ADVANCING THE SUSTAINABLE DEVELOPMENT GOALS

2023 REPORT
What are the United Nations Sustainable Development Goals (UN SDGs)?

17 worldwide objectives designed to change the world, the UN SDGs are part of the UN 2030 Agenda for Sustainable Development and were created as a “blueprint to achieve a better and more sustainable future for all.” 193 nations agreed to them in September 2015. According to the UN, the SDGs aim to “protect the planet and improve the lives and prospects of everyone, everywhere.”

The SDGs offer global guidelines for achieving each of these objectives. Most countries are facing SDG-related crises, which can only be resolved if we work together.
Kyungpook and the SDGs

Kyungpook National University (KNU) was established with local support as a regional education hub and quickly built a solid reputation as the top institution south of Seoul. The university continuously develops solutions to the numerous global problems of climate change, economic disparity, and access to learning. Innovation, sustainability, and the urge to create a global impact drive KNU’s development. To transform the world and spread innovation, KNU strives to implement programs and projects that are in accordance with the guidelines laid out by the SDGs. KNU will continue to be a knowledge-based institution with a global focus.

How is KNU enabling SDG implementation?

- Government Funding
  - KRW 860 Million for Research & Education
  - KRW 73.3 Billion for New Facilities
  - KRW 331.6 Billion for Regional Innovation Strategy
  - KRW 3.2 Billion in Technology Transfer of patents/technology

- #13 in the world
  - #1 in Korea
  - 2022 Times Higher Education (THE) University Impact Rankings

- Student exchange with overseas universities (2018–2022)
  - 918 students
  - 154 double degree students

- 901 patents registered/applied for
- 469 exchange students
- 1,455 exchange students

- Number of Excellent Research Papers by KNU Professors
  - Impact Factor High rank
  - Top 1%
  - Top 5%
  - Top 10%

- Employment Fields of 2020 Graduates
  - Public institutes
  - Conglomerates
  - Central and local governments

Source: Korean Educational Development Institute, 2021

Data from the Times Higher Education DataPoints; Incites, Clarivate; and KNU infographic.
Empowering Dreams at KNU

We believe that every student deserves the opportunity to rise above their circumstances. Economic hardship must not be a deterrent for committed learners. Therefore, the University has strategic training and outreach programs that strive to provide equitable learning opportunities for all students. KNU has a policy of sharing both tangible and intangible resources with the community and devising innovative solutions to local community problems.

So far, we have had 230 graduates, who later returned to their home countries, applied the knowledge they learned at KNU to what people actually did on the ground, and even took the initiative in disseminating knowledge by offering university lectures and special talks for government officials.

Hwa-seok Hwang
Managing Director,
KNU Institute of International Research & Development

Academic Training Programs

KNU Institute of International Research & Development has been chosen for two programs sponsored by the Korea International Cooperation Agency (KOICA): the Agricultural Productivity Master’s and Ph.D. Degree Program and the Agricultural Engineering Capacity Building Master’s Degree Program. The programs aim to transfer Korea’s agricultural and rural development experiences and advanced technologies to developing countries, helping to establish sustainable agricultural production environments. Over the next 4 years, KNU will receive KRW 5 billion in funding from KOICA to train 93 participants.

Outreach

Students taking “Manufacturing Computer” one of the first social-liberal arts courses launched by the Liberal Arts Education Center of KNU, assembled and donated computers to child welfare institutions, and trained their recipients in basic troubleshooting for these computers.
KNU has the best education and research facilities in the nation when it comes to plant pests. By educating highly skilled professionals, the university will support global food security and the preservation of agricultural ecosystems.

Harvesting Excellence at KNU

As Hongseong County is the first and largest special organic farming zone in the country, and has shown its strength in traditional eco-friendly agriculture, there are various elements for developing agricultural technology models unique to our region. Through this agreement with KNU, we will do our best to supplement a genuine eco-friendly agricultural technology system, utilizing various locational elements.

Seung-bok Lee
Director, Agricultural Technology Center
Hongseong County

SDG 2-related Research Output

567 Web of Science Documents
5,537 Citations
0.88% Highly Cited Papers
86.77% Documents Cited
14.46% Documents in the Top 10%
1.59% Documents in the Top 1%

A memorandum of understanding (MOU) was signed by Hongseong County in South Chungcheong Province, the nation’s first special organic farming zone, and the Sustainable Agriculture Research Centre of KNU, to advance the use of natural enemy insect technology in agriculture. Both organizations made a commitment to ongoing collaboration in knowledge exchange, skill enhancement, and commercialization efforts, particularly for the production of natural enemy insects by local farmers.

