6.5.5 Does your university as a body cooperate with local, regional, national, global governments on water security?

The University Receives a Delegation from the Ministry of Environment, Water and Agriculture

https://www.qu.edu.sa/content/news/2457 [1]

The University, represented by the Faculty of Agriculture and Veterinary Medicine, received on Wednesday, 7/6/1442 AH, a delegation from the Ministry of Environment, Water and Agriculture, where the two parties held the second meeting to activate the memorandum of understanding between them to discuss cooperation in the fields of environmental conservation, and then the delegation toured a number of colleges at the headquarters of the University City, including the Faculty of Agriculture and Veterinary Medicine, the College of Engineering, the Faculty of Science, and the Faculty of Economics and Management.

This meeting comes as an activation of the memorandum of understanding signed between the University and the Ministry of Environment, Water and Agriculture to cooperate in the fields of the environment in an effort to benefit each party from the capabilities and expertise of the other party, where the meeting discussed the tasks of the members of the two teams, and the efforts exerted by each party in the field of awareness of the need to preserve the environment and increase green spaces and ways to achieve integration between them for the benefit of all society.

They also discussed the needs of the two sides and how to exchange experiences between them in the field of academic and training programs, whether at the level of intermediate and high diplomas, or undergraduate and graduate programs, where the university team participating in the meeting reviewed the definition of the scientific, research and expertise capabilities of the university and its colleges in several areas needed by the environment sector.

For its part, the Ministry's delegation made short presentations to introduce the environment sector, the work of the Environment Agency at the Ministry, which included the National Environment Strategy, the Ministry's efforts in developing vegetation cover and combating desertification, as well as the Ministry's efforts in protecting and managing national parks, in addition to its efforts in environmental awareness, and the needs of national environmental centers for academic programs.

Network Water Quality Conference in Buraidah continues its activities

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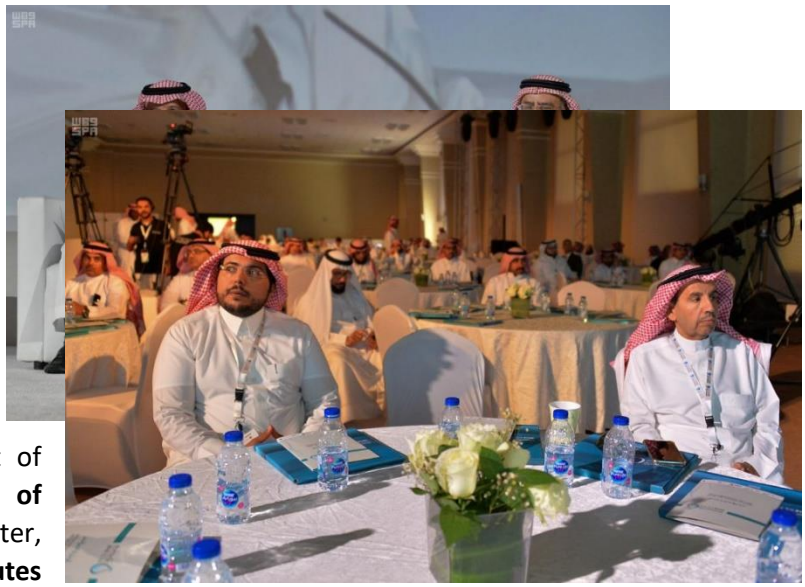


The Network Water Quality Conference continued its activities today, at the King Khalid Cultural Center in Buraidah, where three dialogue sessions were held that included 8 working papers.

The first session, chaired by the Vice President of Qassim University for Graduate Studies and Scientific Research, Dr. Ahmed Al-Turki, discussed three working papers on the first of which came under the title **"Quality of groundwater**" by Dr. Hussein Al-Ajmi Groundwater, where he explained that **it constitutes approximately 98% of fresh water and constitutes almost 60% of the sources of drinking water supply projects in the Kingdom, while the second paper was entitled "Plastic pipes used for drinking water in networks and homes" in which Engineer Turki Al-Shahrani talked about the advantages of plastic pipes and that they Environmentally friendly, while Dr. Ahmed Al-Arifi presented the third paper entitled "Desalination Industry in the Kingdom of Saudi Arabia" in which he touched on the water challenges facing the Kingdom and the history of the desalination industry and some statistics locally and globally.**

The second session, chaired by the Director General of the Water Regulation Department at the Ministry, Dr. Abdulaziz Al-Shuaibi, discussed three working papers, the first of which dealt with "Promising desalination methods" presented by Dr. Ibrahim Al-Mutaz, in which he explained that there are techniques still in the process of experimentation such as desalination by the process of humidification, dehumidification, desalination by freezing method and others, and the second paper discussed the topic of "Optimal design of water purification plants to reduce waste from wastewater" by Dr. Mohammed Heikal, in which he explained that water purification plants produce daily quantities of The third paper was entitled "Specifications of transported water and its impact on the shelf life of transport systems and their reflection on the quality of water arriving to the consumer" presented by Dr. Saud bin Murshid, in which he highlighted the operational technical specifications applied to the transport systems of sweet water in the Kingdom.

