the previous year.

As socio-economic vulnerability deepens due to the COVID-19 pandemic, the demand for cooperation to strengthen the foundation for growth and economic and social resilience of developing countries is continuously expanding. In particular, Least Developed Countries (LDCs), which are highly dependent on external sources due to low incomes and domestic savings, and ineffective mobilization of domestic financial resources, experienced a sharp decline in foreign direct investment (FDI) and overseas remittances as a result of COVID-19. It is necessary to provide active support for least developed countries through ODA and trade and investment expansion.

However, amid intensifying strategic competition between the US and China, international policy coordination and the foundation for cooperation to respond to global challenges such as climate change are gradually weakening. In response to the reorganization of the global economic system in the post-COVID-19 era, it is necessary to continuously expand the policy base so as to strengthen Korea’s international status and role and to lead international cooperation and solidarity. To this end, mid to long-term cooperation plans need to be established to support the SDG implementation capabilities of developing countries and ensure policy consistency between ODA and non-ODA policies in critical areas of cooperation such as trade, investment, and technology transfer.

Korea’s ODA/GNI percentage increased to 0.16%

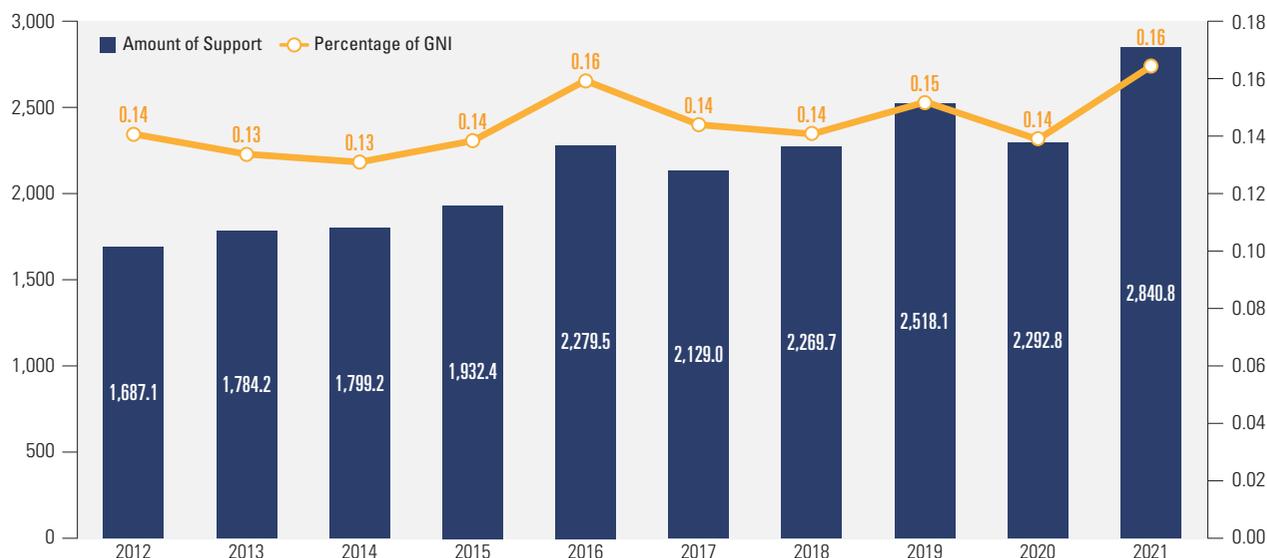
(SDG 17.2.1)

Korea’s ODA reached USD 2.84 billion (preliminary) in 2021, up 23.9% from the previous year. It is the largest increase in ODA since joining the OECD Development Assistance

Committee (DAC) and it is partly due to the resumption of bilateral cooperation projects, which were contracted in 2020 due to the spread of COVID-19. The significant increase in multilateral cooperation projects, such as investment and contributions to the World Bank and the United Nations, can

Korea’s ODA and Percentage of GNI, 2012~2021

(Units: USD 1 million, %)



Source: OECD.Stat (<https://stats.oecd.org/>, retrieved on Aug 29, 2022)

Note : Based on net disbursement. The tentative figure was used for the year 2021.



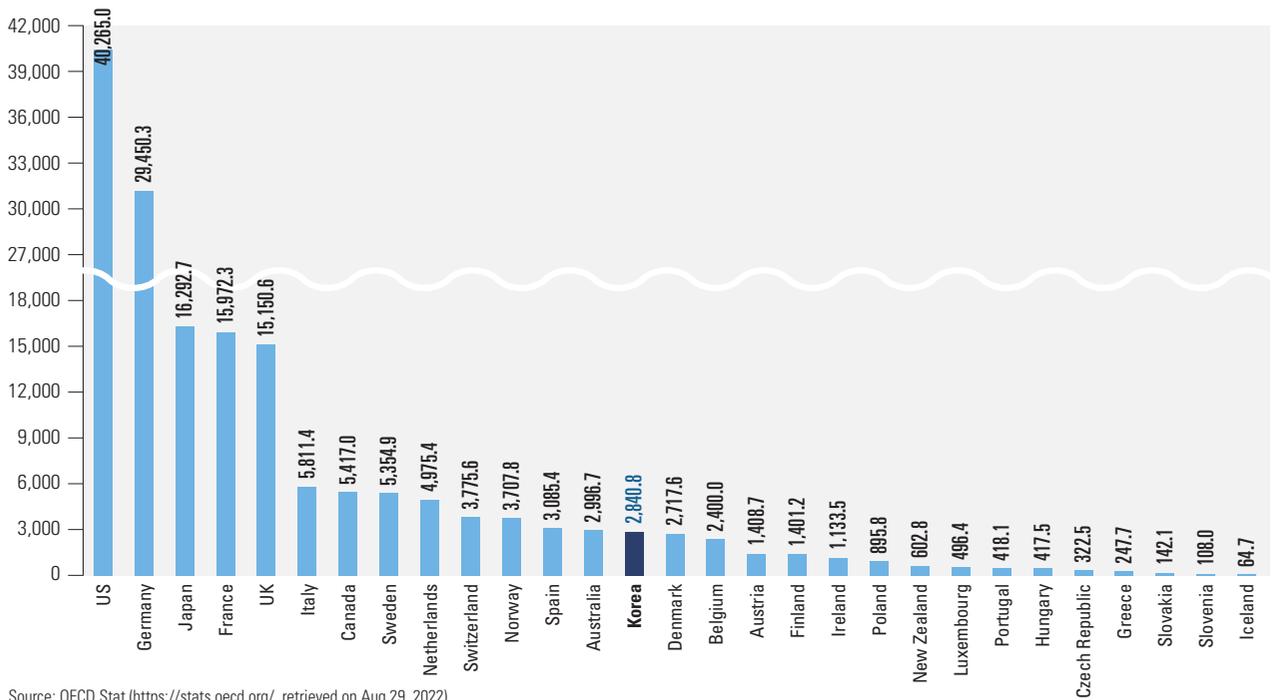
be cited as another reason. Accordingly, the ODA/GNI ratio, which represents the amount of aid relative to the size of the economy, also recorded 0.16% in 2021, up 0.02%p from the previous year. The increase in Korea's ODA support even in the face of increasing economic difficulties due to COVID-19 reflects the Korean government's strong policy and will to con-

tribute to global mutual prosperity and the achievement of the SDGs. (Ministry of Foreign Affairs, 2022).