Key participants in the agreement ceremony included Seung-bok Lee, Director of the Agricultural Technology Center of Hongseong County, Gyeong-yeol Lee, Professor at KNU, and 20 interested farmers from the region.

Agricultural Competitions

The Contest for Plant Pest Search, Identification, and Classification, organized by the Animal and Plant Quarantine Agency in Gimcheon, North Gyeongsang Province, was previously exclusive to quarantine entities. This year, it extended its participation to agricultural university students to increase public interest in plant pests, support early cultivation of expertise on pests among university students, and to raise awareness about nonindigenous pests.

The grand prize and the excellence award were won by two KNU students, Dongmin Kim (Master’s) and Chang-Wook Eun (Ph.D. candidate), from the School of Applied Biosciences.

SDG 2 - ZERO HUNGER

KYUNGPOOK NATIONAL UNIVERSITY

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With an endeavor to provide quality healthcare information and services, KNU has invested in research on new medicine for geriatric cognitive conditions as well as the development of palliative care services for terminally ill pediatric patients. These interventions are intended to provide patients and their family members with information about advance care planning and medical care for life prolongation decisions, and can actively support end-of-life care services by coordinating with home healthcare services for critically ill children.

"It is necessary to give social attention to pediatric palliative care and home healthcare services for critically ill children. Based on the previous four-year experiences, we will try to provide patients and their family members with good-quality information and services.

Professor Yeohyang Kim
Department of Pediatrics"
KNU prides itself on its commitment to volunteering and community building for bridging knowledge and resource gaps.

As COVID-19 has led to the acceleration of widening digital, information, and education gaps, literacy—comprehending, analyzing, and evaluating online and offline information—has become invaluable. The Department of Library and Information Science planned this program based on its strength in cultivating knowledge among professionals. We will try to contribute to closing digital, information, and education gaps in local communities by developing practical and useful programs.

**Jongwook Lee**
Head of the BK21 Project Team

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**SDG 4-related Research Output**

<table>
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<tr>
<th>Citation</th>
<th>Documents Cited</th>
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<tr>
<td>72.15%</td>
<td>324</td>
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**SDG 4**

**QUALITY EDUCATION**

**Sustainability Management For Businesses**

To address the growing interest in environmental, social and governance (ESG) frameworks globally, KNU’s Community Contribution Center organized a forum to generate opportunities for local businesses to incorporate ESG into their management practices. The theme of this forum was “ESG and the Future for Local Businesses.” It was open to the university, local businesses, and residents and aimed at helping businesses prepare ESG management strategies in line with diverse corporate features within regions and create the foundation for achieving ESG goals.

**Volunteering for Literacy Programs**

To aid locals in enhancing their literacy, the BK21 Project Team of the Department of Library and Information Science at KNU organised a volunteer work program, “Night at the Library,” on August 4 and 11. The volunteer work team comprised graduate students, researchers, and ten professors who offered three literacy programs with subjects specifically tailored for residents of different ages. They received enthusiastic responses from the locals.

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**Views & Downloads Per Publication**

<table>
<thead>
<tr>
<th>KNU</th>
<th>Worldwide</th>
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<tr>
<td>24.4</td>
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**Total Publications**

<table>
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<tr>
<td>38</td>
<td>24</td>
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**Publications in Top Journals**

<table>
<thead>
<tr>
<th>KNU</th>
<th>Worldwide</th>
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<tbody>
<tr>
<td>16%</td>
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**First-generation Students**

<table>
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<tr>
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<th>Worldwide</th>
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<tr>
<td>74%</td>
<td>35%</td>
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**Graduate Ratio**

<table>
<thead>
<tr>
<th>KNU</th>
<th>Worldwide</th>
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<tbody>
<tr>
<td>8%</td>
<td>7%</td>
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</table>

Data from the Times Higher Education DataPoints; Incites, Clarivate; and KNU infographic.
KNU for an Egalitarian Society

We are constantly striving to create a safe and equitable learning and working environment for our students and staff at KNU. We have been actively incorporating feedback from students with disabilities into our campus facilities planning and support systems.

First Female President of Korea Commercial Law Association

Professor Hyoshin Kim of the Graduate School of Law at KNU has been inaugurated as the 32nd President of the Korea Commercial Law Association, the highest authority in the field of commercial law in Korea.

"I propose a better future that breaks away from traditional regulations through specialized interdisciplinary research in IT technology and the business field. The Association will take the lead in revitalizing domestic and international academic exchanges that have become stagnant due to COVID-19, and will work to achieve a strong sense of unity among our members.

