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KFUPM SUSTAINABILITY ANNUAL REPORT 2022

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Learn more about Sustainability at KFUPM







President's Message

Dr. Muhammad M. Al-Saggaf

As we struggle with a planet in constant change and an ever-increasing population with over 7.7 billion people pushing global resources further every year, technological advances offer the potential to serve nations in a more equitable way, of which KFUPM pushes at the boundaries in advanced research and science. However, is it collectively enough? Our dominance and desire for growth has had an impact on ecological systems, the atmosphere, the sea, and our way of life, which is now a critical factor in the changes we are experiencing on Earth.

As we strive to fulfil our ambitious goals of Vision 2030, Saudi Arabia as well as various other countries and governments worldwide have adopted the United Nations (UN) 17sustainability development goals (SDGs) for a sustainable Earth. Universities are undoubtedly at the forefront of this change through advances in research or teaching the next generation of future innovators. Our collective role at KFUPM is to create opportunities for the next generation to live in a more sustainable world. To secure a future for the next generation, we must create susgrowth and tainable development through knowledge sharing, community engagement, and understanding of our individual roles in this shared vision whilst keeping in mind our nation's vision of the future. However, the task of achieving these goals is incredible, and we will

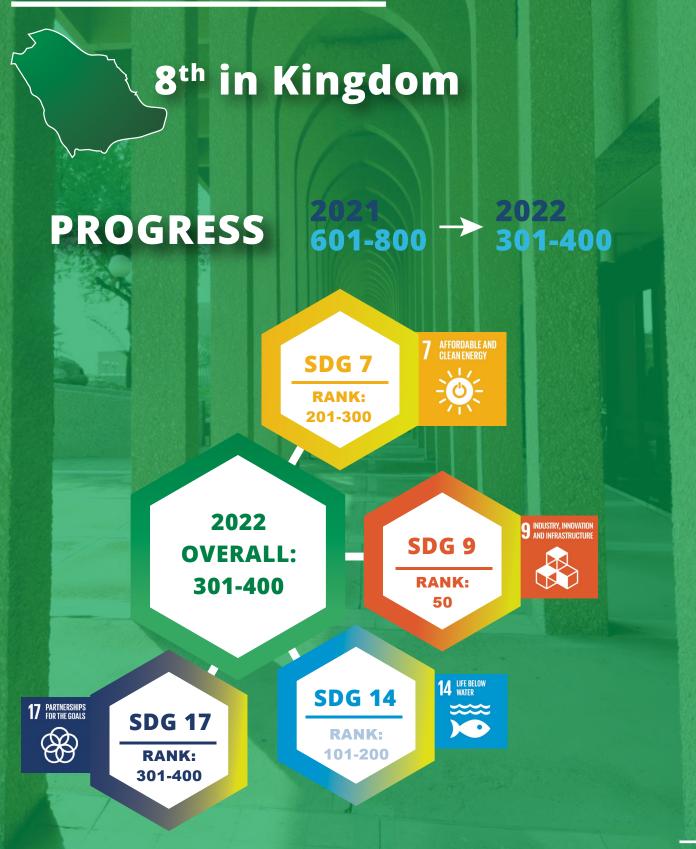
only solve global problems with global partners alongside us if the whole world — governments, institutions, and industry all make an effort together as one.

At KFUPM, we are in a unique position to help society solve specific problems, and we must maximise our role to aid others in working towards the same plan. Working with partners outside the university is a natural routine that teachers, researchers, and KFUPM students are familiar with since this is part of our global mindset. We have nurtured the best talents to build sustainable energy resources and develop technologies that will impact our daily lives. In doing so, KFUPM is seen as a vital player impacting global issues.

I would like us all to consider the individual role that we can play in this crucial plan - whether as faculty or as a student, we all must scrutinize our actions and the importance of building a new future, not only in terms of the direction KFUPM should take, but as global citizens in charge of designing a better world. In addition to KFUPM's ongoing sustainability initiatives which align with United Nations' 17 SDGs, I welcome more inputs on how we can build this future together. Sincerely.

Previous Ranking Data







END POVERTY IN ALL ITS FORMS EVERYWHERE.



;:=]] . . .

12 PUBLICATIONS





1.04

No Poverty

KFUPM is dedicated to taking active steps to end poverty regionally and globally. Through our actions, we aim to have a campus free of poverty while we continually pull our weight to achieve a society with no poverty. Our measures against poverty can be summarized in the following paragraphs:

The proportion of underprivileged students receiving financial aid to attend university due to their poverty situation.

All students at KFUPM are on full scholarship/assistantship, be it at the undergraduate level or at the post-graduate level, including all foreigners. The scholarship includes free tuition, free books, free luxurious accommodation in dorms, annual tickets to travel to and from home country to the university, medical care, and a generous stipend. About 11% of KFUPM's students are from developing or underdeveloped countries. These students are provided with a full scholarship and financial support. In some cases, student support extends beyond the students themselves-For example, students from modest backgrounds and poor families have the option of seeking interest-free loans from Student Affairs. This is generally used to sustain their relatives back home. In addition to this, the university set up a fund (open to donors) to support those students who are from families with limited income.

University Anti-Poverty Programs

Al Fozan Academy was established in KFUPM to develop the capabilities of leaders and managers of non-profit institutions as a joint cooperation between King Fahd University of Petroleum & Minerals and the Al Fozan Social Foundation. In partnership with KFUPM, Alfozan Academy has initiated RAED-a program to qualify youth lead-



ers to manage community initiatives professionally, based on scientific methodologies, and in accordance with international practices in volunteer management. This program trains our students to be leaders in nonprofit and volunteer organizations to achieve a community where nt themes health and environment sectors, elderly homes, orphans, correctional centers, and other fields. In the most recent event, more than 1000 students registered to volunteer and embarked on diverse initiatives and programs. The 13th Volunteer Davrty.