However, Korea's ODA rate (0.16%) is only half of the average of OECD DAC member countries (0.32%), and thus the size of ODA needs to be further expanded. The 3rd Strategic Plan for International Development Cooperation (2021-2025)

ODA by OECD DAC Member States, 2021

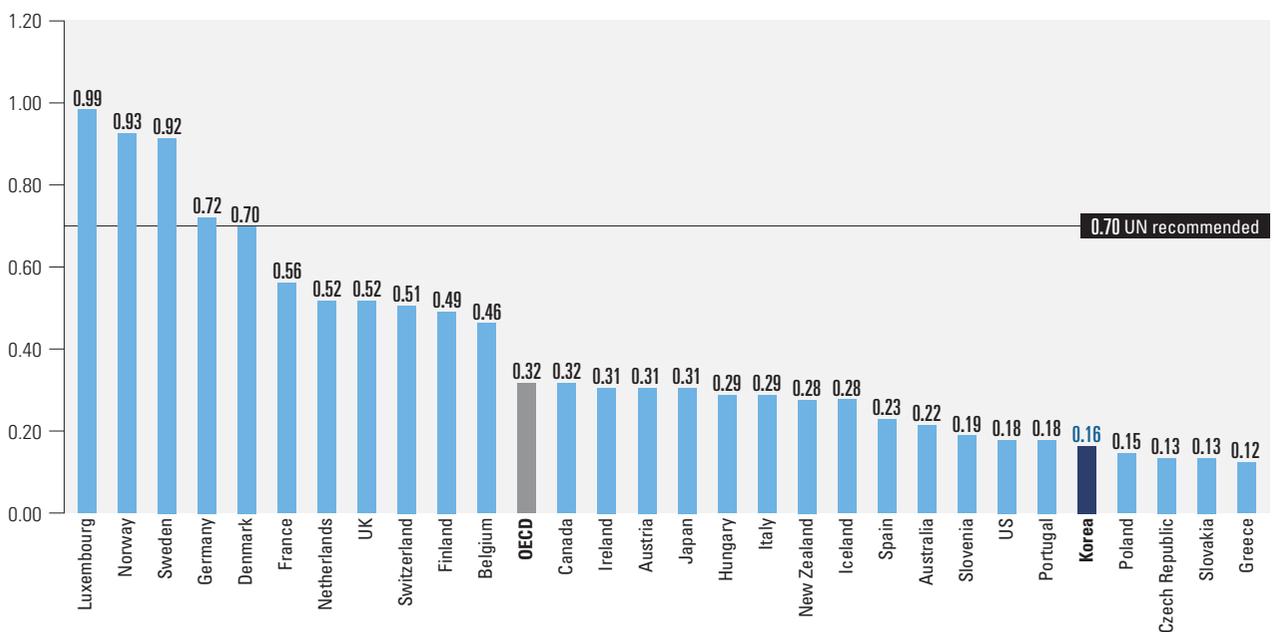
(Unit: USD 1 million)



Source: OECD.Stat (<https://stats.oecd.org/>, retrieved on Aug 29, 2022)
 Note : Based on net disbursement. The tentative figure was used for the year 2021.

ODA/GNI Percentage by OECD DAC Member States, 2021

(Unit: %)



Source: OECD.Stat (<https://stats.oecd.org/>, retrieved on Aug 29, 2022)
 Note : Based on net disbursement. The tentative figure was used for the year 2021.

adopted by ODA Korea in 2021 specifies that the volume of ODA will be expanded by more than double compared to 2019 by 2030, thereby increasing the quantitative size of ODA for the implementation of the SDGs. (Yul Kwon et al., 2021).

According to tentative ODA statistics (net disbursement basis) of OECD countries, ODA from DAC member countries reached USD 167.9 billion in 2021, up 3.8% from the previous year, while that from non-DAC member countries was only USD 11 billion in the same year. The largest donors of ODA are the United States (USD 40.3 billion), Germany (USD 29.5 billion), Japan (USD 16.3 billion), France (USD 16 billion), and the United Kingdom (USD 15.2 billion). Korea's ODA ranks 14th out of 29 OECD DAC member countries, up two notches from 16th in 2020.

The ODA/GNI rate of OECD countries recorded an average of 0.32% in 2021. Luxembourg (0.99%), Norway (0.93%), Sweden (0.92%), Germany (0.72%), and Denmark (0.70%) are only five countries that recorded above the UN recommendation of 0.7%. Korea has continuously increased its ODA since joining the OECD DAC, but its ODA/GNI

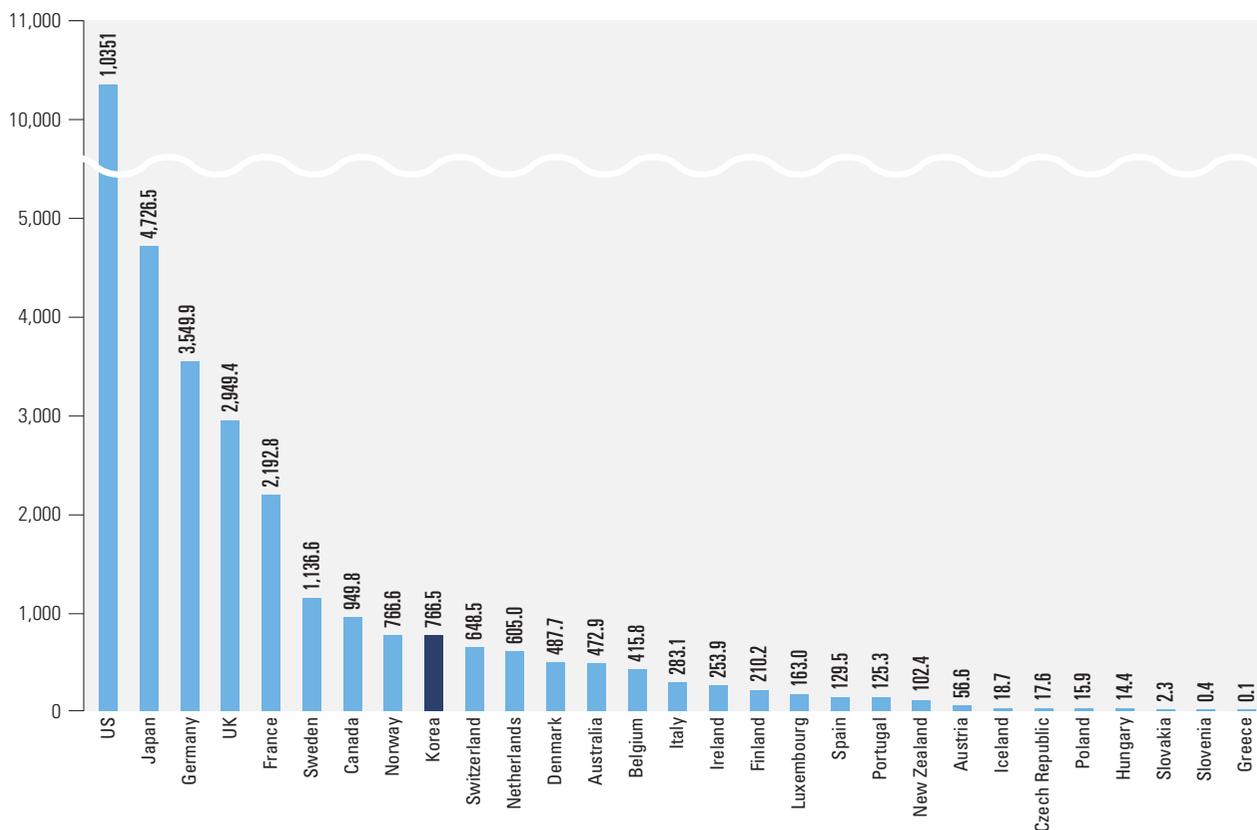
rate is only 0.16%, ranking 25th among DAC member countries. The Korean government has made active policy efforts to improve the qualitative aspects along with the quantitative expansion. As a result, the rate of untied ODA, which removes restrictions to open competition for aid-funded procurement, improved significantly from 62.7% in 2019 to 80.0% in 2020. Also, the overall ODA GE (grant element) increased from 86.5% to 90.5%, focusing on achieving the OECD DAC recommended level. (OECD, 2022).