The third session, chaired by Dr. Bader Al-Baridi, former Director of Studies and Designs Department at the General Directorate of Water in Qassim, dealt with two working papers, the first of which discussed the topic of "Protection of buried carbon iron pipes used in the transport of water from corrosion", in which Eng. Hamad Ababtain spoke about the importance of protecting carbon iron pipes because it is the nerve of the project to continue serving as long as possible, while the second and last paper in this session was presented by Dr. Ali Al-Hamza entitled "Monitoring of organic and inorganic pollutants in the water produced." From the plants of the Saline Water Desalination Corporation" in which he pointed out that the World Health Organization's standard specifications for drinking water showed the results that organic and inorganic pollutants in the water produced from desalination plants are within the limits allowed by the World Health Organization.

Searching for sustainable solutions for Saudi Arabia

https://www.timeshighereducation.com/hub/p/searching-sustainable-solutions-saudi-arabia [3]

Researchers at Qassim University are using the latest technologies to find sustainable power sources and environmentally friendly water management techniques

From turning date palm tree waste into renewable energy to harnessing the power of the sun, Qassim University is on a mission to find sustainable power solutions.

Investigating sustainable developments in energy, water and environmental engineering is one of the university's 10 priorities, set out in its 2020 to 2024 research strategy.

Sustainable technologies are crucial in Saudi Arabia, where wastewater, municipal and construction waste and air pollution pose environmental threats. The Saudi Vision 2030 has set a target to power half the country with renewable resources by 2030.

Qassim University is working on a host of solutions, from sludge management and waste recycling to sea and groundwater desalination.

One notable project, led by Professor Sulaiman Alyahya, is examining how this waste from date palm trees can be transformed into renewable energy.

The central Al-Qassim province has more than 8 million date palm trees. The trees produce a large amount of agricultural waste including dry leaves, stems and seeds. "A quarter of the date palm is waste and many of the farmers burn that waste, which of course produces CO2 emissions and harms the environment," says Alyahya. "We are really concentrating on how to convert this waste to energy."

An international group of researchers, including scientists from Iowa State University, is investigating how the latest technologies can turn the waste into renewable energy forms like biomass, bio-oil and biogas.

The researchers are using the new technique of autothermal pyrolysis, developed by Iowa State University's Bioeconomy Institute. The process is simpler and cheaper than conventional pyrolysis and does not require an external energy source.

"If we achieve this goal to convert the waste of date palms into energy, Saudi Arabia will have a reduction of almost 8,000 tonnes of CO2 emissions," says Alyahya. "We will stop burning the waste of agriculture and at the same time create richer products."

Solar power research is another focus for Qassim University. Dr Muhannad Alaraj, an assistant professor in the university's Department of Electrical Engineering, is exploring how photovoltaic panels can transform light into power.

"We are investigating the economic effectiveness of PV panels in the Al-Qassim region. We're also studying the effect and forecasting for those PV panels and we currently have a small PV system from which we are collecting the data," says Alaraj.

"We have to consider the weather conditions and meteorological parameters. This is really important because in our region we have mostly sunny days, but sometimes there are sandstorms or clouds. We are trying to see the effect of this weather on PV panels. This will be really helpful to build a model to predict or estimate how much power or energy we will get from this PV panel each day."

As one of the world's most water-scarce nations, Saudi Arabia also needs innovative ideas for renewable water sources.

Dr Saleem AlSaleem, from the College of Engineering, is working on water and wastewater treatment, such as greywater treatment and using solar energy to treat saline water. His team is also developing solutions for solid waste management and tackling noise pollution.

AlSaleem is a member of the university's Sustainable Development Centre, which oversees Qassim's progress in its sustainability initiatives. The centre runs four greening projects, focusing on the curriculum, the campus, research and the university as an organisation.

AlSaleem and his colleagues say collaborating within and outside the university is important for a successful research project. Qassim's scientific research deanship has launched a number of international cooperation grants and encourages faculty members to apply. "We can improve our work by encouraging collaboration," says AlSaleem. "I am working with water companies and municipalities inside Saudi Arabia, and we also collaborate with researchers outside the country. For example, I am working with one professor in Malaysia and another in Italy."

The university's future research into sustainable developments will be boosted by a recently announced research chair for artificial intelligence. The chair will fund studies into AI across the university, including in agriculture and engineering.

