



**Al-Mustaqbal University**

SUSTAINABLE  
DEVELOPMENT  
**GOALS**

**The Funded Project:**

# **"The Role of Universities in Facing the Challenges of Climate Change"**

Funded by Al-Mustaqbal University

**Final Report**

**01-08-2024**

**The Department of Scientific Affairs**

**Al-Mustaqbal University**

**Produced by: Dr. Tariq Jawad Al-Musawi**

**Contact info: [tariq.jwad@uomus.edu.iq](mailto:tariq.jwad@uomus.edu.iq)**

# Foreword

## from the President

Climate change is one of the most pressing challenges of our time, demanding urgent and innovative responses from all sectors of society. As we witness the profound impacts on our environment, economies, and communities, the role of education and research in addressing these challenges has never been more critical. This project, undertaken by our university, represents a vital contribution to the global conversation on climate change. At Al-Mustaqbal University, we recognize the gravity of this challenge and the critical role that higher education institutions must play in addressing it. Universities have always been beacons of knowledge, innovation, and social progress. Today, more than ever, they are called upon to not only advance our understanding of climate change but also to lead by example in implementing sustainable practices and inspiring the next generation of leaders, thinkers, and doers.

This initiative is more than an academic exercise; it is a call to action. Through interdisciplinary research, community engagement, and the development of sustainable solutions, this project aims to contribute to the understanding and mitigation of climate change. Our university is committed to fostering the knowledge and skills needed to navigate this complex issue, empowering the next generation of leaders, scientists, and citizens to make informed decisions and drive positive change. As we embark on this journey, we are mindful of the responsibility we carry. The findings, strategies, and innovations that emerge from this project will not only enhance our understanding of climate change but will also provide actionable insights for policymakers, businesses, and individuals. We are proud to be at the forefront of this crucial work, and we invite you to join us in this endeavour to create a more sustainable and resilient future.

As you delve into the findings and initiatives presented in this project, we encourage you to reflect on the role you can play in this global challenge. Whether you are a student, educator, policymaker, or concerned citizen, your actions matter. The fight against climate change requires collective action—individuals, communities, and institutions working together toward a common goal. The journey ahead is undoubtedly difficult, but it is also filled with opportunities for innovation, growth, and positive change. By harnessing the power of knowledge, creativity, and collaboration, we can build a more sustainable, resilient, and just world for future generations.

We extend our gratitude to the students, faculty, and partners who have dedicated their time and expertise to this project. Together, we can make a difference and contribute to the global efforts to combat climate change.

Let this project be a testament to our university's commitment to environmental stewardship, academic excellence, and social responsibility.



**Prof. Dr. Hasan Shakir Majdi**  
**President of Al-Mustaqbal University**

## Contents

<b>Project Overview .....</b>	<b>4</b>
<b>Project Details .....</b>	<b>7</b>
<b>Research Publication :.....</b>	<b>12</b>
<b>Conferences and Forums.....</b>	<b>13</b>
<b>Applied Studies .....</b>	<b>16</b>
<b>Campaigns and Initiatives .....</b>	<b>20</b>
<b>Seminars and Workshops .....</b>	<b>25</b>
<b>Visiting Academics.....</b>	<b>27</b>
<b>Conclusions and Recommendation.....</b>	<b>28</b>



# 1. Project overview

## Climate Change: Now and the Future

In recent times, global climate change has unequivocally established itself as an undeniable reality. Iraq, grappling with its own set of challenges exacerbated by a fragile state and deteriorating infrastructure, stands at the forefront of experiencing the multifaceted impacts of climate change. Once considered the Middle East's breadbasket and a part of the Fertile Crescent, Iraq has deviated significantly from that historical norm. The nation is now grappling with rising temperatures, diminishing rainfall, escalating desertification, severe sandstorms, diminishing water resources, agricultural setbacks, and economic disruptions on a national scale. The consequences of climate change are acutely felt across Iraq's 42 million inhabitants, who are concentrated in specific regions due to the harsh climate.

This concentration has direct implications for the people, affecting their lives, economic prospects, and posing challenges to water and food security. According to projections from the Climate Change Knowledge Portal and USAID, Iraq faces a grim future if immediate measures to mitigate the crisis are not implemented. By the year 2050, it is anticipated that the mean annual temperature will rise by 2°C. Simultaneously, the mean annual average rainfall is expected to decrease by 9%, with the most substantial reduction of 17% anticipated during December, January, and February. The projections also indicate an increased frequency of heatwaves, a reduction in the number of frost days, a decrease in the maximum amount of rain falling in any 5-day period, but an overall increase in rainfall intensity. Additionally, an average 22% decrease in runoff across the nation is anticipated, signaling a critical need for proactive measures to address the impending challenges posed by climate change in Iraq.