Bilateral aid to Least Developed Countries rises to 39.8% (SDG 17.2.1)

Korea's bilateral aid decreased by 6.9% year-on-year to USD 1.92 billion in total disbursement in 2020. This is because the spread of COVID-19 made it difficult to promote aid projects. The United Nations recommends that ODA size be expanded in order to secure development finance for developing countries and that the proportion of support for least developed countries with high demand for development finance be increased to 0.15-0.2% of GNI. Korea's share of

ODA to Least Developed Countries by OECD DAC Member States, 2020

(Unit: USD 1 million)



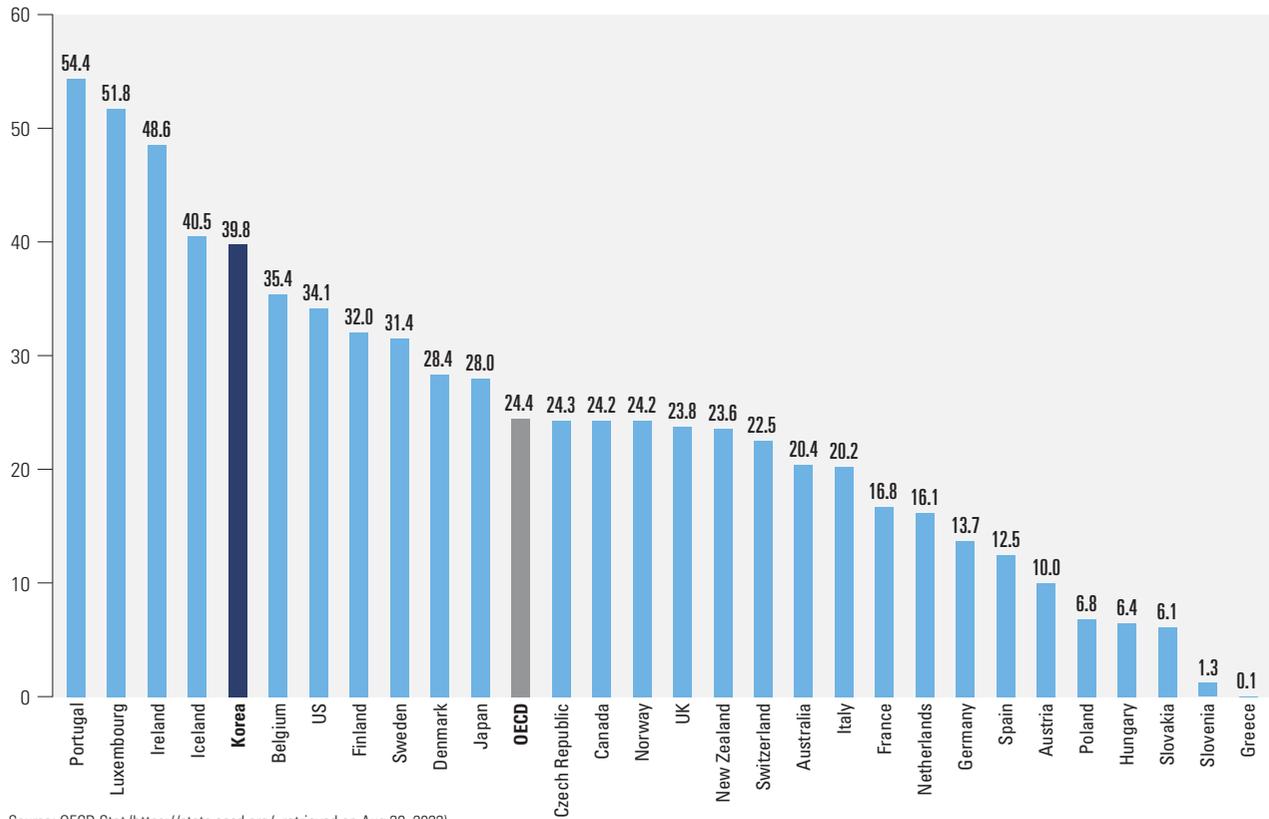
Source: OECD.Stat (<https://stats.oecd.org/>, retrieved on Aug 29, 2022)

Note : Based on net disbursement.



Least Developed Countries ODA Support Rate by OECD DAC Member States, 2020

(Unit: %)



Source: OECD.Stat (<https://stats.oecd.org/>, retrieved on Aug 29, 2022)
Note : Based on net disbursement.

aid to least developed countries against GNI was 0.05% in 2020, but it is relatively large compared to other DAC member countries, and the rate to least developed countries in bilateral ODA is also high.

As of 2020, Korea's ODA for least developed countries is USD 766.5 million. This ranks 9th out of 29 DAC member states. As the ODA budget has continued to increase, the size of aid to the least developed countries has also increased significantly. Aid to the least developed countries, which amounted to just USD 370.4 million in 2011, exceeded USD 600 million in 2015. From 2011 to 2020, the total amount of ODA provided to least developed countries reached USD 5.84 billion.

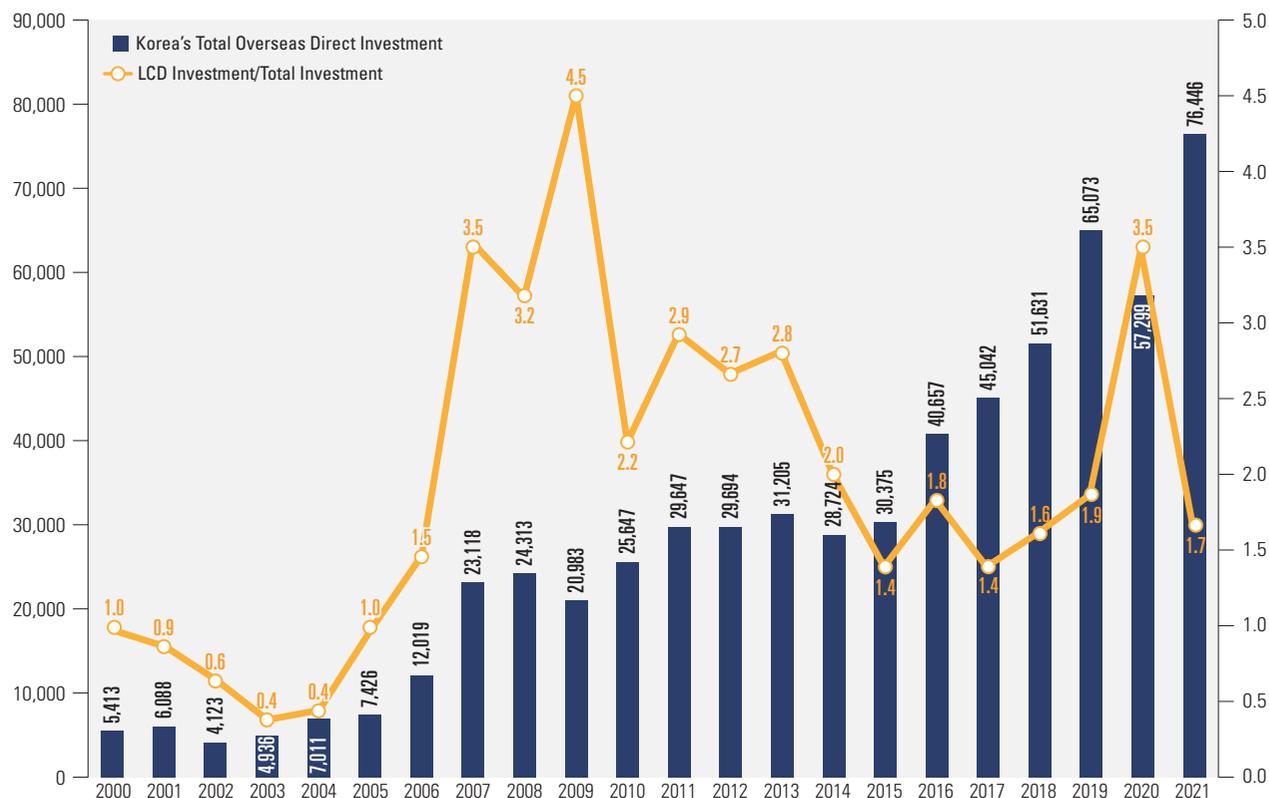
In 2020, the total amount of ODA decreased due to COVID-19, but the share of aid to least developed countries in bilateral aid increased by 1.7%p from the previous year to 39.8%. As of 2020, Portugal (54.4%), Luxembourg (51.8%), and Ireland (48.6%) accounted for the highest share of bilateral ODA to least developed countries in the OECD. Korea has the fifth highest share of aid to least developed countries at 39.8%. The size of ODA for least developed countries

has been greatly expanded, and humanitarian aid worth 18 million dollars has been provided to 42 least developed countries in support of the COVID-19 response. (Ministry of Foreign Affairs, 2021). In order to select priority areas of support through consultation with the government of the recipient country and to create employment through quality and productive jobs, development finance linked with private sources should be expanded. In particular, through support for the health system, resilience to recover from a crisis can be strengthened, and concessional financial resources that can play important roles to produce pharmaceuticals and establish health infrastructure should be further expanded.