Hyoshin Kim
President, Korea Commercial Law Association

Ensuring the Right to Mobility at KNU

Currently, 90% of KNU facilities have installed elevators. In situations where there are no elevators, there are alternative measures provided. In response to an official document from the Able Center, KNU facilities office is planning renovations such as the installation of electrical ports at wheelchair stations for wheelchairs that need charging, improvement of crosswalks, installation of precast pavers for the visually impaired, etc.

Moreover, KNU has been actively engaging with the Able Center to ensure that students with disabilities also enjoy smooth interpersonal relationships and professional and social life via various support programs. It has an 'educational support personnel program' where one can volunteer to assist differently-abled students with their academic and daily life activities.

SDG 5-related Research Output

<table>
<thead>
<tr>
<th>Total Number of Students</th>
<th>Web of Science Documents</th>
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<td>127</td>
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<table>
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<th>Documents Cited</th>
<th>Documents in the Top 10%</th>
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<td>118</td>
<td>68.53%</td>
<td>5.24%</td>
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<table>
<thead>
<tr>
<th>Graduate Students</th>
<th>Percentage of Female First Generation Students</th>
<th>Publications in Top Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>KNU 74%</td>
<td>Worldwide 33%</td>
</tr>
<tr>
<td></td>
<td>Worldwide 36%</td>
<td>Worldwide 8%</td>
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</table>

Data from the Times Higher Education DataPoints; Incites, Clarivate; and KNU infographic.
Amid growing concerns over the dwindling of freshwater resources due to climate change, exploration of alternative hydrogen production technologies such as seawater electrolysis has become imperative. The world-class research teams at KNU have successfully developed a system to produce pure green hydrogen through seawater electrolysis. The purification and recycling of wastewater from facilities is also a key focus area in keeping with the SDGs. The fundamental technology to do this has been developed by another research team at KNU while creating a nanocomposite material in an experiment to remove pollutants from construction materials.

Hydrogen from Seawater

Hydrogen is garnering interest as a fuel owing to its unique characteristic of emitting no carbon dioxide upon combustion. A research team at KNU, led by Professor Park Hyunwoong, developed a membrane-free catalytic system to efficiently produce green hydrogen from seawater, via electrolysis. The team’s triple-catalyst setup could generate 100% pure hydrogen, offering a cost-effective and practical solution for large-scale offshore hydrogen production. The research results were published in the journal Applied Catalysis B: Environmental. This study was conducted with the Mid-Career Researcher Program of the Korea Research Foundation and research funds from the Qatar Government.

Wastewater Purification Technology

Prof. Lee Dongeun (Architecture), Prof. Cho Wangeun (Intelligent Construction Automation Research Center), and Dr. Shrenda, in collaboration with Dr. Kasala Prabhakar Reddy (University of South Carolina, USA) and Dr. Satyanarayana (Vellore Institute of Technology, India), established a method to manufacture a porous nanocomposite material with exceptional charge transfer and photocatalytic performance. The technique involves making porous polymeric carbon nitride sheets and WO3 nanorods with a 3D heterostructure and special crystal facets to efficiently remove pollutants from construction materials under low-energy visible light exposure. This material holds promise for wastewater purification and recycling. Their research was published in the journal Applied Surface Science.
Developing Sustainable Energy Sources at KNU

Our research targets sustainable energy sources and materials. Two teams at KNU have developed landmark research projects, which provide valuable insights for the enhancement of the affordable and clean energy sector.

Our team proved the maximized polling efficiency of piezoelectric composites using the interfacial effects of organic and inorganic materials. This research is significant because it can provide low-energy consumption methods for developing highly efficient flexible piezoelectric elements.

Professor Kwi-il Park
School of Materials Science and Engineering

Bolstering the Electric Power of Piezo-electrics

Researchers from the School of Materials Science and Engineering at KNU developed highly efficient flexible piezoelectric elements using the interfacial effects of organic-inorganic composites. The developed piezoelectric element can generate enough electric power to charge a commercial capacitor from the minuscule force of a water droplet.

The team found that the dipoles on the interface of organic-inorganic composites consisting of piezoelectric polymer and barium titanate were more rapidly reoriented at a lower voltage than those on the piezoelectric polymer. Based on this improved polling efficiency, the team developed the piezoelectric element, maximizing the performance at half the electric field, compared to the existing piezoelectric polymer-based piezoelectric element.

This research was funded by the National Research Foundation of Korea (Mid-Career Researcher Program and Basic Research Laboratory) and was published in the online edition of Nano Energy, a reputed journal of nanomaterials and energy, on April 8.

Breakthrough in Photohydrogen Production Efficiency

A research team at KNU has developed a technology that can almost double photohydrogen production efficiency by controlling spatial oxygen vacancy. The team found that the efficiency of photo electrolysis differed when the concentrations of oxygen vacancies on the surface and inside of tungsten trioxide nanomaterials varied.