Community anti-Poverty Programs

The university holds an annual scientific camp for orphans, in collaboration with Benaa Charity Association for Orphans, the largest in the country. It teaches those students important skills that would give them an edge in admission to the university and encourages them to do so. Details about the 4th camp can be found in <u>KFUPM NEWS</u>







END HUNGER, ACHIEVE FOOD SECURITY AND IM-PROVED NUTRITION, AND PROMOTE SUSTAINABLE AGRICULTURE.





30 PUBLICATIONS

0

367 CITATIONS



2.00

Zero Hunger

KFUPM believes that hunger is one of the greatest risks facing humanity. A large portion of the planet comprises impoverished countries. Our measures against hunger can be summarized in the following paragraphs:

Affordable Meals for Students & Staff

All affiliates under KFUPM, have access to affordable and healthy food. The food services department ensures that the food produced within the university is of the highest quality and at reasonable prices. Prices are lowered for students to ensure that all students can have access to affordable and healthy meals. In addition, KFUPM dining halls offer a variety of choices for people following different diets (vegetarian, vegan etc.).



National Hunger

Global Hunger Index (GHI) is a tool designed to measure and track hunger in different countries, at regional and global levels (www.globalhungerindex.org). GHI is calculated from data measuring undernourishment levels, child stunting, and child mortality data collected from each country. GHI values below 9.9 are low and desirable, while values above 50 are extremely alarming. With a GHI score of 6.8 in 2021, Saudi Arabia ranked number 29 out of 116 countries. Despite this remarkable GHI score, KFUPM continues to stay committed to reducing the hunger index to zero in Saudi Arabia.

At the local level, the university participated in establishing the Volunteer Feeding Unit from Saudi Food Bank (ITAAM), which promotes social sustainability by creating an environment that motivates all members of the society to volunteer with the association, in all available programs and projects in the field of food, and to provide safe food to the beneficiaries. In addition, the university has a large volunteer event organized annually where all students are encouraged to participate. Recent themes include: Health and Environment sectors, Homes for the Elderly, Orphanages, and other fields. In partnership with Alber charity, KFUPM volunteers helped to distribute food for families in need. KFUPM-Alber Charity Activity.







ENSURE HEALTHY LIVES AND PROMOTEWELL-BE-ING FOR ALL AT ALL AGES.







+15K



4.91

Good Health & Well-being

KFUPM pays special attention to the physical and mental health of all its affiliates (students, faculty, staff, and all their family members). The university also realizes that part of its mission is to instill habits of good health and well-being in all its students and employees. KFUPM is continuously taking measures to boost the well-being of all humans as discussed below:

Students in Health Professions

Since its establishment, KFUPM has been known for being the technology/engineering powerhouse of Saudi Arabia. However, as years passed by, merging the engineering and technology aspect with medicine-related subjects became a necessity. For this reason, in 2020, KFUPM started to offer Bioengineering Bachelor's Degrees where our knowledge and experience of 60 years in the field of Engineering has helped to enhance and serve the Life Sciences sector for the well-being of all humans.

Collaborations and Health Services

At KFUPM, the medical center delivers its services high international guality with standards. Students are treated free of charge. The medical center collaborates with different agencies locally and nationally to ensure that the population inside the campus has access to all necessary medical services. Furthermore, the medical center joined the referral program under the ministry of health. This program provides all the logistical and coordination needs for referring patients from one medical facility to another. It also provides an accurate archiving and statistics system that contains the patients' data transferred through the program between different health facilities all over

the Kingdom. The medical center also provides students with access to reproductive health-care services including information and education services through the Obstetrics and Gynecology Clinic.

Promoting good practices for well-being is a major key to achieving a healthy population. That is why annual events are held to promote good practices. For example, in October 2021 a **Breast Cancer Awareness Campaign** was held. This campaign aimed to raise public awareness of the disease, its causes, and the importance of conducting early examinations for early detection. In addition to this, mental health is a vital part of well-being, for that reason a **continuous awareness of mental health** is broadcasted throughout the campus- and students have free access to <u>psychological consulting</u>.

To ensure good health and well-being of the campus population, KFUPM has strict rules regarding smoking in public areas as second-hand smoke can tremendously affect the health of non-smokers. To reduce and eliminate the effects of second-hand smoking, KFUPM mandates smokers to smoke only in designated open areas. No smoking policy Student handbook (page 59 point 12 it is stated (in Arabic): 'You must abstain from smoking in all areas of the university, except in designated places. Non-compliance with this will expose you to penalties stipulated by law'.



ENSURE INCLUSIVE AND EQUITABLE QUALITY ED-UCATION AND PROMOTE LIFE LONG LEARNING OPPORTUNITIES FOR ALL.







CITATIONS

40





Quality Education

KFUPM has always been and continues to maintain its position as the elite university of the Kingdom of Saudi Arabia. It is recognized both nationally and internationally as a leading academic and research institution. In the last five years, the university concentrated on further improving the quality of its academic programs and offerings as a primary objective of its transformation. As a result, it achieved several milestones that propelled it to international recognition. KFUPM jumped from number 186 to 160 in QS world university rankings in 2 years. And to continue this progression, KFUPM is continuously taking measures to boost its quality of education, as discussed below.

New Programs and New Ways of Teaching/Learning

Launching 38 new undergraduate concentrations: Undergraduate concentrations (CX) represent an innovative and critically important component of KFUPM's strategy to benefit the Kingdom. By adding a component of specialization to its undergraduate programs, concentrations prepare the students to hit the ground running (as soon as they graduate) and be able to integrate effectively, robustly, and quickly into the workforce of any organization. Through this program, students learn not only the basics of their discipline but also a certain area of specialization on which they focus to gain a concentration in that topic. For example, a student would graduate with a Degree in Comp Lifelong Learning Measure

KFUPM Institute for Knowledge Exchange (KIKX) highlights public events such as seminars, general lectures, workshops, and conferences that take place at KFUPM either physically or virtually. KIKX also gives access to non-technical articles and opinion pieces written by KFUPM's faculty on cutting-edge topics in Science and Technology. The goal of KIKX is to inform, inspire, and ultimately contribute to the transformation of society into a knowledge-driven one that can play the role it deserves in the ongoing fourth industrial revolution and beyond. uter Science and a concentration in Cybersecurity. Students would have learned enough in Computer Science and satisfied all the requirements of that major. Additionally, students would also have specialized knowledge in the area of Cybersecurity, thus they can integrate much faster into cybersecurity work environments. This program has become very successful and has been very well received by the industry, as evident from several sponsorships to the program. This program represents a hallmark of new innovative thinking with a characteristic that distinguishes KFUPM from the top ten global institutions. <u>CX</u> programs

