

الهيئة الملكية لمدينة الرياض
ROYAL COMMISSION FOR RIYADH CITY



Environmental Sustainability Program



Riyadh Sustainability Program
برنامج استدامة الرياض

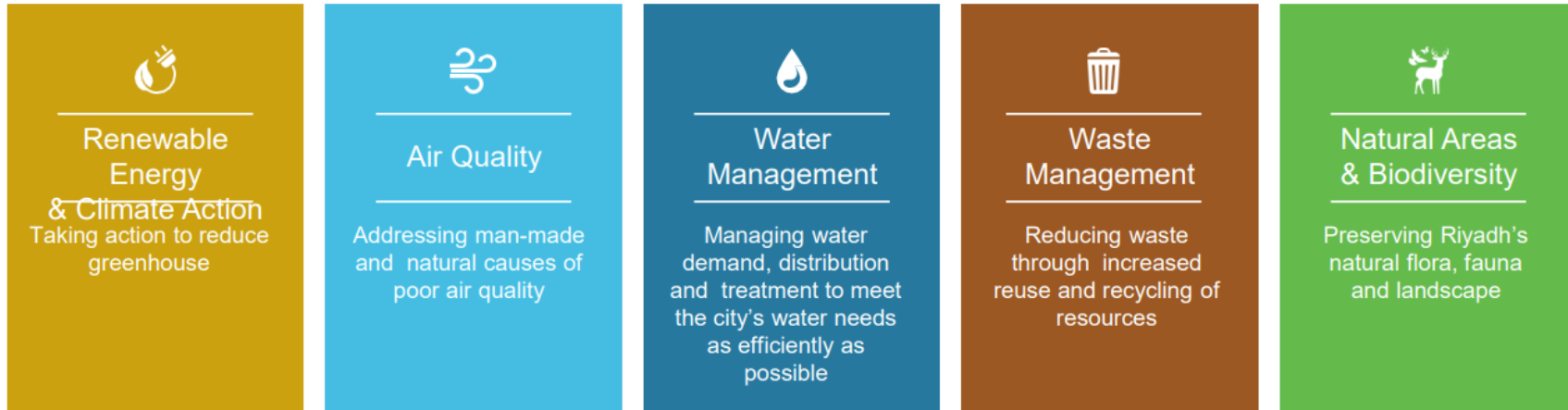
دليل المشاريع والدراسات البحثية
Scientific Research & Studies Guideline



Dear researchers and faculty members at King Saud University

In reference to the Riyadh Sustainability Strategy, which was launched by His Royal Highness, Chairman of the Board of Directors of the Royal Commission for the City of Riyadh, Prince Mohammed bin Salman Al Saud at the Green Saudi Arabia Conference in October 2021 AD. The strategy aims to transform the city of Riyadh into one of the most Sustainable city globally. The Commission and the University are planning to activate joint cooperation in the field of scientific studies and research. We call upon everyone who finds himself capable of activating this cooperation to review the form for listing research topics and to express his desire to attend the workshop scheduled to be held later to introduce the program and explore opportunities for cooperation between the two parties:

Areas of cooperation will fall within the scope of the following five main axes:





1- Climate Change

#	Scientific research topics	Description
01	Climate change scenarios	Research and evaluate climate change scenarios and the direct/indirect effects of climate change the city of Riyadh until 2050
02	Effects and solutions of the thermal v- shear phenomenon	heat island phenomenon and its effects on all sectors of the city, and developing engineering and scientific solutions to address it and reduce its effects
03	Carbon capture and storage solutions	Study and evaluate carbon capture and storage technologies (natural and industrial), and work to implement pilot projects according to the study outcomes.
04	Developing low-emission sites	Study the development of low-emission sites in urban areas of the city, and define environmental sustainability standards in rules and regulations
05	Reducing and adapting to the effects of climate change	Developing strategies to reduce and adapt to the effects of climate change, and researching innovative solutions to confront and prevent natural disasters in the city.

2- Renewable Energy

#	Scientific research topics	Description
01	Decarbonization in Riyadh	A comprehensive study of solutions and technologies that contribute to removing carbon from all its sources in the city of Riyadh
02	Energy grid power loss reduction	Studying smart solutions for the city's electrical power network with the aim of improving energy distribution, reducing losses, and integrating renewable energy sources.
03	Green building design	environmental sustainability standards for new buildings, through the use of low-emission building materials, energy-saving products, and others.
04	Renewable energy technologies	renewable energy solutions and their applicability, and the capabilities necessary to support the adoption of these technologies in facilities affiliated with the government and private sectors.