Least developed countries have low levels of income and domestic savings and have difficulty mobilizing effective domestic resources, and thus they are highly dependent on external sources. Making matters worse, domestic and foreign economic contraction caused by COVID-19, the slowdown in foreign direct investment, the sharp decline in overseas remittances, and the deterioration of debt status came one after another, which made a bilateral aid very critical. With weak quarantine systems such as poor health capacity and water

Foreign Direct Investment and Share in Least Developed Countries, 2000~2021

(Unit: USD 1 million, %)



Source: Korea Eximbank, Overseas Investment Statistics (<https://stats.koreaexim.go.kr>, retrieved on Aug 29, 2022)

and sewage facilities, the governments of the least developed countries are only providing limited financial and food support, guaranteed loan, and tax cuts. Therefore, it is urgent to expand ODA for sustainable development.

Declining investment in Least Developed Countries (SDG 17.3.1 / 17.5.1)

To implement the SDGs, various financial resources must be secured. In order to secure financial resources for developing countries, it is important to mobilize additional financial resources such as foreign direct investment (FDI), portfolio investment, remittance, and private borrowing. Korea's overseas direct investment (ODI) has continued to increase as global value chains and production networks expanded. Korea's overseas direct investment in developing countries, which was only USD 30.38 billion in 2015, has greatly expanded to USD 76.45 billion in 2021. Due to border closures and reduced trade resulting from the spread of COVID-19, Korea's overseas direct investment significantly shrank to USD 57.3 billion in 2020 but it has recently bounced again.

Among the financial resources required to implement the

SDGs, private investment is mostly made in middle-income countries, and therefore, it is important to adopt and implement an investment promotion plan for least developed countries. Investment and innovation by private companies in low income countries are recognized as a major driving force for achieving the SDGs in terms of productivity improvement, inclusive economic growth, and job creation. Korea's foreign direct investment in the least developed countries reached about USD 2 billion in 2020, and its share in total investment increased significantly to 3.5%. After the spread of COVID-19, however, it decreased significantly to USD 1.28 billion in 2021. Efforts to promote private investment in the least developed countries are required.

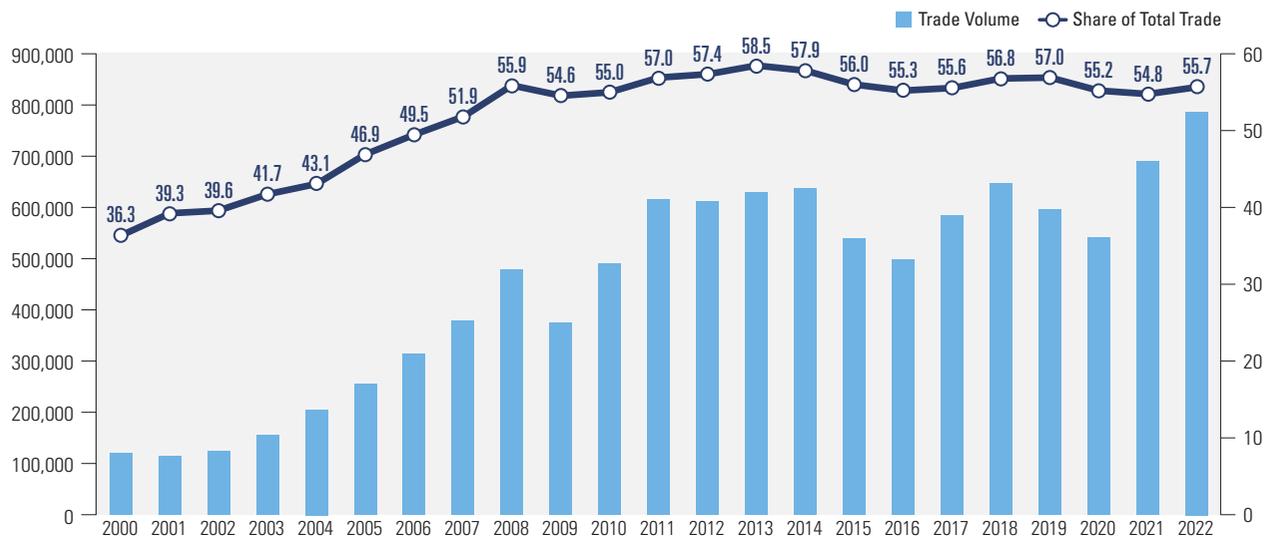
Increasing trade volume with Least Developed Countries (SDG 17.11.1)

Korea's trade with developing countries amounted to USD 787.6 billion in 2022, accounting for 55.7% of total trade. On the other hand, the amount of trade with the least developed countries was only USD14.8 billion, and its share in total trade was only 1.0%. Since 2000, Korea has been granting



Korea's Trade Volume with Developing Countries, 2000~2022

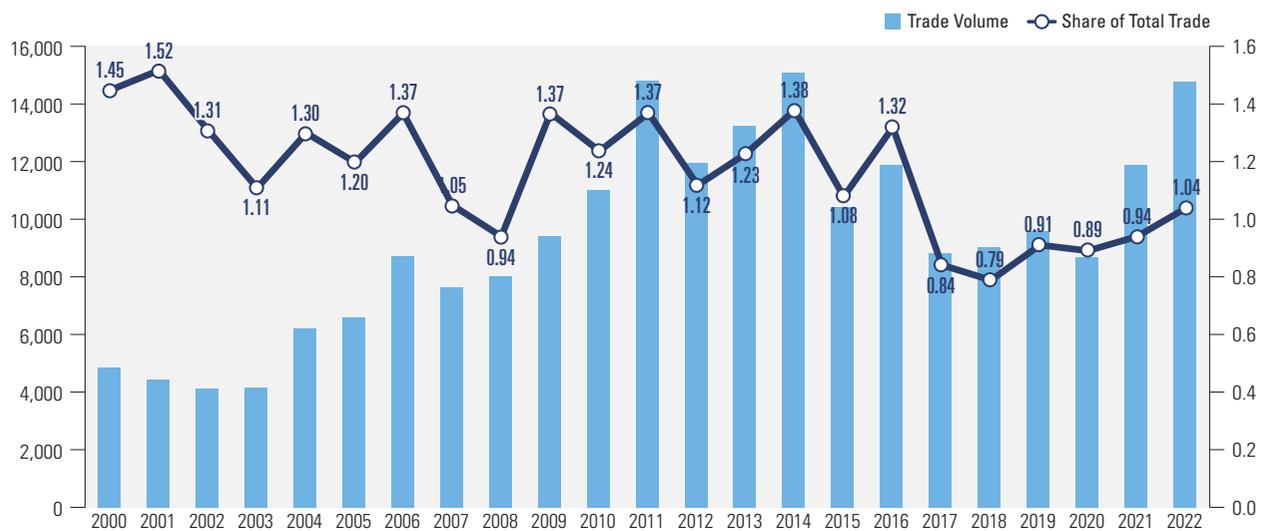
(Unit: USD 1million, %)



Source: Korea International Trade Association, KITA.NET (<https://stat.kita.net/stat/kts>, retrieved on Jan 30, 2023)

Korea's Trade Volume with Least Developed Countries, 2000~2022

(Unit: USD 1million, %)



Source: Korea International Trade Association, KITA.NET (<https://stat.kita.net/stat/kts>, retrieved on Jan 30, 2023)

preferential tariffs to the least developed countries. Until the early 2000s, the items subject to preferential tariffs were limited, and trade with the least developed countries amounted to only USD 4.15 billion in 2003. At the beginning of the implementation of the preferential tariff for the least developed countries, it was not effective since applied only to 1.8% of the total trade goods. However, at the WTO Hong Kong Ministerial Conference in 2005, with the agreement on DFQF (Duty-free Quota-free) provisions for the least developed countries, the beneficiary items gradually expanded, reaching 95% of the total trade items in 2012, and the amount of trade gradually increased accordingly. In 2014, trade with the least

developed countries reached USD 15.1 billion.