The professional layer is a critically important segment of any economy, as this consists of people who launch new startups or contribute significantly to the advancement, effectiveness, and productivity of their organizations. Therefore, the University has paid special attention to this segment and developed 32 professional Master's degrees (MX, or Master of Engineering) in various fields such as Artificial Intelligence, Supply Chain Management, and many more. Furthermore, some of the programs have the Hybrid Immersive Visual Education (HIVE) option available where the lecture classes will be conducted for in-person attendance, and for online students at the same time. The program is immensely successful in terms of both attractiveness and execution. This was also the first time the University offered academic programs on a meritorious basis irrespective of gender. The industry received this program very positively, as evident from the fact that numerous sponsorships were offered to the participants of the program.



ACHIEVE GENDER EQUAL-ITY AND EMPOWER ALL WOMEN AND GIRLS.





15 PUBLICATIONS





4.55

Gender Equality

The empowerment of women and the creation of equal opportunities are two of the main goals of KFUPM's transformation. KFUPM has achieved significant progress over the last three years in ensuring that males and females have equal chances, both as students and as part of the workforce.

The Proportion of Graduates with Teaching Qualifications

In 2018, the University Board approved the admission of local female students to KFUPM's graduate programs to contribute to research, innovation, and leadership. In the 2019/2020 academic year, about 100 female students from among more than 600 applicants started their postgraduate studies in multiple disciplines at KFUPM. As the university is taking steps towards achieving several goals of the Kingdom of Saudi Arabia's Vision 2030, it opened admission to female students in the 2021/2022 academic year, to undertake Bachelor's Degree for the first time. The university raised the female student's admission to 600 students. This is equivalent to 40% of the total admitted students and is increasing.

H.R.H Prince Abdulaziz Bin Salman Al Saud, who is also the Chairman of the University's Board of Trustees, noted that the enrollment of female students in the university will enable them to benefit from a long-standing national academic institution, which enjoys prestigious international academic standards, and of distinguished rank among the universities in the world, especially in various fields of sciences and engineering.

<u>Energy minister: Graduation enrollment for girls at</u> <u>KFUPM is a matter of pride - Saudi Gazette</u>

Student Access Measures

At KFUPM, all students can have a mentor through Students' Clubs and the Deanship of Guidance and Counseling, which seeks to support and assist students in defining, clarifying, and achieving their interpersonal competencies and academic achievements. It aims to obtain the following objectives:

1- Preparing new students for the university lifestyle.

2- Tailoring the aspects of guidance and counseling to the developmental needs of each student.

3- Enhancing academic achievement and capabilities.

The Proportion of Senior Female Academics

The university has been paying special attention to fast-tracking female employees into leadership positions, including critical functions such as public relations and students' affairs. The number of female employees in the university grew over the past three years. Over the past year, the university hired 90+ female employees.

The university is aggressively targeting female faculty members (to teach both genders). As a result, the number of female faculty members is steadily growing.

Women's Progress Measures

In all of its workspaces, KFUPM removed all restrictions on female employment and ostracizes any type of discrimination against women. Any form of reported discrimination would result in permanent dismissal and a transfer of the case to the appropriate official(s) or authorities. Women are constantly encouraged by the institution to report any form of prejudice in order to create a welcoming and equal environment for everyone. View the IS FAIR Document. The university follows the policy of the Ministry of Human Resource and Social Development regarding matters that have to do with maternity and paternity. Female workers are entitled to full-term maternity leave for a period of ten weeks. This can be distributed as needed starting with a maximum of four weeks before the likely date of delivery. Also, such a female worker shall be entitled to extending the maternity leave for one unpaid month. Duration of Maternity





ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL.





+11K CITATIONS



2.23

Clean Water & Sanitation

At KFUPM, we value water as an essential resource, and we take measures/actions to preserve it, whether it be by research, educational programs, or water security projects. KFUPM always strives to make this resource reserved and available for future generations.

Water consumption per person

In 2021, KFUPM estimated its annual water consumption to be 5.5 million cubic meters. This amount fills the needs of a campus population of around 18,000. This makes the annual consumption per person to be 300 cubic meters per year.

Water usage and care

Water management is essential to preserve and protect the life of people and ecosystems inside the campus. Most of the wastewater in Saudi Arabia gets treated in water treatment plants before reusing it for agriculture or disposing it again to the environment. In KFUPM, the sewage system is connected to the public sewage system of Dharan city, which eventually reaches a wastewater treatment plant to be safely reused or disposed of. Furthermore, KFUPM EHS (environmental, health and safety department) does reqular inspections to prevent any possible contamination or pollution in the water systems. Most KFUPM buildings provide free drinking water. Drinking water fountains can be found in all buildings (except in labs and workshops). In order to minimize water usage, KFUPM applies the SBC (Saudi Building Code) and the "Water Regulations" from MEWA (The Ministry of Environment Water and Agriculture) which says: "Governmental and private entities, licensees and water users

must abide by the rational use of water, and the use of tools, water conservation equipment, and supplies that conform to the standard specifications and technical regulations approved in the Kingdom, including the Technical Regulation for rationalizing water consumption issued by the Saudi Standards, Metrology and Quality Organization, and standard specifications And other technical regulations related to sanitary ware or related to rationalizing the use of water or materials for its use." In addition, we use plants that require less water to minimize water usage and increase our vegetation. The following plants are used:

1- Atriplex halimus is a short-stemmed shrub that is highly drought resistant.

2- Ficus plants are known to be drought tolerant.

3- Azadirachta tolerates poor soils and is drought tolerant once established.