They confirmed that the photo electrolysis efficiency was higher when the oxygen vacancy concentration on the surface was higher than that inside the nanomaterials.

These findings were published in the online edition of Advanced Functional Materials, a prestigious international journal, on July 5.
We, at KNU, not only seek to invigorate the local entrepreneurial spirit, but also intend to organically mobilize the financial framework within the country. The Entrepreneurship Center and Business Incubation Center at KNU are key organizations in the university’s ecosystem that consistently achieve tangible outcomes within their projects.

The Center will systematically support startups in contribution to local employment and economic vitalization with the use of KNU’s excellent infrastructure and networks.

Kyoung-Chol Jung
President, Business Incubation Center, KNU

The Entrepreneurship Center at KNU has been selected as an excellent (A-grade) management organization in the performance evaluation of the Early-Stage Startup Package, which is conducted by the Ministry of SMEs and Startups, to assist in the growth and stabilization of promising startups that are younger than 3 years.

The Center operates various specialized programs in efforts to vitalize the local entrepreneurial spirit, such as support for contactless marketing, support for domestic and international investment attraction, and one-stop consultation for startups.

KNU’s Entrepreneurship Center

The Business Incubation Center at KNU received top S-rating in the “2022 Business Incubation Center Management Evaluation” by the Ministry of SMEs and Startups, for the 18th year in a row. About 260 Business Incubation Centers across Korea are assessed annually by the Ministry to inspect the stable management activity support, management performance, and achievements of SMEs in their early stages.

KNU Entrepreneurship Center: Tally for 2022

Business Incubation at KNU

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KNU Entrepreneurship Center: Tally for 2022

KNU Entrepreneurship Center: Tally for 2022

SDG 8-related Research Output

Data from the Times Higher Education DataPoints; InCites, Clarivate; and KNU Infographic
We, at KNU, believe that an organically thriving innovation ecosystem is built upon the constant flow of dialogue and information exchange between its different stakeholders. To achieve it, we are consistently trying to understand stakeholder-specific requirements to bridge all gaps and create an environment that fosters innovation.

Strong university education innovation nurtures innovative talents and creates an ecosystem of growth for developing leading technologies in the core areas of electronic information devices and future vehicle conversion parts. A system for awarding regional talent will also drive regional innovation and growth.

Won-hwa Hong  
President, Kyungpook National University

The "Daegu-Gyeongbuk Regional Innovation Platform" is a pluralistic platform that includes the participation of Daegu city and Gyeongbuk province, with the aim of fostering talent and creating a virtuous cycle of growth engines in these regions. The platform is managed overall by KNU and has been selected as a "Regional Innovation Strategy project."

The project will use its investment to promote education system reforms and collaborative tasks with regional innovation institutions, with a focus on the core areas of electronic information devices and future vehicle conversion parts.

Daegu-Gyeongbuk Regional Innovation Platform

<table>
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<tr>
<th>Investment</th>
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<tbody>
<tr>
<td>Total funds 331.6 billion KRW</td>
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<tr>
<td>First-year funds 57.2 billion KRW</td>
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Star Companies of KNU Technopark

KNU Technopark selected five companies as star companies for 2022, among more than 190 resident and support companies, based on excellent sales, excellent performance in the employment sector, and great growth in investment attraction and R&D.
As the central national institution of Korea, KNU boasts excellent infrastructure and expert human resources. It runs a number of initiatives to aid entrepreneurs, through which it is gaining expertise in corporate growth and development. The University also seeks to provide support to its large community of multicultural students to build a truly Global Korea.

A multicultural community is the reality today, which is why discourse based on the multiculturalism of our society is necessary. Also, research from a diverse perspective is also needed, such as regarding multicultural education not only as a concept of welfare, but also from the perspective of cultivating key talents.

Youngsup Hyun
Director, SEI

Multicultural Forum

KNU GTU and the Secondary Institute of Education (SEI), together with the education platform Snowball, will conduct the Global Multicultural HR Forum in December 2023 at the KNU College of Education’s Future Education Center. During the forum, Park Sungkyung, Director of Daegu Talent Development Institute and member of the Daegu Youth Cultivation Committee, will be presenting his opinions on “Obstacles in providing career guidance to multicultural students and career counselling methods,” and Park Hyejin, Head of the Competency Development Team at APEC Learning Community Builders, will be presenting on the topic of “Global Korea, together with Married Migrant Women.” This roundtable will be moderated by Youngsup Hyun, Director of SEI.