The SDG 17.11.1 target is to double the share of least developed countries in world exports and to increase that of developing countries significantly. However, with the spread of COVID-19, global supply chains became unstable and trade volume plummeted due to border closures, taking a huge hit on exports from developing and least developed countries. Looking at the trend of trade with the least developed countries, as the COVID-19 spread, the volume of trade with least developed countries in 2020 decreased to USD 8.69 billion. However, in the case of 2022, as the border closure was eased and the trade base was expanded,

the trade volume of the least developed countries increased to USD 14.77 billion, and Asia and Africa, in particular, showed great recovery.

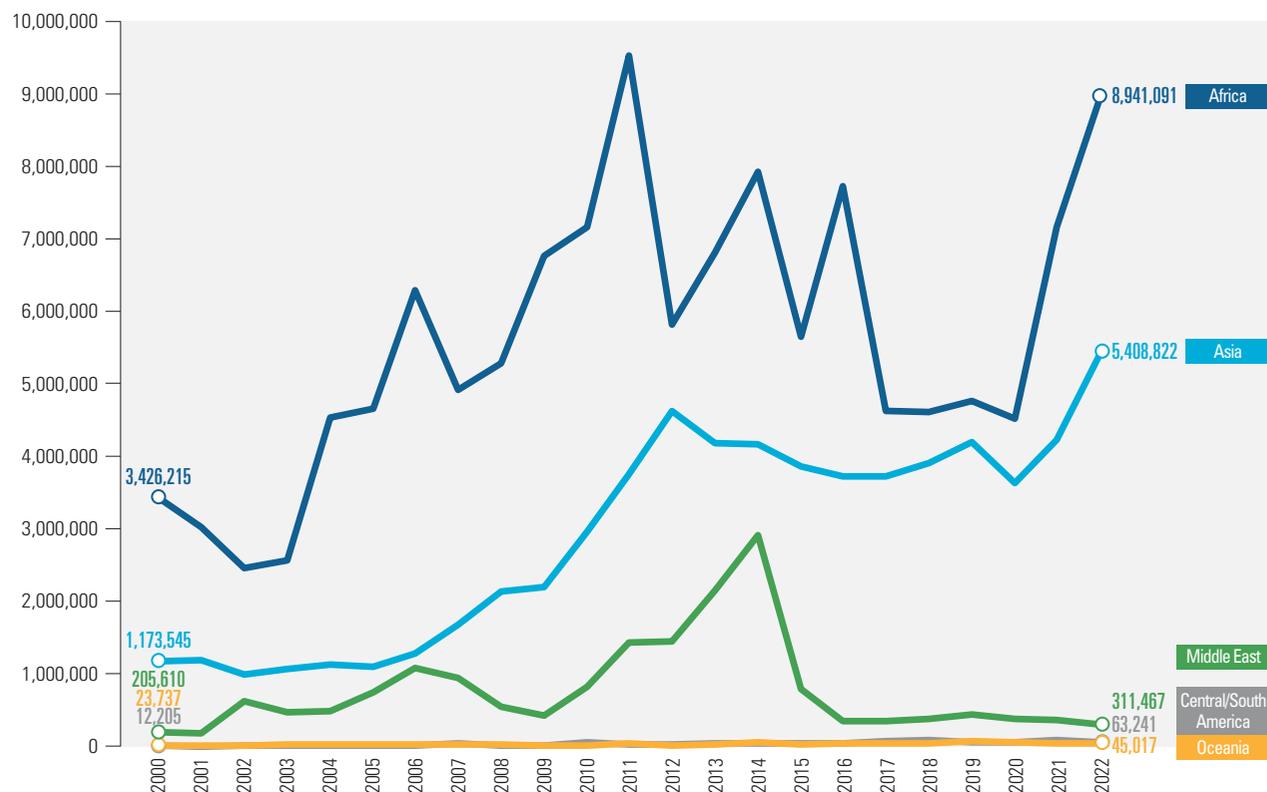
In SDG Goal 17, trade is presented as a major means of implementing SDGs and vitalizing global partnerships. It focuses on the implementation of the agreement of the Doha Development Agenda and the revitalization of the multilateral trade system under the WTO structure. (Yul Kwon et al., 2016). The trade-related targets are presented as detailed items on strengthening the WTO multilateral trade system (SDG 17.10), expanding trade with developing countries (SDG 17.11), and improving market access for least developed countries (SDG 17.12). The international community has focused on supporting the promotion of a non-discriminatory and fair multilateral trade system for global free trade under the WTO structure, including the negotiations on the Doha Development Agenda, and on strengthening

the export base of developing countries, including the least developed countries. This is because free and fair trade is a means to expand market access for developing countries and to broaden the basis for sustainable growth through job creation and improvement of technological productivity.

SDG 17.10.1 sets the worldwide weighted tariff-average as a measurement indicator, and major international organizations such as UNCTAD and WTO provide related statistics. However, domestically available data and statistics are absent and thus it is necessary to develop a new survey system. The DFQF (Duty-free Quota-free) for least developed countries are typical market access measure, but in practice, various trade restrictions acts can incapacitate such measures. It is necessary to develop a generalized method to measure preferential tariffs for the least developed countries and trade barriers to small island states. Among existing domestic data, available statistics are still insufficient.

Trade Volume with Least Developed Countries by Region, 2000~2022

(Unit: USD 1,000)



Source: Korea International Trade Association, KITA.NET (<https://stat.kita.net/stat/kts>, retrieved on Jan 30, 2023)

Definition

- **ODA** : ODA is publicly traded and concessional financing that is intended to promote the economic and social development of developing countries
- **Untied ODA** : Untied aid is a method in which the source of imported goods and services procured by the recipient country is not restricted to the donor or a few specific countries.



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Abbreviations

CBD	Convention on Biological Diversity
DAD-IS	Domestic Animal Diversity Information System
EEZ	Exclusive Economic Zone
ESD	Education for Sustainable Development
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FSC	Forest Stewardship Council
FTE	Full Time Equivalent
GBO	Global Biodiversity Outlook
GCED	Global Citizenship Education
GJ	GigaJoule (Unit of energy, 1 GJ=1 billion J)
GNI	Gross National Income
HIV	Human Immunodeficiency Virus
IEA	International Association for the Evaluation of Educational Achievement
IGCC	Integrated Gasification Combined Cycle
IHR	International Health Regulation
IMF	International Monetary Fund
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated
KFCC	Korea Forest Certification Council
LDC	Least Developed Country
NDC	Nationally Determined Contribution
ODA	Official Development Assistance
ODI	Overseas Direct Investment
OECD	Organization for Economic Cooperation and Development
OECD DAC	OECD Development Assistance Committee
PEFC	Programme for the Endorsement of Forest Certification
PISA	Programme for International Student Assessment
RFMO	Regional Fisheries Management Organization
SEEA	the System for integrated Environmental and Economic Accounting
TAC	Total Allowable Catch
TIMSS	Trends in International Mathematics and Science Study
TOE	Ton of Oil Equivalent
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Education Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization



Global Indicator Framework for the SDG

From 2023, core indicators and rotation indicators for each goal have been selected for systematic and comprehensive monitoring. Core indicators will be used annually, and rotation indicators will be used for monitoring every 3-5 years.