KFUPM utilizes the technology of the RO (reverse osmosis) system to reuse the rejected water which is equal to 500 m3/day. The reused water is used mainly for green area irrigation. The university is reclaiming approximately 30% of salty water (rejected water).

Water in the community

KFUPM Provides educational opportunities for local communities to learn about good water management. In the last year, KIKX (KFUPM Institute for Knowledge Exchange) organized four workshops and two seminars related to Water Security. All workshops are accessible by the public and recordings can be found on <u>KIKX website.</u>



ENSURE ACCESS TO AF-FORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL.



+1K PUBLICATIONS

+23K



1.80

Affordable & Clean Energy

KFUPM acknowledges that conserving energy and utilizing modern technologies with minimal negative environmental effects are crucial for maintaining the planet. The university has taken several initiatives to include this goal in its academic and research activities, even though striking a balance between clean and affordable energy is a major challenge.

Measures Towards Affordable and Clean Energy

The university has implemented a variety of strategies to reduce energy consumption and generate energy from renewable sources.

- <u>A plan was developed for an upgrade</u> of existing buildings and any new structure that will be constructed on campus to achieve high energy efficiency.

- Motion detectors and occupancy detectors have been installed to control the lighting in academic buildings since 2008.

- Since lighting costs often make up the largest portion of the university's energy spend, an enormous effort is being put into studying the feasibility of replacing all campus lights with <u>Solar powered LED.</u>

Additionally, KFUPM President formed an active committee to deal with power-saving initiatives and practices. An audit and assessment of three KFUPM Reverse Osmosis (RO) plants was prepared by the Center of Excellence in Energy Efficiency (CEEE) at the university in an effort to identify energy-saving potentials for the three (RO) plants at KFUPM, providing assessment recommendations to benefit from the identified opportunities, and improving the overall productivity of the facilities.

Energy and The Community

Energy conservation has tangible effects that show results in various aspects of life, such as the economy, the environment, the individual, and society. For this reason, the university has sought to launch many initiatives and campaigns to rationalize energy consumption and renewable energy projects. Interdisciplinary Research Center for Renewable Energy and Power Systems (IRC-REPS) KFUPM designed and implemented a training and awareness program - energy efficiency education, training, and short courses, focusing on energy savings resulting from changes in individual or organizational behavior and decision-making. IRC-REPS has made immense efforts to create awareness and training related to energy efficiency for the community both within and outside the organization. The training was delivered to KFUPM high school students, Asala College, and Dammam University.

KFUPM employees (authors) had contributed to the <u>National Communication (NC)</u> in 2005, 2011, 2016, and <u>2022</u> and the Biennial Update Report (BUR) addressing studies mainly pertinent to national greenhouse gas emissions inventory, climate change mitigation initiatives, socio-economic impacts of climate change response measures, climate change vulnerability, climate change research, education, training, capacity building, and public awareness.

At KFUPM, Energy Saving Campaigns are running continuously to encourage people to save energy and reduce carbon emissions at home and on the move. A study was done in 2021 to estimate the energy consumption of the university, which was found to be 1,116,000 GJ. The floor space of the university is approximated to be 2,040,000 m2. Therefore, the energy use density is 0.547 GJ/m2 Additionally, KFUPM supports student start-ups and ideas for renewable and low-carbon technology. A competition for renewable energy was organized for students to share their viewpoints on energy efficiency. In addition, the El (Entrepreneurship Institute) at KFUPM supported a student to establish a company MyCorr. The company offers engineering solutions for energy in buildings using automation and solar energy.

B DECENT WORK AND ECONOMIC GROWTH



PROMOTE SUSTAINED, INCLUSIVE AND SUS-TAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOY-MENT AND DECENT WORK FOR ALL.





148 PUBLICATIONS

2341 CITATIONS



1.78

Decent Work & Economic Growth

Life at KFUPM is just that – life! It includes life-work balance and an outstanding work environment that promotes personal growth. The university abides by all regulations and laws of the Kingdom regarding employment and work practices. In particular, the university promotes full job opportunities for all its staff, equal pay that does not discriminate against women or any other group, and prohibits child labor and any other substandard work practice.

Employment practice

At KFUPM, all employees are paid at least the minimum wage as stated by the Ministry of Human Resources and Social Development. The latest regulation states that <u>the minimum Wage for</u> <u>Saudis Registered in the Nitaqat program is SAR</u> <u>4,000</u>. The university regularly reviews its pay scales to ensure that they are competitive and ensures that all of its employees have the right office space, equipment and tools to conduct their activities in a decent manner. All faculty receive the benefit of the availability of on-campus housing. Furthermore, all employees are eligible for special discounts to enroll their children in KFUPM schools.

Preventing discrimination in the workplace

Discrimination in the workplace is forbidden according to the Ministry of Labor and Social Development, and KFUPM follows <u>the Saudi Labor</u> <u>Law</u>. This area is a very important and prioritized part of KFUPM's workplace (including discrimination based on religion, gender and age). Furthermore, KFUPM has a policy commitment against forced labor, modern slavery, human trafficking, and child labor. Policy on the employment of minors is mentioned within <u>Saudi Labor Law</u> - part 10 article 161 onwards, page 63 onwards – and KFUPM follows the national law in general but sets the minimum age for employment to 24.

The university has a Labor Affairs Unit under the Deanship of Faculty and Personnel Affairs, which guarantees all labor rights and responds to labor requirements. In addition, all education programs in the university require the students to take at least 8 and utmost 28 weeks of training in the industry. The University issued Code of Conduct (IS FAIR) for guidance and to set a minimum level of expectations concerning ethical behaviors in the University, and is binding on all faculty, staff, management, and any other University employee, as well as contractors, subcontractors, visitors to the University, and family members of the aforementioned living in the University or visiting them.

At KFUPM, incidental, seasonal, and temporary workers are also subjected to the provisions on duties and disciplinary rules, the maximum working hours, daily and weekly rest intervals, overtime work, official holidays, safety rules, occupational health, work injuries, and compensation according to <u>Saudi Labor Law</u> (Refer to Chapter 2, article 6, page 5).