KNU’s Industry-Academic Cooperation Foundation was selected to oversee the “2022 Second Chance Startup Package-General,” a Ministry of SMEs and Startups initiative. The package supports individuals and businesses that have experienced previous challenges but are committed to restarting or are less than seven years old. A total of nine institutions, six general and three educational, were selected in the year 2023. As the sole supervising institution in the Yeongnam region, KNU’s specialized programs, such as technology innovation, diagnosis of management, market exploration, product improvement, and investment attraction, will be implemented to help the businesses rebound.

SDG 10-Related Research Output

SDG 10: Reduced Inequalities

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<th>Documents in the Top 10%</th>
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<td>SDG 10</td>
<td>0.88</td>
<td>114</td>
<td>75.53%</td>
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<table>
<thead>
<tr>
<th>Industry-Academic Cooperation Foundation</th>
<th>Kim</th>
<th>Worldwide</th>
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<tbody>
<tr>
<td>KNU (%)</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Students from Developing Countries (%)</td>
<td>8%</td>
<td>2%</td>
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Students from Developing Countries

KNU and Worldwide Fund per Business

<table>
<thead>
<tr>
<th>KNU</th>
<th>Worldwide</th>
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<tbody>
<tr>
<td>Billion KRW</td>
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Data from the Times Higher Education DataPoints; Incites, Clarivate; and KNU infographic
The Museum, Art Museum, and Natural History Museum at KNU are simple exhibition venues that have the support of the University's strong cultural roots and top-notch facilities. They present various perspectives and new visions while engaging with the culture of the local communities. With the establishment of a cultural platform that combines exhibitions, education, and performances, KNU aims to create a new paradigm for the cultural development of not only the local community but the entire country.

Kyoung Yong Lee
Director, KNU Art Museum

To be selected as the best institution in the project that included art museums for the first time is a great achievement. ‘Whatever Happens’ was a significant exhibition in that the entire process of the program, from planning and operation to content and consumption, actively involved the local residents and university students and staff. The KNU Art Museum will continue to actively utilize KNU’s physical and human resources to faithfully fulfill the role of an art museum as a local cultural platform.

KNU Museum will hold a special exhibition titled “2000 Years of Korea—China Cultural Exchange” in commemoration of the 30th anniversary of the establishment of diplomatic ties between Korea and China.

KNU Art Museum was selected as the top institution in this project for its exhibition titled “Whatever Happens,” which is a combination of theater and art.

The KNU Natural History Museum has planned various programs under the theme "Korean Tiger" that will be open from July.

KNU held the “2022 KNU Spring Culture Week” in various locations around campus in May 2022. Under the theme “Awake the Campus,” KNU organized various exhibitions, experiences, and performance programs on campus in the hope of bringing vitality back into the daily lives of university students, staff, and local residents post-pandemic.

SDG 11-related Research Output

Data from the Times Higher Education DataPoints, Incites, Clarivate; and KNU infographic

<table>
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<tr>
<th>FWCI</th>
<th>KNU - 1.82</th>
<th>Worldwide - 1.1</th>
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<tbody>
<tr>
<td>Publications</td>
<td>KNU - 236</td>
<td>Worldwide - 38</td>
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<tr>
<td>Publications in Top Journals</td>
<td>KNU - 23%</td>
<td>Worldwide - 17%</td>
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</tbody>
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Web of Science Documents: 1,414
Citations: 15,690
Documents Cited: 82.18%
Documents in the Top 10%: 11.88%

2022 KNU Spring Culture Week

SDG 11 SUSTAINABLE CITIES AND COMMUNITIES KYUNGPOOK NATIONAL UNIVERSITY
**Encouraging Resource Efficiency at KNU**

KNU’s School of Materials Science and Engineering collaborated with Columbia University and the University of California to develop a new catalyst that is about 11 times more efficient than the currently used high-cost platinum catalyst. The research findings were published in the *Proceedings of the National Academy of Sciences*, a prestigious international journal published by the National Academy of Sciences, USA.

> This new catalyst can significantly improve the performance of existing ethanol fuel cells and provide a basis for developing single-atom catalysts with new concepts and understanding relevant reaction mechanisms.
> - Professor Sang-II Choi
>  Department of Chemistry

**SDG 12-related Research Output**

[Graph showing SDG 12-related research output metrics]

**Breakthrough in Semiconductor Patterning Technology**

KNU’s School of Electronics Engineering has achieved a breakthrough in semiconductor patterning by applying a minimal four-step process that uses pure water, resulting in minimal defects within semiconductors and the creation of high-performance, uniform oxide devices for displays, even at low temperatures. The research, led by Professor Bae Jinhyeok, was published in the Chemical Engineering Journal.