"I'm currently working with five teams to see the role artificial intelligence can play in agriculture and renewable energy," says Alyahya.

Sessions of the conference «Horizons of Solar Energy» at the university discuss ways to benefit from solar energy in desalination and electricity generation

https://qu.edu.sa/content/news/2395 [4]

The scientific sessions of the international conference «Prospects of Solar Energy in the Kingdom of Saudi Arabia: Applications and Challenges» organized by the University, represented by the College of Engineering, on its first day on Wednesday 24/4/1442 AH, discussed a number of axes, research and scientific studies with the participation of many academics, researchers in solar applications and industry experts in the Kingdom of Saudi Arabia and the world remotely.

The first scientific sessions of the conference were held under the title "Generation of electrical energy from solar energy", where Dr. Emad Shams presented a research paper entitled "Identifying the problem of tracking maximum solar energy using algorithms inspired by the vitality of swarms", during which he addressed ways to track the maximum point of solar energy to make the PV system in optimal operation, taking into account costs, then Dr. Ahmed Eid talked about his paper entitled "The impact of distributed solar power generation on energy loss and voltage stability of distribution networks". , during which he discussed the integration of solar distributed generators with distribution networks to reduce the loss of active energy and enhance voltage stability.

Afterwards, Dr. Humaid Mohammed presented a paper entitled "Evaluation of the operating conditions of the crystalline silicon PV unit for the distribution of frequencies for the city of Riyadh", during which he stressed that the performance of the PV unit varies under the conditions of the external field and can be better analyzed using frequency distribution under different operating conditions, where the purpose of this study was to find the most common operating conditions of photovoltaic units that can be used to plan, design and scale photovoltaic power plants, as Dr. Rubmati Mina spoke about His paper, entitled "Deterioration of Crystalline Silicon PV Modules under Hot Climate Conditions", revealed that crystalline silicon PV units are vulnerable to defects and deterioration under hot climatic conditions such as in desert areas suffering from multiple environmental pressures, overheating, and ultraviolet radiation, along with temperature and humidity changes with the ingress of gases, as these stress factors can lead to structural, thermomechanical and chemical changes within the PV unit that affect the Its electrical performance.

Dr. Manahel Mohammed then spoke with a paper entitled "Solar Energy as an Alternative to Electrical Energy in Saudi Vision 2030", during which she addressed the knowledge of the opinion of the Saudi people on the use of solar energy as an alternative to electrical energy in homes, where the researchers applied a questionnaire containing 216 samples from different segments of society, and the questionnaire contains four parts, and when the sample was asked about the need to use renewable energy sources to generate electricity instead of generating from oil derivatives, 88.8% of the sample agreed, When asked about the most suitable source of renewables for investment in Saudi Arabia, 93% recommended solar energy, 19% of the sample use solar energy at home, and 88.9% strongly agree that the government's contribution to subsidizing the costs of solar technologies will encourage citizens to use solar energy.

At the end of the session, Dr. Hisham Osman spoke about his paper entitled "Thermal Properties of a Parabolic Basin Complex (Comparative Study)", during which he stressed that it has been commercially proven that parabolic basins are the most advanced of concentrated solar technologies, where operating temperatures can be achieved in the range of 350-550 ° C in parabolic basins, and solar power plants using the equivalent basin can be produced from 5 to 280 MW.

The scientific sessions of the conference continued through a session entitled "Desalination using solar energy", where Dr. Qazi Barry, spoke about his research entitled "Solar Desalination Unit of the Porous Column Type", in which he addressed high-quality potable water sources that have shrunk rapidly in many urban and rural areas of the world especially in the Middle East, Africa and Asia for many reasons, and the removal of salinity and impurities in raw water in any traditional way is still expensive, where he tried to remove salinity and impurities in raw water in any traditional way. One of the low-cost ways to produce distillates (distilled water) is solar desalination, after which Dr. Lotfi Kamal Azaz, for his research paper entitled "Using GIS Technologies and Multi-Criteria Analysis to Determine the Appropriate Locations for Solar Water Desalination Plants, presented a case study from Egypt", during which he noted that water is one of the most important elements of economic development and sustainable development, and water shortages are one of the most important global issues. In Egypt, rapid population growth and economic development are increasing the demand for water, in addition to that there are some other challenges such as climate change and the construction of the Ethiopian dam, and desalination using solar cells is one of the available alternatives to water supply in Egypt especially because of its geographical location within the often dry climatic range with the highest rates of hours of solar radiation almost all year round in the world.