# 1. Project overview

## Our Drivers to tackle the climate change

The urgency of the climate crisis calls for bold and immediate action from every sector of society. As an institution dedicated to education, research, and public service, **Al-Mustaqbal University** has both a moral obligation and a unique opportunity to lead in the fight against climate change. Our university's decision to act is driven by several key reasons that align with our mission, values, and responsibilities as a leader in higher education.

### 1. A Responsibility to Future Generations

One of the most compelling reasons for our university to act on climate change is our responsibility to future generations. The students who pass through our halls today will inherit a world that is dramatically shaped by the actions—or inactions—of the present. By integrating sustainability into our campus operations, curriculum, and research agenda, we are equipping our students with the knowledge, skills, and ethical framework they need to address the climate challenges of tomorrow. Our commitment to climate action ensures that we are not only preparing our students for their careers but also for their roles as responsible global citizens.

### 2. Aligning with Our Academic Mission

Climate change is not just an environmental issue; it is a cross-cutting challenge that affects nearly every academic discipline. As a centre of knowledge and innovation, our university has a critical role to play in advancing understanding of climate change and developing solutions to mitigate its impacts. Through interdisciplinary research, we can contribute to the scientific, technological, and social innovations needed to combat climate change. Our academic mission calls us to explore complex global issues, and climate change is one of the most pressing of our time.

### 3. Addressing Social Justice and Equity

Climate change disproportionately affects the most vulnerable populations, exacerbating existing social and economic inequalities. As an institution that values social justice, our university is committed to addressing these disparities through our climate initiatives. By focusing on equity in our climate actions—such as ensuring that solutions are accessible to all communities and that our research addresses the needs of marginalized groups—we can contribute to a more just and sustainable future.

### 4. Responding to Global and Local Impacts

The impacts of climate change are already being felt globally and locally, from extreme weather events and changing ecosystems to economic disruptions and public health challenges. As a member of both the global community and our local region, our university is directly affected by these changes. By acting, we can help mitigate these impacts and enhance the resilience of our campus and surrounding community. Moreover, our location may give us a unique perspective, or challenges related to climate change, making it imperative that we take proactive steps to address them.

### 5. Seizing Opportunities for Innovation and Economic Growth

Addressing climate change presents significant opportunities for innovation, economic growth, and job creation. As a research institution, we are in a prime position to develop new technologies, sustainable business models, and policy solutions that can drive the transition to a low-carbon economy. By fostering innovation and entrepreneurship in the field of sustainability, we can contribute to economic development while also making meaningful progress in the fight against climate change.



# 1. Project overview

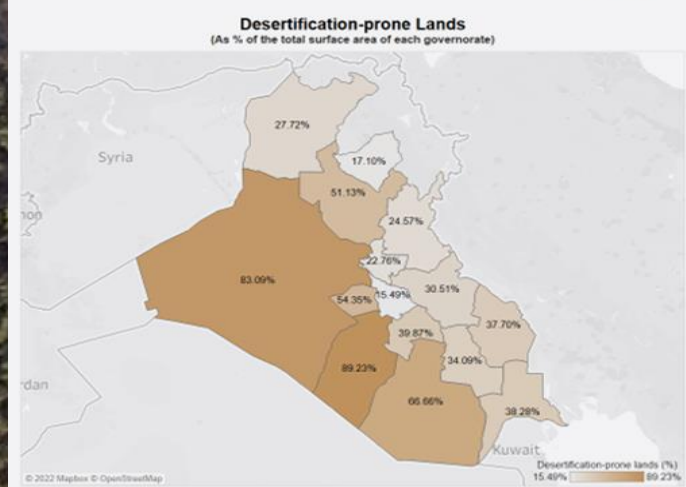
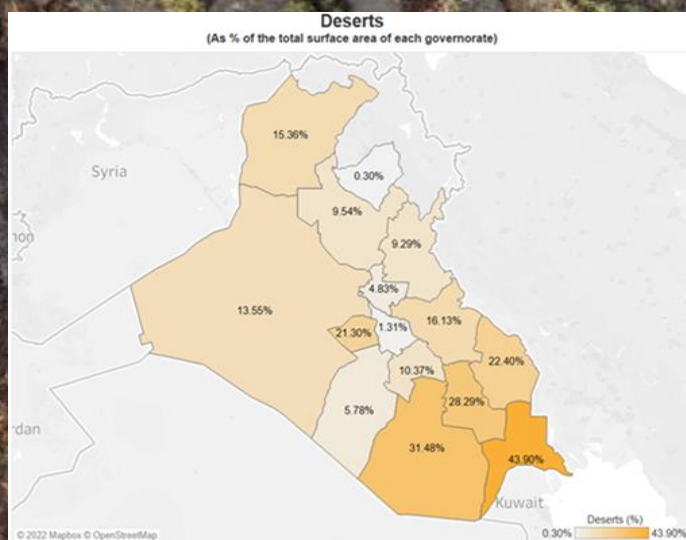