> This study, led by Professor Bae Jinhyeok, was published in the Chemical Engineering Journal.

**Novel Eco-Friendly Thermoelectric Material**

KNU’s School of Materials Science and Engineering, in collaboration with the Korea Institute of Materials Science, developed an eco-friendly, highly durable, and paper-thin thermoelectric material to assist in achieving carbon neutrality. The research team, led by Professor Kwi-il Park, identified the material’s potential application in energy-generating devices. The research was published in the online edition of *Nano Energy*, a prestigious journal in nanomaterials and energy.

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KNU has been a part of an international research team, alongside Korea Polar Research Institute and Seoul National University that continuously observes changes in Antarctica, to understand melting mechanisms and make future sea-level predictions. Research teams at KNU are also accelerating their efforts at finding solutions to reduce the carbon footprint on the planet.

We expect that this finding would greatly contribute to future studies of electrochemical CO2 reduction processes since it suggested an idea for the design of a single-atom catalyst material that was clearly controlled at the atomic level, and a catalyst material with high cost-competitiveness without using precious metals.

Professor Ji Hoon Lee
School of Materials Science and Engineering

The development of catalytic materials can help convert carbon dioxide, a greenhouse gas, into useful compounds, such as carbon monoxide, formic acid, and hydrocarbon, to help achieve carbon neutrality. However, there are challenges in designing new catalyst materials due to a lack of understanding of the CO2 reduction reaction process in the catalytic active site.

Researchers at the School of Materials Science and Engineering, KNU, developed a core design technology of a single-atom catalyst to increase CO2 conversion efficiency. These results were published in the *Journal of the American Chemical Society*, a prestigious journal of chemistry. The research was supported by the Young Researcher Program and the New Young Researcher Support Program of the National Research Foundation of Korea.

A research team from the School of Earth System Science at KNU in collaboration with the researchers from Korea Polar Research Institute, Seoul National University, University of Houston, and the British Antarctic Survey, identified "a self-defense mechanism" in the waters near Thwaites ice shelves in West Antarctica, where the glacier meltwater lowers the melting of ice shelves. The research was funded by the research project of the Ministry of Oceans and Fisheries, and published in the online edition of the renowned journal—Nature Communications.
KNU actively seeks out collaborations and agreements that can facilitate change within the realm of environmental protection. Through its synergistic alliances, the University seeks to actively discover and develop new projects with the Environment, Social, Governance (ESG) perspective.

Pohang City, North Gyeongsang Province has collaborated with KNU to achieve carbon neutrality by creating a marine blue carbon center in Korean East Sea Rim. To this end, KNU is planning to establish the Donghae Campus in Pohang. Marine blue carbon refers to the carbon absorbed by salt plants (plants that grow in high-salinity areas) such as beach silvertop. It is a huge carbon sink in the marine ecosystem. This center will aid in achieving sustainable carbon neutrality in line with global climate goals, promoting synergy with ongoing research projects.

Unlike the Yellow Sea and the South Sea, as the East Sea allows facile accesses to deep water, it is the optimal location for researching blue carbon studies regarding marine algae with high carbon sequestration. If the blue carbon center in Korean East Sea Rim is established, it will play a role as a hub for blue carbon-related research, education, and policies within the East Coast region. We will also actively cooperate to cultivate young marine talents and develop the East Sea areas.

Won-hwa Hong
President, Kyungpook National University

Research Partnership
KNU and CJ Cheiljedan are collaborating to develop and commercialize a PET plastic biodegradation enzyme; while KNU and Zyen Co., Ltd. will produce and improve the enzymes, CJ Cheiljedang will develop technologies for their mass production by utilizing their world-class microbial fermentation technology and R&D infrastructure. The "biological recycling" technique, promoted under this agreement, is eco-friendly during the decomposition process, consumes less energy, and produces high-quality recycled materials.

KNU 44%
Worldwide 17%

Data from the Times Higher Education DataPoints, Incites, Clarivate; and KNU infographic
KNU is committed to its role in urban tree conservation. The University believes that the study of tree anatomy is the basis for optimum tree care, just as anatomy is the basis for medicine. KNU also believes in sharing diverse diagnosis cases using state-of-art equipment and deriving scientific tree management plans.

Public tree hospitals have been established in major cities and provinces in Korea since 2012, to diagnose tree damage within living zones. With the increased presence of certified tree doctors since 2019, it is necessary to collect various opinions on the future roles and management of such hospitals, and derive development plans.