To stop discrimination, KFUPM applies the Saudi Civil Service salary scale and grades, which do not discriminate between genders. You can read more about <u>'Gender equality and</u> <u>combating discrimination in work and wages</u>', which provides articles for the employment of women under the labor law. Also, you can read about the <u>appeal process</u> for employees in <u>Saudi Labor Law</u> - Part VI, Chapter 1, article 91, page 38 - Employee Grievance entitlement.





BUILD RESILIENT INFRA-STRUCTURE, PROMOTE INCLUSIVE AND SUS-TAINABLE INDUSTRIAL-IZATION AND FOSTER IN-NOVATION.





485 PUBLICATIONS

8031 CITATIONS



2.14

Industry, Innovation & Infrastructure

KFUPM has always been known for its leading role in innovation, patenting, and creativity. The university was ranked 25th in the world among all universities granted patents by USPTO for 2021. See <u>Patent registration: Four</u> <u>Saudi universities among top 100 in the world</u>.

Top 100 Worldwide Universities Granted U.S. Utility Patents in 2021.

In addition to this, KFUPM was listed by Clarivate on the <u>Innovators to watch 2021.</u>

Most importantly, KFUPM believes that the primary aim of research and innovation is to improve the human condition. Therefore, it has recently restructured all its research programs to support this goal. A corollary of this aim is to promote the research market. In other words, research can be translated into products that benefit humanity rather than just research-for-papers, which primarily benefit the researchers' careers only. As a result of this new emphasis several new startups were created. <u>KFUPM Entrepreneurship Institute</u> (KFUPM EI), supports students and local creators. El provides mentoring and assistance to creators to establish their startups.

The university believes in revitalizing the role of entrepreneurship in the research system, by rejuvenating the spirit of entrepreneurship and developing enablers for inventors, whether faculty, students, or even outsiders. This includes the DTV (Dhahran Techno-Valley) Startup Challenge, which attracted 166 ideas in the year 2020. The program has four phases: Campaign.

Boot camp to educate entrepreneurs on how to set up their startup companies.

Incubation period with access to funding, mentoring, and services.

Going to the market.

The objective is to increase the number of startups in DTV thereby, invariably enhancing the transition of the economy of the Kingdom. Some examples of these startup ideas are in key areas such as IR4.0, chemicals, manufacturing, oil and gas, and FinTech. <u>El_Startups Success Stories</u>

The 8 El Launched Startups

(Aug2020 – Aug2021)



A food-tech startup that develops Digital menus for food establishment



Easy Q (Mohammed Zaiton) A digital queuing system for The construction industry









REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES.





28 PUBLICATIONS

1	9	8
CIT	ATIONS	



1.19

Reduced Inequalities

KFUPM believes in giving equal opportunity to all. Our admission process and recruitments of both faculty and administrative personnel are highly inclusive and transparent. This university does not differentiate between people regarding gender, race, religious beliefs, disabilities, or nationality. Moreover, KFUPM strives to reduce income disparity in all its activities.

KFUPM modified all its contracted workforce agreements to ensure that the new agreements specify the wages of the contractor personnel rather than leaving it to the contractor to determine these wages, thereby being at risk of underbidding which could invariably result in low wages to its workers. This spans all categories of work, down to janitorial and cleaning personnel. The contractor workers received this exceptionally well, as it also ensures higher retention and better productivity.

Measures Against Discrimination

At KFUPM, there is no discrimination in admissions as this is purely based on academic merit. The admission mechanism for students depends on the comparison between applicants based on the weighted score that is calculated in the following way: (50% for the General Aptitude Test (Qudurat) Score + 40% for the Achievement Test (Tahisili) Score + 10% for the high school score. Anyone can study at KFUPM as long as these academic requirements are fulfilled. <u>Terms of Admission</u>

It is noteworthy that there is a committee handling scholarships given to students on low-income. One of the tasks of this committee is to track and verify the financial situation of the students in this category. Also, KFUPM has an HR talent acquisition team targeting the recruitment of female staff and faculty.

The university has a strong policy against any discrimination. Paragraph 7.3 page 9, of KFUPM code of conduct covers anti-harassment. The

non-hostile environment, some proactive behaviors and attitudes include treating all others with equal respect and dignity regardless of gender, ethnicity, or any other individual differences." That is in an anti-discrimination context. See also the 7.1 "equal opportunities" paragraph. There it says, "The university provides equal opportunity to all affiliates and job applicants and does not tolerate unlawful discrimination of any kind...". <u>Code of</u> <u>Conduct</u>

The Counseling and Advising Unit at KFUPM is concerned with providing advice to students on social, psychological, and educational matters. It is an optional service available to whoever desires it, including staff and students from under-represented groups. <u>Counseling and Advising Unit</u>

In addition to this, the university provides accessible facilities for people with disabilities. Mentioned on page 20 of the organizational and procedural guide for people with disabilities are some of the amenities provided to enhance the working conditions of individuals living with disabilities. These are:

Special tracks for the visually impaired

Toilet aids for people with visual and movement disabilities

Special access routes at the gates for people with mobility and visual disabilities

Automatic doors and Audio maps.

Also, it is mentioned under services provided by the office of students with disabilities (page 20) that they provide academic, psychological, and social counseling services.

Furthermore, as mentioned on page 19, there are more services made available to people with disabilities. These include note-taking help and providing academic advisory services through coordination between students with disabilities and a faculty member cooperating with the special needs' unit.



MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESIL-IENT AND SUSTAINABLE.





253 PUBLICATIONS 1

2292 CITATIONS



1.40

Sustainable Cities & Communities

KFUPM'S campus is situated in the Eastern Region of Saudi Arabia, one of the fastest growing regions in the Kingdom. Education, research, and collaboration with local communities at KFUPM can help form inclusive, sustainable, and smart cities that support rural-urban linkages that are socially, environmentally, and economically beneficial and respectful of basic human rights.

KFUPM Measures Toward Sustainable Cities

The extent to which KFUPM believes in sustainable cities and communities is so much that it offers a variety of practices and academic programs which make cities inclusive, safe, resilient, and sustainable.