* Indicators utilized for monitoring since 2019 was shown

Goal 1 End poverty in all its forms everywhere

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	1.1.1 Proportion of the population living below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	○			
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of population living below the national poverty line, by sex and age	○		○	●
	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions				
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons with disabilities, pregnant women, newborns work-injury victims and the poor and the vulnerable	○	○	○	●
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of population living in households with access to basic services				
	1.4.2 Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation and (b) who perceive their rights to land as secure, by sex and by type of tenure				
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	1.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population		○		
	1.5.2 Direct economic loss attributed to disasters in relation to global gross domestic product(GDP)				
	1.5.3 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030				
	1.5.4 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies				
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	1.a.1 Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income				●
	1.a.2 Proportion of total government spending on essential services (education, health and social protection)				
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Pro-poor public social spending				●

Goal 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	2.1.1 Prevalence of undernourishment	○	○	○	●
	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)		○	○	
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	2.2.1 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons				
	2.2.2 Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type(wasting and overweight)				
	2.2.3 Prevalence of anaemia in women aged 15 to 49 years, by pregnancy status (percentage)				
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	○	○		
	2.3.2 Average income of small-scale food producers, by sex and indigenous status	○	○	○	●

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	2.4.1 Proportion of agricultural area under productive and sustainable agriculture			○	
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities				
	2.5.2 Proportion of local breeds classified as being at risk of extinction	○			●
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	2.a.1 The agriculture orientation index for government expenditures				
	2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector				
2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	2.b.1 Agricultural export subsidies				
2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	2.c.1 Indicator of food price anomalies		○		●

Goal 3 Ensure healthy lives and promote well-being for all at all ages

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	3.1.1 Maternal mortality ratio	○			
	3.1.2 Proportion of births attended by skilled health personnel				
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	3.2.1 Under-5 mortality rate	○			
	3.2.2 Neonatal mortality rate			○	
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations				●
	3.3.2 Tuberculosis incidence per 100,000 population			○	
	3.3.3 Malaria incidence per 1,000 population				
	3.3.4 Hepatitis B incidence per 100,000 population				
	3.3.5 Number of people requiring interventions against neglected tropical diseases				
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	○	○		
	3.4.2 Suicide mortality rate	○		○	
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders				
	3.5.2 Alcohol per capita consumption (Aged 15 years and older) within a calendar year in litres of pure alcohol				
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	3.6.1 By 2020, halve the number of global deaths and injuries from road traffic accidents	○			
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	3.7.1 Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods				
	3.7.2 Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group				
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	3.8.1 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all		○		
	3.8.2 Proportion of population with large household expenditures on health as a share of total household expenditure or income			○	
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution				
	3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)				
	3.9.3 Mortality rate attributed to unintentional poisoning				



Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older				●
3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all	3.b.1 Proportion of the target population covered by all vaccines included in their national programme			○	
	3.b.2 Total net official development assistance to medical research and basic health sectors				
	3.b.3 Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis				
3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	3.c.1 Health worker density, by type of occupation	○	○	○	●
3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness		○	○	●
	3.d.2 Percentage of bloodstream infections due to selected antimicrobial-resistant organisms				

Goal 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	4.1.1 Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	○	○	○	●
	4.1.2 completion rate(primary education, lower secondary education, upper secondary education)				
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education	4.2.1 Proportion of children aged 24-59 months of age who are developmentally on track in health, learning and psychosocial well-being, by sex				
	4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex				●
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex	○			●
4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill			○	
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated	○	○	○	
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	4.6.1 Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex	○			
4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies, (b) curricula, (c) teacher education, and (d) student assessment				●
4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	4.a.1 Proportion of schools offering basic services, by type of service		○		
4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries	4.b.1 Volume of official development assistance flows for scholarships by sector and type of study				
4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	4.c.1 Proportion of teachers with the minimum required qualifications, by education level				

Goal 5 Achieve gender equality and empower all women and girls

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
5.1 End all forms of discrimination against all women and girls everywhere	5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex				
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	5.2.1 Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age		○	○	●
	5.2.2 Proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence				
5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	5.3.1 Proportion of women aged 20-24 years who were married or in a union before age 15 and before age 18				
	5.3.2 Proportion of girls and women aged 15-49 years who have undergone female genital mutilation/cutting, by age				
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	○	○	○	
	5.5.1 Proportion of seats held by women in (a) national parliaments and (b) local governments	○	○	○	●
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	5.5.2 Proportion of women in managerial positions	○	○	○	●
	5.6.1 Proportion of women aged 15-49 years who make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care				
5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	5.6.2 Number of countries with laws and regulations that guarantee full and equal access to women and men aged 15 years and older to sexual and reproductive health care, information and education				
	5.a.1 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure				●
5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	5.a.2 (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure				
	5.b.1 Proportion of individuals who own a mobile telephone, by sex				
5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	5.c.1 Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment				
5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels					

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Goal 6 Ensure availability and sustainable management of water and sanitation for all

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	6.1.1 Proportion of population using safely managed drinking water services	○			●
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	6.2.1 Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water				
	6.3.1 Proportion of domestic and industrial wastewater flows safely treated				
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	6.3.2 Proportion of bodies of water with good ambient water quality		○	○	
	6.4.1 Change in water-use efficiency over time				●
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources	○		○	
	6.5.1 Degree of integrated water resources management		○	○	
6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation				
	6.6.1 Change in the extent of water-related ecosystems over time	○			●
6.6 By 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan				
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management				
6.b Support and strengthen the participation of local communities in improving water and sanitation management					



Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Proportion of population with access to electricity				
	7.1.2 Proportion of population with primary reliance on clean fuels and technology				
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption				
7.3 By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and GDP	○	○	○	●
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	○	○	○	●
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	7.b.1 Installed renewable energy-generating capacity in developing countries (in Watts per capita)				

Goal 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 percent gross domestic product growth per annum in the least developed countries	8.1.1 Annual growth rate of real GDP per capita	○	○	○	●
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	8.2.1 Annual growth rate of real GDP per employed person				
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of informal employment in total employment, by sector and sex				
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	8.4.1 Material footprint, material footprint per capita, and material footprint per GDP				
	8.4.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP				●
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of employees, by sex, age, occupation and persons with disabilities		○		
	8.5.2 Unemployment rate, by sex, age and persons with disabilities	○	○	○	●
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training				
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	8.7.1 Proportion and number of children aged 5-17 years engaged in child labour, by sex and age				
	8.8.1 Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status	○	○	○	●
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	8.8.2 Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status				
	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate				
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	8.10.1 (a) Number of commercial bank branches per 100,000 adults and (b) number of automated teller machines (ATMs) per 100,000 adults				
	8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider				
8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	8.a.1 Aid for Trade commitments and disbursements				
8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization	8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy				

Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	9.1.1 Proportion of the rural population who live within 2 km of an all-season road				
	9.1.2 Passenger and freight volumes, by mode of transport		○	○	
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	9.2.1 Manufacturing value added as a proportion of GDP and per capita	○		○	
	9.2.2 Manufacturing employment as a proportion of total employment	○	○	○	●
9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets	9.3.1 Proportion of small-scale industries in total industry value added				●
	9.3.2 Proportion of small-scale industries with a loan or line of credit				●
9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	9.4.1 CO ₂ emission per unit of value added				
9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	9.5.1 Research and development expenditure as a proportion of GDP	○	○	○	●
	9.5.2 Researchers (in full-time equivalent) per million inhabitant	○	○	○	●
9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States	9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure				
9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	9.b.1 Proportion of medium and high-tech industry value added in total value added				
9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020	9.c.1 Proportion of population covered by a mobile network, by technology				