Hence, Dr. Zakaria Amara talked about his study entitled "Solar Distillation with a Rotary Wheel for Desalination: A Comparative Study", during which he explained that the back wall of the distiller is untapped and through it a large thermal loss occurs, so a metal disc was installed on a horizontal column rotated by an electric motor, and the turntable is located in the middle of the back wall and this increases the evaporation area and the area of exposure to solar radiation, when the disk rotates it gets wet with a thin layer of water which helps to speed up evaporation, Dr. Abdullah Najib then spoke about his research entitled "Solar Water Desalination Using Multi-Impact Membrane Distillation: Laboratory Results" where this work dealt with the performance of the solar desalination system using the membrane distillation process, and this system consists of solar photovoltaic panels, solar thermal collectors and membrane distillation unit, the latter is based on membrane distillation with multiple effects in which thermal energy is recycled and reused in the system when the cooling in the condenser is turned on.

In turn, Dr. Abdul Qader Abdullah presented a research entitled "The Effect of Adding Trays on Solar Distillation Performance, Experimental Approach", The productivity of solar desalination units is commensurate with the depth of water and the wet surface area inside the unit, the productivity of the unit can be increased by increasing the surface area of the aquarium, to maintain the lowest possible depth of water inside the unit We used shelves, and two desalination units were designed and manufactured, the first unit is of the traditional type and the second is modified with shelves, and the design, manufacture and experimentation work was done Research for the modified desalination unit for the purpose of improving productivity. In addition, it was designed according to safety standards, and the aim of this work is to increase freshwater productivity by some changes in the design of the unit, where we obtained an increase in the productivity of the shelving desalination unit by approximately 45% compared to the conventional unit, and the daily efficiency was 47% and 34% for the shelf desalination unit and the conventional unit respectively.

The first day of the conference concluded with a scientific session entitled "Materials Used in Solar Energy Applications", which saw Dr. Nazik Al-Attab participate in a paper entitled "Ultra-flexible, extendable, lightweight and highly efficient silicon solar cells for the use of unmanned aerial vehicles", where the study confirmed that the demand for unmanned aerial vehicles is increasing significantly due to their wide range of applications including, but not limited to, agricultural inspection, fire fighting and border security, as well as aircraft However, most of the solar cells currently available are either too heavy, too solid, too expensive or inefficient for drone platforms, necessitating the development of lightweight, ultra-flexible and extendable solar cells with high efficiency that can perfectly correspond to curved and folding surfaces on drones. Pilot without affecting the aerodynamics of the flight.

Introducing his paper entitled "Examining Different Types of Defects in Newly Manufactured Crystalline Silicon PV Modules", Dr. Robmati Mina said that solar PV cells have recently become a promising renewable energy technology, and large capacities have been installed around the world, yet photovoltaic cells face many manufacturing stage defects even before actual use, and these defects not only affect the performance of cells, but are likely to cause a severe deterioration in their performance within years. Few field operation, after which Dr. Sadiq spoke about a research paper entitled "Design, manufacture and testing of low-cost flat panel complexes under the climate of central Qassim", during which he stressed that energy is the main basis for economic, technical and social development, and with the increase in global awareness of energy challenges, solar energy has been given great attention as a promising solution to energy problems, and in this research a small solar complex with natural and low-cost rotation with a solar aperture of 0.75 was designed and manufactured. Square meters at the Faculty of Engineering in Onaiza at Qassim University, the complex was tested to heat 20 liters of water during the day in the city of Onaiza from October 18 to November 4.

At the end of the session, Dr. Mohamed Moussa presented his participation entitled "Perovskite Metal Metal Polyide AMX3 as Promising Candidate Materials for Future Solar PV Technologies", during which he stressed that since the first appearance of solar PV cells in 1976, many scientists have made tremendous efforts to improve the performance of conventional solar PV cells and increase their efficiency, and a range of inorganic semiconductors have been used to manufacture solar PV cells, such as amorphous silicon, monocrystalline and polycrystalline silicon, and thin films. For his part, Dr. Mohammed bin Rabah spoke about his paper entitled "Silicon Nanowires for Photovoltaic Applications", noting that chemical engraving based on silver nanoparticles represents a very modern and sophisticated method used to form nanowires (nanowires) on the surface of monocrystalline silicon chips.

The Governor of the Qassim Region lays the foundation stone for the first phase of the Buraydah Green Oasis project

https://qu.edu.sa/files/shares/newspaper/105/105.pdf [5]

His Royal Highness inaugurated The Emiri Dr. Faisal bin Mishaal bin Saud bin Abdelaziz Amri District Qassim, The Green Oasis Project. In the city of Buraidah, a stone was laid the basis for the first phase of the project. At a cost of more than 77 million riyals, With a total area of 28 million. A square passed, and 200 thousand were planted Tree, implemented by the Ministry of Environment Water and Agriculture in cooperation with the Amana area. The Buraydah Oasis Project and the likes of these are

giant water projects that the Ministry of Environment and Water is working on it. And agriculture for the renaissance and development of the process Environmental sanitation, and work on all that matters is the glory and honor of the homeland And the citizen, what you get By His Highness Amir Al-Qassim, supported by From His Excellency the Minister of Environment and Water and Agriculture.