KFUPM support sustainable commuting by offering on-<u>campus buses</u> for students, a <u>cycling club</u>, and by offering essential services close to housing like a restaurant, Mall, and sports facilities.

Sustainable commuting is promoted regularly on campus for students and staff by email and by organizing events such as <u>competitions</u>.

KFUPM allows its employees to work remotely by following the <u>regulations of HRSD.</u> Refer to article 9, page 9.

Employees and Faculty Affairs Department provides affordable housing on campus with different options. Employees need to pay approximately only 4000 USD per year for housing, and that includes furniture, maintenance and utilities. The average renting cost for a nearby house outside the campus would cost up to 20000 USD per year. Refer to Page 135 in the faculty handbook (146 in the pdf).

Shared furnished students' housing costs only 600 SAR/Semester (US\$ 160/Semester) and for free during summer, which makes it affordable for the students. Renting in nearby areas would cost up to 1500 SAR per month for a shared room. Refer to Page 35 in the student handbook (36 in the pdf).

Master of Engineering in Smart and Sustainable Cities and Master of Engineering in Intelligent Transportation are offered to communities around the world to face many complex challenges and secure their future energy, mobility, health, and environmental needs in a sustainable manner.

The new department in Smart Cities offers an undergraduate program on this topic and serves as City Planning 2.0, including sustainable transportation, 15-minute cities, the use of renewable energy, advanced green spaces and vertical farms, safe and affordable housing, and building resilient societies.

KFUPM Campus and Public Access

Apart from research and education there are multiple common facilities at KFUPM's campus such as: the Medical center, Library, Sports center, etc. The public and local communities have free access to the university campus, library, academic buildings, and KFUPM Campus guided tours in architecture and history. The campus green spaces are also used by the public, with outdoor seating. KFUPM employees can issue a permit for visitors and once obtained, members of the public can visit the common facilities (excluding sensitive buildings like the R&D Labs)

Public Engagement: Events in University Campus

Hxplore (Summer Research Creativity Challenge) for outstanding high school students.

KFUPM continues organizing <u>career day</u> as has been done for over thirty years as a leading idea and major achievement associated with this University that is always keen to adopt initiatives and ideas, and experiences that contribute to serving students and help them to start their career.

<u>People and Tribes</u>, "شعوباً وقبائل" is a semi-annual event where the students celebrate and show cultural heritage from different regions.



ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS





243 PUBLICATIONS

3618 CITATIONS



2.14

Responsible Consumption & Production

KFUPM is committed to responsible consumption and production among the KFUPM community and the local community.

Operational Measures

Safety procedures on <u>waste disposal inside the</u> campus and chemical hazardous waste handling and disposal are followed to handle municipal waste and dangerous substances and chemicals by EHS (Environment Health & Safety) department to ensure proper disposal of chemical waste. In addition, we have a medical waste management policy at medical center. <u>Medical Waste Management Policy</u> refers to Hazardous Medical Waste, including infectious, chemical, sharps, and pharmaceutical waste. For waste generated from radioactive sources, <u>KFUPM operates a Radioactive</u> <u>Waste room.</u>

The recycling initiative at the KFUPM campus is expected to maintain a cost-effective and efficient waste management program that focuses on reducing, reusing, and recycling of waste. Evidence is listing action points, including "Plastic Waste Reduction" under point 2. <u>(Environment,</u> Health and Safety - Recycling & Waste Management).

All of the above policies extend to any outsourced service as the code of conduct states, reference: page 1 under 1.1 scope it states '...The Code is binding on all faculty, staff, management, and any other University employee, as well as contractors, subcontractors...' and under 1.2 objectives it says 'The University adopted the Code to assist its members with the University's goals of conducting its business and affairs per applicable laws, rules and regulations, and maintaining the highest standards of ethical conduct, fair dealing, good faith, and honesty.' (KFUPM code of conduct).

The proportion of recycled waste

The EHS department implemented color-coded recycling stations across the university to collect and segregate the waste. Also, this department encourages the KFUPM community to adopt the usage of reusable water bottles and make use of free-of-charge drinking water tap outlets at various locations on the campus and the use of biodegradable paper carry bags instead of plastic bags (Environment, Health and Safety - Plastic pollution). More practices related to paper reduction are urged among the community (Kindly visit EHS-recycling & waste management). The Housing & Office Services department monitors and measures the amount of waste generated, including agricultural waste.

Publication of sustainability report

KFUPM publishes a sustainability report every year. This report shows KFUPM activities and progress made fully aligned with the SDGs related to poverty, hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work, and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions and partnerships for the goals (https://sustainability.kfupm.edu.sa/).





TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS.



597 PUBLICATIONS



9247



1.68

Climate Action

As the population keeps increasing and more greenhouse gasses are emitted, KFUPM is pulling its weight through education and research to reduce the effects of climate change nationally and globally.

Environmental Education and Research Measures

The university has dedicated centers to find solutions that help in reducing the impact of climate change and global warming. Some of these centers conduct research in renewable energy & power systems and in hydrogen & energy storage. Also, a concentration program was developed and launched which focuses on climate change adaptation. Furthermore, a research project was initiated which focuses on converting carbon dioxide into hydrocarbon products. Realizing the importance of Carbon Capture and Sequestration (CCS), King Abdulaziz City for Science and Technology (KACST) established a national Technical Innovation Center (TIC) on Carbon Capture and Sequestration (CCS) at KFUPM. Several projects were launched and completed at CCS, which aimed to reduce carbon emissions. Some of the achievements of this center are:

• 3 US patents in the area of CCS.

• Over 23 research papers in ISI-indexed scientific journals.

• 11 scientific research papers in reputable international conferences.

Furthermore, KFUPM Institute for Knowledge Exchange (KIKX) held public events such as seminars and general lectures on climate action. Some of the topics discussed are:

• A seminar about addressing water security through hydro-environmental engineering and research. <u>Water Security and Climate Change.</u>

• A seminar about the <u>Solutions for Carbon Miti-</u> <u>gation</u> in Saudi Arabia. Topics discussed include Energy Sector De-carbonization: Challenges and Opportunities, Industrial Scale Adsorption Processes for Carbon Dioxide Capture, Carbon Capture and Storage in Geologic Formations and the Path Toward Net-Zero Carbon Emissions, and Reticular Materials for Chemical Fixation of Carbon Dioxide.