Goal 10 Reduce inequality within and among countries

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	10.1.1 Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population				
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1 Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities		○		
10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	10.3.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law			○	
10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	10.4.1 Labour share of GDP			○	●
	10.4.2 Redistributive impact of fiscal policy	○	○	○	●
10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	10.5.1 Financial Soundness Indicators				●
10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	10.6.1 Proportion of members and voting rights of developing countries in international organizations				
10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	10.7.1 Recruitment cost borne by employee as a proportion of monthly income earned in country of destination		○	○	
	10.7.2 Number of countries with migration policies that facilitate orderly, safe, regular and responsible migration and mobility of people				
	10.7.3 Number of people who died or disappeared in the process of migration towards an international destination				
	10.7.4 Proportion of the population who are refugees, by country of origin				
10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements	10.a.1 Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff				
10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes	10.b.1 Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)				
10.c By 2030, reduce to less than 3 percent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 percent	10.c.1 Remittance costs as a proportion of the amount remitted				



Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	○	○	○	●
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situation, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	○		○	●
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate				
	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically				●
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total per capita expenditure on the preservation protection and conservation of all cultural and natural heritage, by source of funding(public and private), type of heritage (cultural, natural), level of government (national, regional and local/municipal)				
	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population				
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.2 Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters				
	11.6.1 Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities	○	○	○	
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)	○	○		
	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities		○	○	●
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months				
	11.a.1 Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics, (b) ensure balanced territorial development, (c) increase local fiscal space				
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics, (b) ensure balanced territorial development, (c) increase local fiscal space				
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	11.b.1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030				
	11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies				

Goal 12 Ensure sustainable consumption and production patterns

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production				
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP				
	12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP				
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 a) Food loss index and b) Food waste index	○			
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	12.4.1 Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement				
	12.4.2 (a) Hazardous waste generated per capita and (b) proportion of hazardous waste treated, by type of treatment	○		○	●
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled	○	○	○	●
12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	12.6.1 Number of companies publishing sustainability reports		○		
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Degree of sustainable public procurement policies and action plans implementation				
12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies, (b) curricula, (c) teacher education, and (d) student assessment				

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	12.a.1 Installed renewable energy generating capacity in developing countries (in Watts per capita)				
12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	12.b.1 Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability				
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption)				

Goal 13 Take urgent action to combat climate change and its impacts

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population			○	●
	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030				
	13.1.3 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies				
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries with nationally determined contributions, long-term strategies, national adaptation plans, strategies as reported in adaptation communications and national communications				
	13.2.2 Total greenhouse gas emissions per year	○	○	○	●
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies, (b) curricula, (c) teacher education, and (d) student assessment				
13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	13.a.1 Amount provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the \$100 billion commitment through to 2025				
13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans, strategies as reported in adaptation communications and national communications				

Goal 14 Conserve and sustainable use the oceans, seas, and marine resources for sustainable development

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution	14.1.1 (a) Index of coastal eutrophication; and (b) floating plastic debris density	○	○	○	●
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Number of countries using ecosystem-based approaches to managing marine areas				●
14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels	14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations				
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels		○	○	●
14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information	14.5.1 Coverage of protected areas in relation to marine areas	○		○	



Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing				●
14.7 By 2030, increase the economic benefits to Small Island Developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism	14.7.1 Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries				
14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries	14.a.1 Proportion of total research budget allocated to research in the field of marine technology				●
14.b Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Degree of application of a legal/regulatory/policy/institutional frame work which recognizes and protects access rights for small-scale fisheries				
14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources				

Goal 15 **Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area	○		○	●
	15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type		○	○	●
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management		○	○	●
15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Proportion of land that is degraded over total land area				
15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.1 Coverage by protected areas of important sites for mountain biodiversity				
	15.4.2 Mountain Green Cover Index			○	
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red list Index	○		○	●
15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits				
15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products	15.7.1 Proportion of traded wildlife that was poached or illicitly trafficked				
15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species				
15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting				
15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	15.a.1 (a) Official development assistance on conservation and sustainable use of biodiversity (b) revenue generated and finance mobilised from biodiversity-relevant economic instruments				
15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	15.b.1 (a) Official development assistance on conservation and sustainable use of biodiversity (b) revenue generated and finance mobilised from biodiversity-relevant economic instruments				
15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities	15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked				

Goal 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
16.1 Significantly reduce all forms of violence and related death rates everywhere	16.1.1 Number of victims of intentional homicide per 100,000 population, by sex and age	○		○	●
	16.1.2 Conflict-related deaths per 100,000 population, by sex, age and cause				
	16.1.3 Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months				●
	16.1.4 Proportion of population that feel safe walking alone around the area they live	○		○	
16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children	16.2.1 Proportion of children aged 1-17 years who experienced any physical punishment and/or psychological aggression by caregivers in the past month		○		
	16.2.2 Number of victims of human trafficking per 100,000 population, by sex, age and form of exploitation				
	16.2.3 Proportion of young women and men aged 18-29 years who experienced sexual violence by age 18				
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all	16.3.1 Proportion of victims of violence in the previous 12 months who reported their victimization to competent authorities or other officially recognized conflict resolution mechanisms				●
	16.3.2 Unsensitized detainees as a proportion of overall prison population	○			
	16.3.3 Proportion of the population who have experienced a dispute in the past two years and who accessed a formal or informal dispute resolution mechanism, by type of mechanism				
16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	16.4.1 Total value of inward and outward illicit financial flows (in current United States dollars)				
	16.4.2 Proportion of seized, found or surrendered arms, whose illicit origin or context has been traced or established by a competent authority in line with international instruments				
16.5 Substantially reduce corruption and bribery in all their forms	16.5.1 Proportion of persons who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months				●
	16.5.2 Proportion of businesses that had at least one contact with a public official and that paid a bribe to a public official, or were asked for a bribe by those public officials during the previous 12 months				●
16.6 Develop effective, accountable and transparent institutions at all levels	16.6.1 Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)				
	16.6.2 Proportion of population satisfied with their last experience of public services			○	
16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	16.7.1 Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups				
	16.7.2 Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group			○	
16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance	16.8.1 Proportion of members and voting rights of developing countries in international organizations				
16.9 By 2030, provide legal identity for all, including birth registration	16.9.1 Proportion of children under 5 years of age whose births have been registered with a civil authority, by age				
16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	16.10.1 Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and humanrights advocates in the previous 12 months				
	16.10.2 Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information				
16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	16.a.1 Existence of independent national human rights institutions in compliance with the Paris Principles				
16.b Promote and enforce non-discriminatory laws and policies for sustainable development	16.b.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law				



Goal 17 Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection	17.1.1 Total government revenue as a proportion of GDP, by source				
	17.1.2 Proportion of domestic budget funded by domestic taxes				
17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries	17.2.1 Net official development assistance, 1) total and 2) to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)	○	○	○	●
	17.2.2 Net official development assistance, 1) total and 2) to least developed countries, as a proportion of the Organization for Economic Cooperation and Development (OECD) Development Assistance Committee donors' gross national income (GNI)				
17.3 Mobilize additional financial resources for developing countries from multiple sources	17.3.1 Foreign direct investments (FDI), official development assistance and South-South Cooperation as a proportion of gross national income (GNI)				●
	17.3.2 Volume of remittances (in United States dollars) as a proportion of total GDP				
17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress	17.4.1 Debt service as a proportion of exports of goods and services				
	17.4.2 Debt service as a proportion of exports of goods and services				
17.5 Adopt and implement investment promotion regimes for least developed countries	17.5.1 Number of countries that adopt and implement investment promotion regimes for developing countries, including LDCs				●
17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism	17.6.1 Fixed Internet broadband subscriptions per 100 inhabitants, by speed				
	17.6.2 Fixed Internet broadband subscriptions per 100 inhabitants, by speed				
17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed	17.7.1 Total amount of funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies				
17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology	17.8.1 Proportion of individuals using the Internet				
17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation	17.9.1 Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries				
17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda	17.10.1 Worldwide weighted tariff-average				
17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020	17.11.1 Developing countries' and least developed countries' share of global exports			○	●
17.12 Average tariffs faced by developing countries, least developed countries and small island developing States	17.12.1 Weighted average tariffs faced by developing countries, least developed countries and small island developing States				
17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence	17.13.1 Macroeconomic Dashboard				
17.14 Enhance policy coherence for sustainable development	17.14.1 Number of countries with mechanisms in place to enhance policy coherence of sustainable development				
17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development	17.15.1 Extent of use of country-owned results frameworks and planning tools by providers of development cooperation		○		
17.16 Enhance the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the Sustainable Development Goals in all countries, in particular developing countries	17.16.1 Number of countries reporting progress in multi-stakeholder development effectiveness monitoring frameworks that support the achievement of the sustainable development goals				
17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships	17.17.1 Amount of United States dollars committed to public-private partnerships for infrastructure				