Ki Woo Kim
Center Director
Tree Diagnostic Center

KNU’s Tree Diagnostic Center, established in 2014, is an integral part of the public tree care system, serving to diagnose urban tree damage in the Daegu and Gyeongsangbuk-do regions designated by the Korea Forest Service. Recently, they partnered with the National Tree Hospital to organize a comprehensive workshop titled “Anatomy Course for Tree Care” at KNU’s Sangju Campus. The workshop featured informative lectures on topics like “Basic Anatomy of Trees Within Main Living Areas” and “Cases of Electrical Resistance Tomography of Heartwood and Sapwood.” Participants also actively engaged in practical exercises, focusing on the microscopic observation of cross-sections from key urban tree species within primary living zones.

Furthermore, these institutions jointly hosted a seminar titled “Role and Future of Public Tree Hospitals” at KNU’s Apple Research Center in the College of Agriculture and Life Sciences. The seminar comprised presentations covering “Tree Care System and Public Tree Hospitals,” “Present and Future of Public Tree Hospitals,” and “The Role of Public Tree Hospitals and Suggestions for Future Directions.”

KNU’s Research Institute for Dokdo and Ulleungdo, along with National Assembly member Mr. Kim Byung-wook, co-hosted an academic conference at the National Assembly Building, titled “Restoration Project of Mulgol, the Spring of Life on Dokdo Island.” The event focused on discussing Dokdo Island’s history, natural environment, and the significance of preserving “Mulgol,” its sole drinking water source. The conference was organized by the Dokdo Volunteer Garrison Commemoration Service Society and the Gyeongsangbuk-do office, with sponsorship from various government organizations, including the Ministry of Patriots and Veterans Affairs, the Cultural Heritage Administration, the National Research Foundation, and the Dokdo Foundation. Its goal is to share research findings about Dokdo Island and Mulgol and address future challenges like preservation and sustainable use.

KNU's Efforts to Preserve Terrestrial Ecosystems

Preservation of Dokdo Island’s Drinking Water Source

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KNU seeks to promote public discourse on unification through discussions on ways to enhance exchanges and cooperation with North Korea. The University is also supporting its Muslim student population against growing “Islamophobia,” working tirelessly towards diversity and inclusion.

Kim Yukyung, Chair of the Diversity Council, College of Education, Department of Home Discipline

For our society and university to thrive sustainably, embracing diversity is not an option but an absolute necessity. Excluding Muslims, who represent approximately one-fourth of the global population, inhibits our ability to achieve true cultural diversity and social integration.

In commemoration of the 10th anniversary of Unification Education Week, and in efforts to expand the consensus on unification within the local community, Daegu City hosted the 2022 Forum for Peace and Unification at the KNU Welfare Center. This forum was jointly organized by Daegu City and the Institute for Peace Affairs, at the KNU Welfare Center.

During the Forum, Professor Choi Chulyoung at Daegu University explained the direction of national administration of the new administration regarding unification and presented the need for improving citizen awareness of restoring mutual trust through the expansion of exchange and cooperation in areas that urgently need it, such as healthcare and forestry.

Discussions on the importance of restarting the frozen North-South economic, cultural, and people-to-people exchanges led by local governments, as well as the importance of social integration with North Korean defectors took place.

The “KNU people who oppose Islamophobia,” a group founded by KNU professors and students, organized a march against Islamophobia in response to the ongoing controversy surrounding the construction of the Daehyeondong Mosque. About 30 professors and students, carrying pickets with messages opposing Islamophobia and calling for a society in which diverse races and religions coexist in harmony, marched from the main building to the North Gate of KNU. The protestors chanted “Stop Islamophobia!” throughout the march.
KNU recognizes that the world thrives on interconnected systems, where partnerships and collaborations are essential to tackle global issues. The University seeks to build on existing partnerships and forge new ones to encourage, empower, and support the changemakers of tomorrow.

“...It is important for pre-service teachers to make changes for themselves and others in their lives according to the 17 SDGs—taking this certification is an opportunity in this regard. We plan to expand the scope of this project to help pre-service teachers of various majors develop practical expertise in sustainable development education...

Professor Hyorim Lee
Department of Home Economics Education

Since 2011, the Korean National Commission for UNESCO has been running the “Certification System of UNESCO Education for Sustainable Development (ESD) Official Project” to recognize and support exemplary ESD initiatives in various sectors of Korean society. In 2022, the “KNU ESD Changemaker Project” led by the Department of Home Economics Education at Teacher’s College received official UNESCO ESD Project certification. This project involves pre-service teachers addressing issues related to the United Nations’ 17 Sustainable Development Goals (SDGs). Certified for three years starting from June 2022, the program covers diverse topics including digital literacy, eco-friendly initiatives, animal rights protection, and email security management.