• A seminar about the overview of the Water and Electricity Regulatory Authority, regulatory initiatives for renewable energy systems in KSA, regulatory framework and enablers of small-scale Solar PV systems in KSA, and overview of regulations for self-consumption renewable energy systems. <u>Regulatory Framework</u> for Renewable Energy Projects in Saudi <u>Arabia.</u>

• A seminar about hydrogen production via water splitting on a large scale, waste recycling for hydrogen production, material synthesis for hydrogen production, and industrial progress on hydrogen production. <u>Hydrogen Production for Fuel and Chemicals: Current Status and Challenges.</u>



CONSERVE AND SUSTAIN-ABLY USE THE OCEANS, SEAS AND MARINE RE-SOURCES FOR SUSTAIN-ABLE DEVELOPMENT.





145 PUBLICATIONS

1398 CITATIONS



1.50

Life Below Water

KFUPM is committed to preserving aquatic ecosystems throughout the campus and the country by actions, education, and research

Supporting aquatic ecosystems through education

The university is aware of the importance of education when it comes to SDGs. Therefore, various educational programs were offered to the public regarding water ecosystems, sustainable fishing, and the damages of overfishing. <u>Several workshops</u> were held which are part of a national project, entitled, "Evaluation of Irrigation Water Allocation System and Water Quotas to the Project Areas and the Extent of Utilization of the Automated Irrigation System and the Identification of Deficiencies and Treatment"

Regular awareness campaigns are held in this regard. This is a document shared by the EHS department to the public, which gives an overview of water use statistics and some practices to save water. A workshop was conducted together with the representatives of the Saudi Ministry of Environment, Water, and Agriculture last May 23, 2021 to discuss the "Development of Saudi Fisheries and the protection of the essential fish habitats in the Saudi waters of the Arabian Gulf". This workshop was offered to the community, both to academic and to general population. In addition, a workshop aimed at sustaining the fish sector and increasing fish stocks was organized. The workshop was attended by many interested parties, including the leadership of the border guards in the eastern region and representatives of the Fishermen's Association, to learn how the fishery resources team views the protection of some types of fishes and shrimps, as well as their habitats.

Supporting aquatic ecosystems through action

KFUPM CEMS (Center for Environment and Marine Studies) organized events aimed to promote conservation and sustainable utilization of the seas and marine resources. For example, "Optical Properties and Remote Sensing of Coastal and Open Ocean Environments" and "Coral Ecosystem in The Western Arabian Gulf is at Risk" was organized The center also worked directly on research projects with the industry to maintain and extend existing ecosystems and their biodiversity. For example, The Manifa Bay protection project with Saudi Aramco. In addition, the center is working with different partners to develop technologies that enable the marine industry to minimize or prevent damage to aquatic ecosystems.

Water-sensitive waste disposal

On a regular basis, the EHS department carries out a <u>number of environmental</u> <u>assessments inside KFUPM</u>, including water quality assessments, to ensure that any activities undertaken on campus comply with the national and international environmental quality standards.

To prevent water pollution, especially from plastic waste, KFUPM started a recycling initiative at the campus which is expected to maintain a cost-effective and efficient waste management program that focuses on reducing, reusing, and recycling general waste, including plastic.

Maintaining a local ecosystem

CEMS has Initiatives which are targeted at protecting the fragile coastal and marine ecosystems in the Red Sea and Arabian Gulf. For example, modeling to estimate the impact of the construction activities (Manifa Bay protection) or Avoiding Biodiversity Hotspots from developmental activity.



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS.





50 PUBLICATIONS





2.19

Life on Land

KFUPM is committed to preserving the ecosystem throughout the campus and the country by actions, education, and research.

Supporting Land Ecosystem Through Education

KFUPM supports the land ecosystem through education. Several courses are available for undergraduate students and can be found in the <u>Undergraduate Bulletin</u>. The undergraduate courses aim to teach students about land use, distribution of urban and regional functions, infrastructure systems, municipal and regional models, population and community ecology, the interaction between species, functions of communities and ecosystems, environmental issues facing humanity, sustainability, biodiversity, evolution, food, soil, pest management, and renewable energy. Some courses are supported by a field trip to enrich knowledge through practical understanding.

The Department of Geosciences, with an active collaboration with the Chemistry Department offers Master of Science, and, Masters in Environmental Sciences Degrees. Graduate programs are fully sponsored by KFUPM and are offered to both local and international communities free of charge. These programs include some courses that educate students about resource sharing among communities, and fundamental concepts of terrestrial environments and human-induced pollution of air and land occurring on both regional and global scales (Graduate bulletin). These courses in environmental sciences are offered and can be taken by postgraduate students.

Supporting Land Ecosystems Through Action

KFUPM is drawing a future with a dedicated center for environment and marine studies (CEMS) in how to keep catastrophic climate changes at bay while still powering our developing world. This center has a terrestrial section that concentrates on studying the biodiversity, ecology, and landforms in Saudi Arabia <u>(terrestrial section CEMS)</u>. The Environment Health & Safety (EHS) department carries out two major programs. These are:

-Building inspections and

-Walk-through inspections.

Incase of any issues, the EHS department will communicate and coordinate with the concerned departments to address the matter with Environment, Health and Safety Department – Office of Environmental Monitoring.

Land Sensitive Waste Disposal

KFUPM protects life on land through its policies on Waste Storage and Disposal and Sewage and Plumbing. The EHS department at KFUPM has stretched its effort to find alternative ways to handle all solid wastes generated on campus in a responsible and environmentally friendly way. The recycling initiative at the KFUPM campus is expected to maintain a cost-effective and efficient waste management program that focuses on reducing, reusing, and recycling of waste including waste source segregation, plastic waste reduction and paper reduction (Environment, Health and Safety - Recycling & Waste Management), One of the initiatives carried out is the installation of special machines for water desalination and purification in KFUPM's water stations-reclaiming approximately 30% of salty water instead of disposing it (Environment, Health and Safety - Water Conservation). Hazardous materials are handled through the EHS department following safety practices that involve selecting compatible containers, identifying hazardous materials, and proper disposal of solid and liquid chemical wastes to protect the land ecosystem (EHS-Chemical Waste Management).