Target	Indicator	Monitoring Indicator by Year			
		2019	2021	2022	2023
17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts	17.18.1 Statistical capacity indicator for SDG monitoring				
	17.18.2 Number of countries that have national statistical legislation that complies with the Fundamental Principles of Official Statistics				
	17.18.3 Number of countries with a national statistical plan that is fully funded and under implementation, by source of funding				
17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries	17.19.1 Dollar value of all resources made available to strengthen statistical capacity in developing countries				
	17.19.2 Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years; and (b) have achieved 100 per cent birth registration and 80 per cent death registration				

Data figures for each year are available on the site below



Statistics Korea's Online Indicators Portal
 (<https://www.index.go.kr/sdgs>)

or



Korea SDG Data Platform
 (<https://kostat.go.kr/sdg/en>)



SDGs Timeline at a glance

2015

- 1 Adoption of the SDG by the UN
- 2 Establishment of the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs)

1 In September 2015, The UN General Assembly unanimously adopted a resolution titled 'Transforming Our World: the 2030 Agenda for Sustainable Development' by 193 member states. The SDGs are at the heart of this resolution. The SDG, covering all the economic, social, and environmental dimensions of sustainable development, are a set of 17 policy objectives that the international community has agreed to achieve in common by 2030. The inclusiveness principle of 'Leaving No One Behind' is an overarching principle for achieving the SDG, and the High Level Policy Forum (HLPF) has been monitoring their implementation annually.



2015 United Nations General Assembly

2 The monitoring of the SDG implementation is based on the global indicator framework, which has been developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs). The group consists of 27 national statistical organizations from around the world, each representing their own region. The IAEG-SDGs was created in March 2015 with the goal of developing and improving the global indicator framework, supporting the SDG implementation, and strengthening national statistics capacities, among other things.

2016-2017

- 3 Revision of the Global SDG Indicators Framework and the UN Approval
- 4 Voluntary National Review (VNR) Published by Korea
- 5 Hosted the UN Coordinated SDG Forum

3 An initial indicator framework was developed in March 2016, the first year of SDG implementation, and was refined and modified before the 48th session of the UN Statistical Commission agreed on 232 indicators in March 2017. The revised indicator framework was completed later this year as the UN General Assembly adopted it in July. The criteria for selecting SDG indicators were methodological clarity, measurability, ease of interpretation, international comparability, and outcome-focus, and the indicator selection process was transparent, open, and involved a diverse group of stakeholders.



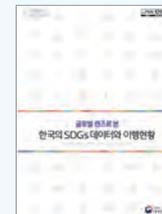
4 In 2016, Korea presented its Voluntary National Review at the first HLPF meeting following the adoption of the SDG. The VNR is a report on national SDG implementation systems, and each nation will have two to three chances to present their VNRs by 2030. Korea's VNR in 2016 highlighted its legal and institutional foundations for implementing the SDG, as well as associated plans and tools for doing so.

5 Statistics Korea, in collaboration with the Northeast Asia Regional Office of the United Nations Economic and Social Commission for Asia and the Pacific, organized a forum on the implementation of the SDG in May 2017. The forum discussed building big data infrastructure, data management and analysis, and measuring SDG indicators using new data sources.

2018-2019

- 6 Adoption of the K-SDGs
- 7 「SDGs Base Line Report」 Published by Statistics Korea

6 The Korean SDGs (K-SDGs) were adopted by the Korean Sustainable Development Committee under five pillars: shaping an inclusive society that allows everyone to live a decent life as a human being, preserving the environment clean for current and future generations to enjoy, developing an economy that will improve the quality of life, protecting human rights and establishing peaceful relations between South and North Korea, and developing global cooperation. The K-SDGs are made up of 17 goals, 119 targets, and 236 indicators that were developed through extensive consultations with government departments, local governments, civil organizations, experts, stakeholders, and other entities.



7 In order to contribute to achieving the SDG at the global level, Statistics Korea has been monitoring the progress of SDG implementation in Korea. In 2019, Statistics Korea published a base line, SDG in the Republic of Korea: Progress Report.

2020

- 8 「Information Guide for the SDGs Indicators」 Published by Statistics Korea
- 9 Comprehensive Revision of the SDG Indicators / Engagement in the IAEG-SDGs to represent the East Asian Region (2020-21)



8 Statistics Korea was published as a metadata information guide for SDG indicators, with the objective to increase understanding among domestic

stakeholders such as relevant government departments, academic and research institutes, and civil societies. The Guide includes concepts, formulas, international and domestic data sources, and other information for 231 indicators. The Metadata Book will be updated in time for the 2025 overhaul.

9 The global indicator framework will undergo two waves of full revision, in 2020 and 2025, each taking into account the progress of methodological developments and other factors. While the overarching system of the indicator framework remains unchanged, recommendations will be made to replace, remove, or add to existing indicators based on methodological advancement. The UN Statistical Commission approved 231 indicators at its 51st session in March 2020. Preparations for the second wave of comprehensive revision begin in 2023. Korea represented the East Asian region at the IAEG-SDGs from 2020 to 2021.



Attendees at the 13th IAEG-SDGs meeting to discuss synthesis

2021

- 10 Release of 「SDGs in the Republic of Korea: Progress Report」
- 11 Build of the SDG Data Platform for Korea
- 12 Establishment of the SDG Data Governance in Korea



10 Since 2021, Statistics Korea has been publishing 「SDGs in the Republic of Korea: Progress Report」 in both Korean and English each year in March.

The report not only provides time series information for selected SDG indicators that are highly relevant to national policy agendas and have available existing data, but it also disaggregates data by sex, age, sub-national region, and so on, and analyzes implementation status for vulnerable groups to support policy-making. Published reports are made available online through the websites of Statistics Korea and the Statistics Research Institute.

11 Statistics Korea established an open-source SDG data platform for Korea to begin delivering data services in April 2021, followed by the delivery of services in English in September. Through the platform, Korea's SDG data are provided in the forms of original datasets as well as tables and graphs.



URL: <https://kostat.go.kr/sdg/en>

12 Statistics Korea, as the national focal point for the SDG data, is responsible for providing and verifying data as requested by international organizations. In order to ensure the efficient accomplishment of these tasks, relevant government departments have designated the persons in charge of respective SDG indicators as well as a manager in charge of supervision, establishing governance for the SDG data.

2022

- 13 Organization of the 1st SDG Data Innovation Forum by Statistics Korea
- 14 SDG Data Services Added to Statistics Korea's Online Indicators Portal

13 The purpose of organizing this annual forum of public discussion is to share current information on Korea's SDG implementation with diverse stakeholder groups and contribute to innovative and inclusive policy-making. The SDG Data Innovation Forum intends to serve as an official platform for bringing a data-driven perspective to SDG discussion, with the first forum taking place in May 2022, hosted by Statistics Korea.



1st SDG Data Innovation Forum

14 Statistics Korea's online portal for official indicators began providing SDG data services for Korea in December 2022. This online indicators portal makes available a range of other indicators provided by Statistics Korea, allowing for a comparison of SDG and other indicators.

“We reaffirm our unwavering commitment to achieving this Agenda and utilizing it to the full to transform our world for the better by 2030.”

-Transform Our World: The 2030 Agenda for Sustainable Development (para.91) -

SDG In the Republic of Korea: Progress Report 2023

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