The Department of Plant Production and Prevention held a symposium on sustainable agriculture on 27/2/2019 entitled (Sustainable Agriculture: A Safe Product and a Clean Environment)

https://cavm.qu.edu.sa/content/news/1336 [6]

A number of college students visit the protected agriculture course to the hydroponics project in Anizah.

https://cavm.qu.edu.sa/content/news/396 [7]

On Monday, 2/3/1439, a number of students of the Faculty of Agriculture and Veterinary Medicine Department of Plant Production and Prevention within the course of protected agriculture paid a scientific visit to the headquarters of the hydroponics project of the Directorate of Agriculture in Onaiza and the delegation received Engineer Abdulmohsen Al-Harbi, supervisor of the project, where he accompanied him to visit the project and gave a full explanation about hydroponics and its importance to the conditions of the Kingdom and answered all the questions and inquiries of the students after that accompanied us on a visit to Engineer Abdulrahman Al-Maiman, who manufactures, establishes and installs materials and devices Hydroponics. This impressed the students with what they saw which increased their understanding of the material and their love for this method of agriculture. This scientific trip was supervised by Dr. Abdulrahman bin Mohammed Al-Mashileh.

The College Receives a Delegation from the University of Michigan, USA

https://cavm.qu.edu.sa/content/news/175 [8]

On the sixth Monday of the month of Jumad I, the Faculty of Agriculture and Veterinary Medicine received a delegation from the University of Michigan, in order to activate the terms of the international agreement concluded between the two parties in academic and scientific cooperation. The delegation included the following:

Prof. George Vincent Bohart

Prof. Gale Marvin Strasburg

Prof. Alden Michael Booren

Prof. Muraleedharan Gopalan Nair

Prof. Raymond Francis Nachreiner

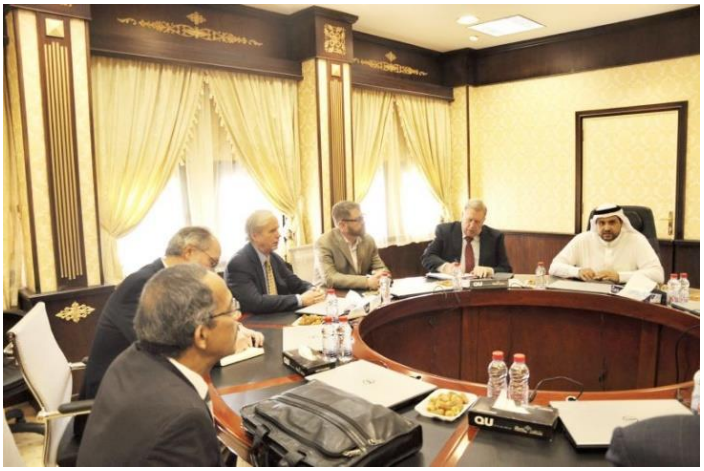
Prof. Douglas Donald Buhler

Prof. Sean Colin Lawrie

Prof. Jason Edward Rowntree

They were received by H.E. Dr. Khalid Bani Al-Harbi - Dean of the College - H.E. Dr. Abdullah Al-Suhaim - Vice Dean for Development and Quality, H.E. Prof. Dr. Ibrahim Al-Humaidan, Head of the Department of Animal Production and Breeding, H.E. Dr. Saleh Al-Tuwaijri, Head of the Department of Veterinary Medicine, and H.E. Dr. Hamad Al-Jubaili, Head of the Department of Food Science and Human Nutrition. This visit comes in accordance with the contract concluded between the university represented by the Faculty of Agriculture and Veterinary Medicine and Michigan State University in order to activate the terms of the international agreement in order to make the best use of such a sunken university as one of the largest international academic expertise houses.

The Acting Rector of the University, H.E. Prof. Dr. Abdulrahman Al-Wasil, received the delegation of the University of Michigan, where His Excellency pointed out that such international cooperation is a strategic option that serves the University and develops its methods to benefit from the experiences of prestigious universities, of which the University of Michigan is one of them. The reception was attended by H.E. Prof. Dr. Ibrahim Al-Omar, Vice President of the University, H.E. Dr. Khalid Al-Harbi, Dean of the College of Agriculture and Veterinary Medicine, and H.E. Dr. Abdullah Al-Suhaim, Vice Dean of the College of Agriculture and Veterinary Medicine for Quality Development and Supervisor of International Cooperation at the College.