PROMOTE PEACEFUL AND INCLUSIVE SOCIET-IES FOR SUSTAINABLE DEVELOPMENT AND PROVIDE ACCESS TO JUSTICE FOR ALL.





21 PUBLICATIONS

8463 CITATIONS



41.64

Peace, Justice & Strong Institutions

KFUPM is committed to providing equal opportunities to all and ensuring that all students and employees are given their full rights according to law.

University Governance Measures

The President is the Chief Academic and Executive Officer of the University, governed by a Board of Trustees. The current Chairman of the Board is His Royal Highness (H.R.H.) Prince Abdulaziz Salman, who also serves as Energy Minister. <u>KFUPM Organization</u>

KFUPM's students participate in social activities as volunteers. The aim here is to introduce students to social responsibilities through several activities targeting patients, the elderly, children, the environment, and general facilities. (The 13th Volunteering Day)

All relevant internal and external stakeholders of the university are identified and engaged in decision-making and issue-resolution processes of the university. KFUPM lays a high emphasis on forging deeper contacts with the general public and key stakeholders, which not only boosts the general perception of the university but also enriches mutually beneficial relationships in the society. Wider participation from stakeholders in decision-making helps to adopt flexibility and avoid barriers through open-ended communication. KFUPM follows the kingdom laws which have strong regulations regarding corruption and bribery. In the campus community, safety and security measures guarantee a calm and secure environment where crime is essentially non-existent. KFUPM has a zero-tolerance policy for any kind of bribery and corruption. Any violation of the Sharia Law is taken very seriously by KFUPM and could result in harsh consequences. KFUPM Code of conduct (Section 2.2)

The American higher education system is used as the primary model for the academic freedom policy- with local adjustments as deemed necessary. The requirement that all technical topics be taught in the English language is the most extensive of all policies. It guarantees the relevance of technical material as well as the capability of graduates to communicate with managerial, technical, and scientific leadership of significant industries both on national and international level.

Working With Government

Initiatives in research seek to address complicated problems, broaden knowledge for all individuals, and have a broader societal influence. Each year, its full-time researchers work with researchers from other research institutes and departments of the government to produce hundreds of technical research papers, reports, and results, for private and public clients. One of the most important features of our work is interdisciplinary research at centres such as: Advanced Materials, Communication Systems & Sensing, Construction and Building Materials, Finance & Digital Economy, Hydrogen & Energy Storage, Intelligent Secure Systems, Membranes and Water Security, Refining & Advanced Chemicals, Renewable Energy and Power Systems, Smart Mobility and Logistics, and Artificial Intelligence



STRENGTHEN THE MEANS OF IMPLEMEN-TATION AND REVITALIZE THE GLOBAL PART-NERSHIP FOR SUSTAINABLE DEVELOPMENT.

Partnerships for the Goals

KFUPM has collaborated with several organizations including those in the Government to identify problems and find solutions for diverse SDG-related topics. For example, an agreement was made with the Ministry of Human Resources and Social Development to qualify 15,000 leaders in the next three years, and to develop twelve (12) functional standards for the main jobs in the NGO sector to contribute to the management of volunteering within schools and universities. These standards will be adopted at the 'National Center for Community Development Standards' located in the Ministry of Human Resources and Social Development -KFUPM News_

Furthermore, KFUPM has participated in different events that address various topics related to the SDGs. <u>KIKX (KFUPM Institute for Knowledge</u> <u>Exchange</u>) holds regular seminars, workshops, and forums where specialties from around the world are brought together to discuss emerging topics in the field of sciences that can help humanity. For example: securing water, clean energy, and sustainability.

Some of the events that are related to SDGs can be found in the links below:

10th Non-Profit Sector Development Forum Membranes and Water Security Workshop

KFUPM initiated its first research consortium (Sustainable Future) which will consist of global members from both academia and industry. The Consortium for a Sustainable Future adopts a futuristic, materials-based approach to create and scale up a wide range of innovative solutions essential to achieving a sustainable future. Motivated by the fact that the discovery and development of new materials played a significant role in much of humanity's technological advancement, next-generation materials hold significant potential for innovative solutions needed for current grand challenges facing societies in the areas of energy, environment, sustainability, and health.

To assist the country and the world in gathering and measuring SDG-related data, KFUPM faculty helped in collecting data for the National Communication (NC) in 2005, 2011, 2016, and 2022 as well as the Biennial Update Report (BUR) in 2018. These reports include a large number of studies mainly pertinent to national greenhouse gas emissions inventory, change mitigation climate initiatives. socio-economic impacts of climate change, response measures, climate change vulnerability, climate change research, education, training, capacity building, and public awareness. **UNFCC Saudi Arabia NC4**

One of our main tasks as a university is to educate students about the importance of volunteer work and how to be an active member of the society. For this reason, KFUPM runs an annual volunteer day where students participate in different themes. <u>The 13th Volunteer</u> <u>Day</u>

Education for the SDGs

KFUPM has introduced an Undergraduate Concentration (CX) Programs. See: CX programs. These programs align with Saudi Arabia's Vision 2030 which highly correlates to the SDGs. For example, one of the main objectives of the vision is "A Thriving Economy" which is in line with SDG 8. Most of the students in final year enroll in these programs as part of their BSc. degree. There are different concentration areas to choose from. Among them are climate change adaptation, energy efficiency, smart and sustainable buildings, renewable energy and energy storage or waste management.

In addition, below are some of the Master Programs which highly correlates to the SDGs. <u>Master of Engineering on sustainable and</u> <u>renewable energy</u>

Master of Smart and Sustainable cities

The university is planning to introduce more courses and programs to align with different SDGs in order to equip the new generation with the knowledge needed to achieve and maintain these goals.





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