3- Air Quality, Noise & Light Pollution

#	Scientific research topics	Description
01	Effects of air pollutants	Study the effects of natural air pollutants and those resulting from human activities on the city (such as environmental, economic, social, and health impacts).
02	The impact of traffic congestion on the environment	Studying the effects of traffic congestion on all aspects of environmental sustainability in the city of Riyadh (such as emissions - air quality - noise, etc.).
03	Effects of light pollution	Studying the effects of light pollution on human health and other organisms such as birds and wild animals.
04	Noise pollution reduction techniques	Study innovative techniques to reduce noise pollution in its all forms on public health and the environment.
05	Green chemistry studies	Conducting research and studies to reduce the consumption of chemicals that are harmful to the environment, and identify appropriate green alternatives.

4- Waste Management

#	Scientific research topics	Description
01	Bioplastic production	Studying ways to enhance the production of “bioplastics” made from “partially or completely” organic materials as an alternative to traditional plastics.
02	Limit single-use plastic products	Studying alternatives to single-use plastic products in all sectors of the city, and the capabilities needed to implement them on a large scale



5- Water resources management

#	Scientific research topics	Description
01	Rainwater harvesting solutions and technologies	Studying techniques for collecting and storing rainwater for use in agriculture, industry, etc.; To reduce dependence on drinking water.
02	Recharging groundwater using industrial methods	Studying artificial solutions for groundwater recharge, with the aim of replenishing aquifers and maintaining groundwater levels.

6- Natural Areas and Biodiversity

#	Scientific research topics	Description
01	Guide to local wildlife	A comprehensive inventory of all local wildlife in Riyadh, in addition to of a guide to introduce them and their characteristics.
02	Exploiting mining resources in sustainable ways	Identify Riyadh's mining resources, and study opportunities to exploit them for various industries, to contribute to comprehensive development in sustainable environmental ways
03	Environmental habitat rehabilitation	Develop innovative environmental solutions to rehabilitate the city's ecosystems (natural habitats), taking into account environmental, economic and social factors.
04	The impact of the tourism sector on the environment	Study the impact of tourism activities on aspects of environmental sustainability, and develop appropriate solutions to reduce the impacts of the tourism sector on the environment and its components.
05	Preserving biological diversity	Conduct advanced studies on the mechanism of preserving natural habitats, protecting endangered species, and enhancing environmental resilience.



7- All Axis

#	Scientific research topics	Description
01	Circular economy methodologies	Studying circular economy methodologies in various aspects of sustainability in the city of Riyadh, with the aim of enhancing the efficiency of resource consumption and reducing waste.
02	Technical solutions for monitoring environmental issues	Study and evaluate opportunities to employ innovative technologies and artificial intelligence to monitor and track environmental issues and challenges in the city of Riyadh.
03	Environmental sustainability in urban planning	Studying environmental sustainability standards in the urban planning sector, and applying solutions for developing mixed-use areas in the city.
04	Environmental information and awareness	Study and evaluate environmental media, and develop awareness programs to enhance the role of media in its various channels in addressing environmental issues and promoting sustainability practices.
05	Environmental sustainability in the industrial sector	Researching environmental sustainability solutions and technologies in the industrial sector, and identifying opportunities to develop the city's industrial sector in sustainable environmental ways.
06	Sustainability in the education sector	Studying the inclusion of environmental sustainability topics in the education sector at its various levels (educational curricula - extracurricular activities).
07	Digital transformation and its impact on the environment	Study digital transformation opportunities for the government and private sectors to reduce environmental impacts (such as reducing emissions, waste, etc.).
08	Green financing for sustainability projects	Study financial solutions to enable and support projects (private and non-profit sectors) to shift towards environmental sustainability.
09	Environmental sustainability and quality of life	Studying the returns resulting from environmental sustainability, including improving the quality of life and public health in the city of Riyadh.
10	Fiscal returns from environmental sustainability programs and projects	Studying solutions for tracking long-term financial returns from environmental sustainability programs and projects, and the extent of their contribution to reducing state expenditures
11	Environmental status report for the city of Riyadh	Preparing a state of the environment report for the city of Riyadh, in accordance with the best international standards in the field of environmental sustainability.
12	Sustainable economy and green jobs	Limiting job opportunities through environmental sustainability initiatives and projects, to contribute to supporting the city's green economy.