His Excellency the President of the University inaugurates the asset management system in the General Directorate of Maintenance and Services

https://services.qu.edu.sa/content/news/141 [9]

On Monday, 19/10/1442H, His Excellency Prof. Dr. Abdulrahman bin Hamad Al-Dawood, President of the University, inaugurated the Asset Management System (Maximo Program) in the General Directorate of Maintenance and Services, which aims to develop the work of the Department and its services provided to the employees and students of the University on the highest standards, in the presence of His Excellency the Vice President of the University, Dr. Mohammed Al-Saawi, and His Excellency the Supervisor of the General Directorate of Maintenance and Services, Eng. Saleh Al-Dhale.

His Excellency the President of the University, after touring the facilities of the Department and the headquarters of the Asset Management, listened to an introduction and presentation on the General Directorate of Maintenance and Services, and a detailed explanation of the program from Engineer "Al-Dhale", who explained that the program is a digital platform for asset management and service delivery to beneficiaries, and is considered a pioneering asset management system produced by IBM through which 100% digital transformation will be carried out in maintenance and service procedures.

Al-Dhalea pointed out that the program aims to increase the productive and operational efficiency, reduce costs for facilities and assets by 30% to 40%, raise the level of quality of work in services and maintenance by 50% to 70%, in addition to extending the life span of facilities and systems, increasing reliability by 80% to 90% through planning and developing preventive and predictive maintenance procedures, facilitating the process of estimating the expected costs of works, service contracts and maintenance, and supporting strategic decision-making.

After that, Eng. Nawaf Deifallah, Deputy Supervisor of the General Directorate of Maintenance and Services, reviewed the tasks of the management of the MAXIMO program, namely: receiving and organizing electronic applications, following up applications and escalation until the stage of closing the application, preparing the required data forms and entering them into the program, as well as creating and developing procedures and indicators according to the tasks and powers of each employee and integration with other systems and departments, in addition to providing information, issuing the required reports, publishing statistics and performance indicators on the department's page on the university website, in addition to providing support For contract managers, supervisors, contractors and all employees and beneficiaries.

He added that the program develops and documents service and maintenance procedures, raises operational efficiency and reduces costs, monitors systems and devices, issues instant statistics, analyzes data and issues reports, as well as monitors performance indicators, supports strategic

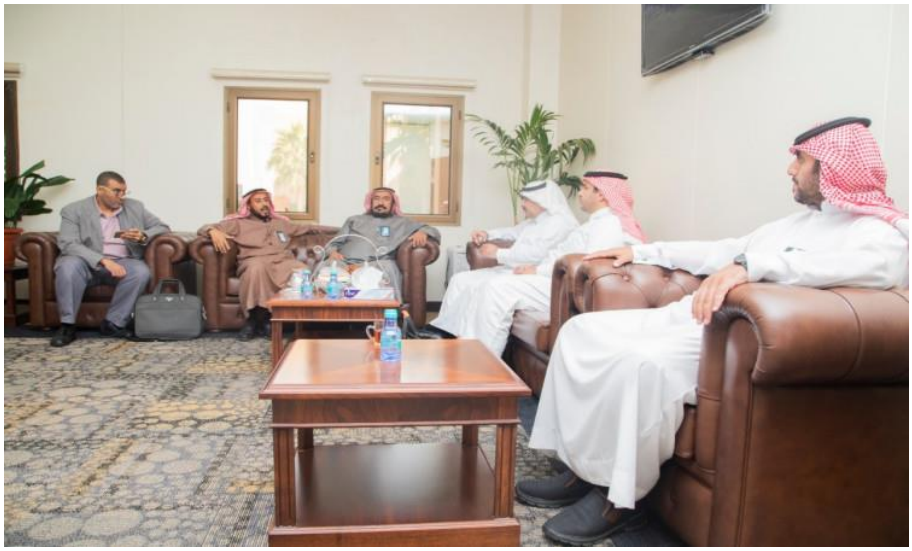
decision-making, estimates costs, maintains the assets, facilities and facilities of the university and increases the shelf life.

He explained that the program aims to evaluate the level of service, quality control, develop services, increase the level of satisfaction, evaluate performance, control inventory and materials, in addition to issuing work permits, facilities management, risk management, warehouse management, contractor management, as well as alerts of stakeholders and escalation, issuance of financial extracts, and control of human resources.

The Services Department receives the team of internal audit visits at the Deanship of Development and Quality

https://services.qu.edu.sa/content/news/46 [10]

The Services Department, represented by the Director of the Department, Mr. Mohammed bin Abdulrahman Al-Dawyan, in the presence of His Excellency the General Supervisor of the General Directorate of Maintenance and Services, Eng. Saleh bin Abdullah Al-Dhale, received the team of field verification visits at the Deanship of Development and Quality headed by His Excellency Dr. Fahad bin Mohammed Al-Anzi, during the visit a representative category of beneficiaries of the Department's services was interviewed and reviewed the progress of the work of the Quality Unit in the Department.