KNU’s College of Veterinary Medicine conducted invitational training as part of an Official Development Assistance project to build veterinary care capacity at Mongolian University of Life Sciences. This project involves establishing an animal medical center in Ulaanbaatar, Mongolia, with medical equipment support and education in various areas, including animal diagnosis, treatment equipment management, disease prevention for farm animals, and infectious disease screening. It also includes field training and invitational training for Mongolian College of Veterinary Medicine professors and researchers in Korea.

Improving Veterinary Care
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KYUNGPOOK NATIONAL UNIVERSITY

AT A GLANCE

 Ranked in the Top 10
for Corporate Preference and
University Attended by CEOs

7th
Attended by CEOs of the
Top 100 Companies
(2020)

12th
JoongAng Ilbo University
Ranking – Preferred by
Corporate HR Managers
(2020)

2022 QS World University
Rankings
2022 National Customer
Satisfaction Index (NCSI)
2022 Center for World University
Rankings (CWUR)
2022 THE World University
Rankings
2022 QS Asian University
Rankings
2022 Best Global Universities
Rankings by U.S. News and
World Report
2022 Academic Ranking of World
Universities by Shanghai Ranking Consultancy

Strong and Comfortable Facilities
and Environments

- Carbon Zero
  - Campus
  - Power generation facilities
    (28 billion KRW)

- EV charging facilities
  - (76 slow-speed, 2 rapid-speed)
  - Updated and renovated
    facilities (19.1 billion KRW)

Student Comprehensive Support Center

- Academic consulting for freshmen
- Programs for preventing student dropout
- Visiting academic counselors
- Academic adaptation programs for
  international and transfer students
- On-campus student support programs
- Healthy and safe campus life
- Systematic psychological and career
  counseling

Sustainable Development Goals at KNU (2022—2023)

Snapshot of SDG Activities

- Students from developing
countries and less
privileged backgrounds
can learn at KNU

- Research towards
sustainable agriculture
and food security is
happening at KNU

- New innovations and research
in medicine, especially
geriatric and pediatric,
are developed at KNU

- Volunteering programs
and local forums bridge
the education and resource
gaps in Korea, via KNU

- Females and student
minorities are properly
represented at KNU

- Wastewater purification
technology and clean
energy from seawater
is being produced at KNU

- Landmark research in
sustainable energy sources
is going on at KNU

- Entrepreneurial spirit
among students and locals
is bolstered with support
from KNU

- Organizations partner with
KNU for regional innovation
and encouragement to local
companies

- Volunteering programs
and local forums bridge
the education and resource
gaps in Korea, via KNU

- Art, diversity, and a
multitude of cultures are
celebrated at KNU

- Research in Antarctica
to understand changing sea
levels and global warming
involves KNU

- Systems to protect the life
on land are being put in
place at KNU

- Research in Antarctica
to understand changing sea
levels and global warming
involves KNU

- Research and collaboration
to produce efficient energy
materials that can power
devices sustainably
happens at KNU

- Multiple partnerships to
achieve the SDGs are
being strengthened at
KNU

Partners and Projects for the Goals

- The Gung Ok Gyun Scholarship Association
- ISU Akvis
- The Daegu-Gyeongbuk
  Regional Innovation Platform
- Community Contribution Center
- Business Incubation Center

- Kyungpook National University’s Industry-Academic
  Cooperation Foundation
- University Museum Promotion and Support Program
- The Tree Diagnostic Center
- The Sustainable Agriculture Research Program
- KNU ESD Changemaker Project

- Research in Antarctica
to understand changing sea
levels and global warming
involves KNU
Sustainable Development Goals at KNU (2022—2023)
Research Performance and Impact

Percentage of Published Documents in the Top 1%

<table>
<thead>
<tr>
<th>SDG</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>SDG 2</td>
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<td>SDG 13</td>
<td>0.63</td>
</tr>
<tr>
<td>SDG 15</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Percentage of Students/Employees from Marginalized Backgrounds

- **KNU**:
  - Students from Developing countries: 8%
  - Students with Disabilities: 1%
  - Employees with Disabilities: 3%
- **Worldwide**:
  - Students from Developing countries: 2%
  - Students with Disabilities: 1%
  - Employees with Disabilities: 2%

Number of Citations

- **SDG 3**: Good Health and Well-being (66,657)
- **SDG 1**: No Poverty (61)
- **SDG 12**: Responsible Consumption and Production (114)
- **SDG 15**: Life on Land (2,680)

Proportion of Female Authors

- **KNU**: 0.213
- **Worldwide**: 0.342
ADVANCING THE SUSTAINABLE DEVELOPMENT GOALS
2023 REPORT
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