His Excellency the Rector inaugurates the First International Conference on the Sustainability of Natural Resources

https://www.qu.edu.sa/content/news/1531 [11]

H.E. Prof. Dr. Abdulrahman bin Hamad Al-Daoud, Rector of the University, stressed that achieving environmental sustainability is one of the most important pillars of the Kingdom's Vision 2030, in order to raise the efficiency of waste management and reduce pollution, as the Kingdom as an active member of the international system, especially in the Group of Twenty, which seeks to achieve the United Nations goals of sustainable development, pointing out that the issue of waste management is linked to a number of UN goals, including industry, innovation, infrastructure, sustainable cities, sustainable production and consumption, as well as reducing climate change.

This came during the patronage of His Excellency the Rector of the University, for the First International Conference on the Sustainability of Natural Resources: Sustainable Management of Solid Waste, which began on Tuesday morning, 8/3/1441 AH, and which is organized by the Faculty of Engineering at the University and the Center for Sustainable Development, at the headquarters of the main lobby in the University City for men, and for women in the theater of the Faculty of Economics and Management, over two days with the participation of 36 speakers to cover all the axes and objectives of this scientific meeting, which aims to discuss the necessary measures to transform into sustainable food systems.

Al-Daoud added that the university seeks to achieve sustainability through its centers, research and scientists, through a system of integration and cooperation between its units, educational and research programs, thanking the sponsors of the conference, the Qassim Municipality, and all contributing sectors inside and outside the university.

His Excellency the Rector also inaugurated the exhibition accompanying the conference, in which 6 government and private entities participate, including a corner for the Qassim Municipality, a corner for the College of Engineering, a corner for the Center for Sustainable Development, a corner for the City Cement Company, the Cleaning Machinery Factory Company Ltd., and the Fahad Company, and witnessed the signing ceremony of a memorandum of cooperation between the Faculty of Engineering at the University and the City Cement Company.

For his part, the Chairman of the Organizing Committee of the Conference, Prof. Dr. Khalid Bani Al-Harbi, Vice President for Planning, Development and Quality, spoke about the importance of this conference, which comes in harmony with the University's sense of its strategic role in the Kingdom in general and in the region in particular, and as an embodiment of the aspirations of the Kingdom emanating from its Vision 2030, which gave great importance to the economic fields and the areas of quality of life, pointing out that the University has adopted a number of academic activities to embody

this role, the most important of which is this type of scientific meetings, in addition to supporting research in This field and the inclusion of sustainability concepts in the courses of academic programs, and recently the launch of the sustainable university project supervised by His Excellency the Rector of the University and under the patronage of His Royal Highness Prince Dr. Faisal bin Meshaal bin Saud bin Abdulaziz, Amir of the region.

Al-Harbi added that the Organizing Committee has held more than 12 lengthy meetings to prepare for the conference, while the meetings of the other executive committees exceeded more than 30 working meetings, 19 of which were for the Scientific Committee, and the working hours of the preparatory team amounted to more than 150 working hours, and the working group included more than 36 members, and this work resulted in the participation of more than 15 countries with 168 participants, and more than 120 scientific papers were arbitrated.

Al-Harbi explained that the organizing committee and those in charge of this conference, which is dedicated to sustainability concept and research through participants and interested parties, decided that the conference should go beyond this to be sustainable even with an organizational printer, offering thanks and appreciation to partners for success represented by the strategic partner City Cement Company, the silver sponsor Al-Fahad Company, the supporting sponsor of the Qassim Municipality, and the parties cooperating with the conference, which comes at the forefront of which is the Ministry of Environment, Water and Agriculture represented by the Environment Agency and the Ministry's branch in the region represented by His Excellency Eng. Salman Al-Suwaina, as well as The General Directorate of Education in the region is represented by His Excellency Mr. Saleh Al-Jasser for their constructive cooperation to make this conference a success.

After that, the Dean of the Faculty of Engineering, Dr. Meshal bin Ibrahim Al-Mushaiqah, said that the Faculty of Engineering at the University attaches great importance to the topics of sustainability of natural resources for their specialized nature, to be one of the most important arms of the University to achieve this lofty purpose next to the relevant specialized authorities from colleges and other units, the most important of which is the Center for Sustainable Development at the University, as a partner in the organization and incubator of the conference with the College in the establishment of this qualitative international forum.

He pointed out that the conference aims to show the size of natural and economic resources wasted and estimate the environmental cost of waste, as well as discuss the necessary measures to transform into sustainable food systems where waste is reduced and food waste is reduced, in addition to stimulating integration between partners from different disciplines to manage waste in a sustainable manner, studying opportunities to stimulate investment in the development of waste recycling technologies in the Kingdom, and studying the obstacles to investment in the field of waste manufacturing industries, through several axes discussed by the conference, namely: Effective management, valued food and responsible citizen, attractive and ambitious investment, and a cohesive team to protect and sustain the environment.

The organizers of the conference seek to contribute to the preparation of a vision on sustainable solid waste management at the national and global level, through the participation of a number of experts, academics and specialists from 15 countries in this field and discuss the results of the latest studies, research and scientific papers related to sustainable solid waste management through 6 sessions throughout the two days of the conference, in order to reduce the per capita consumption rates in the Kingdom of Saudi Arabia of some goods and services, which come within the highest rates globally, which increased the volume of solid waste generated, Reducing the depletion and degradation of

natural resources due to high consumption rates, and transferring and localizing modern international technologies in the field of waste management in accordance with the conditions of the Kingdom.

The Dean of the College of Engineering added that the conference also seeks to address the challenges arising from waste, which is the responsibility of each member of society, raise community awareness of the risks posed by waste generation, encourage initiatives aimed at improving sustainable waste management, and provide an opportunity to exchange experiences and knowledge among specialists in waste management and sustainable development.

Hence, the speech of the sponsors was delivered by the Executive Director of City Cement, Mr. Majid bin Abdulrahman Al-Assilan, in which he stressed the existence of millions of tons of municipal waste estimated at billions of riyals, which contain organic and inorganic materials of foods and yes God love this blessed country and other materials that could have been recycled and converted into energy to achieve added value to the homeland, but unfortunately they end up in landfills, which is a kind of waste and contradicts our Islamic values and teachings. to the negative environmental impacts resulting from the backfilling of waste in the ground, some of which take more than 100 years to decompose in nature.

Al-Osailan pointed to the risks of leakage of some harmful substances from those residues to the soil and groundwater or the risk of fires, pointing out that most of the developed European countries such as Germany, the Netherlands and Belgium have a total amount of waste destined for landfills is almost zero, where no waste is backfilled and if necessary a very high fee is paid on the landfill to reduce these practices and protect the environment, by replacing the use of petroleum fuels with renewable energy and primitive fuels, offering sincere thanks and appreciation To all colleagues at the university and those in charge of this conference, for their blessed efforts and for what will contribute to achieving the directions of our wise government of raising awareness regarding the environment and sustainability, supporting coordination between the public and private sectors, and contributing to the achievement of the Kingdom's Vision 2030 to place the Kingdom in the ranks of developed countries.

For his part, the Director of the Center for Sustainable Development, Mr. Ibrahim bin Saleh Al-Rabadi, spoke about the vision of the Center for Sustainable Development at the University for sustainability through the adoption of a balanced integrated approach to achieve equitable development between regions and generations, each takes his right and each carries out his duty towards his environment, society and economy to complete the three clusters of sustainability, and sustainability addresses the issue of waste in its physical, technical, social, technical, informatics, financial and economic dimensions.

Al-Rabadi explained that waste management is linked to a number of UN goals, especially the ninth goal, which is industry, innovation and infrastructure, the eleventh goal related to sustainable cities, the twelfth goal on sustainable production and consumption, and the thirteenth goal, which is concerned with reducing climate change, and it is hoped from this conference to seek to diagnose problems accurately and develop appropriate solutions by scientists and experts gathered, and we hope that the objectives of this conference will be achieved and its recommendations translated into useful practical projects.

The conference witnessed the presence of the Vice President of the University, Dr. Mohammed Al-Saawi, the Vice President for Educational Affairs, Dr. Mohammed Al-Odaib, the Vice President for Graduate Studies and Scientific Research, Prof. Dr. Ahmed Al-Turki, Eng. Salman Al-Suwaina, Director of the Branch of the Ministry of Environment, Water and Agriculture in Qassim, Mr. Saleh Al-Jasser, Director of the Department of Education in the Qassim Region, Eng. Abdulmohsen Al-Faraihi, Director

of the Directorate of Water in Qassim, Eng. Abdulaziz Al-Saleem, Deputy Secretary of the Qassim Region, and the deans of the faculties, faculty members and students at the University.

Memorandum of Understanding to Implement the Campaign of One Million Environmental Volunteer Hours

https://twitter.com/QassimUniv1/status/1640333907202650113 [12]

His Royal Highness Prince Dr. Faisal bin Mishaal bin Saud bin Abdulaziz, Governor of Al-Qassim region, witnesses the signing of a memorandum of understanding to implement the campaign of one million environmental volunteer hours between #جامعة_القصيم and the branch of the Ministry of Environment, Water and Agriculture, and the National Center for Vegetation Cover Development and Combating Desertification in Al-Qassim, in the presence of His Excellency the President of the University, Professor Dr.