## Climate change impact in Iraq

The United Nations Convention to Combat Desertification, held in 1994, defines desertification as "land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activities."

In Iraq, desertification is a complex issue driven by a combination of climate-related factors and human-induced actions. Climate elements such as high temperatures, water scarcity, and soil erosion contribute significantly to the problem. However, human activities, including population growth, unregulated tree felling leading to deforestation, poor water management, and inefficient farming practices, exacerbate the issue. This confluence of factors has pushed Iraq to the brink of agricultural collapse, with an annual loss of 100 square kilometers of arable land due to desertification. Over 40% of the country is already classified as a desert, and the agricultural sector continues to decline. Between 1970 and 2010, cultivated lands decreased from 12.2% to 8.3% of the total area. The rapid growth in population, from 7 million in 1960 to 40 million in 2020, has intensified the pressure on agricultural lands, leading to increased demand for crops and food that the struggling agricultural sector finds challenging to meet.

The economic repercussions of desertification are substantial. A decline in agricultural output forces small-scale farmers to migrate from dried-up farms to urban centers, triggering competition for limited resources and employment opportunities. Moreover, desertification negatively impacts irrigation, biodiversity, natural ecosystems, and livestock populations. Between 1990 and 2010, an estimated 6,000 plant species were lost due to desertification. Addressing the challenges posed by desertification in Iraq requires a comprehensive and sustainable approach that considers both climatic and human-induced factors.





## 2. Project Details

Al-Mustaqbal University is a pioneer among Iraq's universities, committed to achieving excellence in education and scientific research. Its efforts are based on a firm belief in the role of universities in addressing the problem of climate change and its clear impact on the environment and society. Based on the great interest that Al-Mustaqbal University attaches to supporting researchers and supporting qualitative research projects that serve sustainable development with all its seventeen goals and the firm belief in the positive role that universities can play in addressing the problem of climate change and its impact on the environment and society, the university supports the research project entitled:

### "The Role of Universities in Facing the Challenges of Climate Change"

#### Project Website:

<https://uomus.edu.iq/ArSustainability/ArscientificResearchdetails.aspx>

The project has been launched on 02 January 2024 and expected to end on 31<sup>st</sup> Aug. 2024. It aims to achieve distinguished research successes and publish joint research between the Al-Mustaqbal University and prestigious international universities and in high-level journals, as well as participation in international conferences on climate change within the specifications mentioned in the tables below.

Through this research project, Al-Mustaqbal University promotes international cooperation through joint research engagement with prestigious international universities. The university seeks to contribute to the development of sustainable and effective solutions to address challenges related to climate change, and to encourage scientific dialogue on the international stage.



## 2. Project Details

Project Details	
Name of the project leader	Assoc. Prof. Dr. Tariq Jawad Kadhim Head of the Department of Scientific Affairs Al-Mustaqbal University <a href="mailto:tariq.jwad@uomus.edu.iq">tariq.jwad@uomus.edu.iq</a>
Project Title	"The Role of Universities in Facing the Challenges of Climate Change"
Project Code	Proj.1/ 2024
Project Cost	USD 43,335
The Funder	Al-Mustaqbal University
Project Description	<p>The research project aims to explore and analyse the vital role universities play in addressing the growing challenges associated with climate change. Through the project, several activities will be implemented specialized in finding solutions to climate change problems, such as energy and water pollution issues, carbon problems, and the role of governments in this field. Research on these problems and modern measures will also be published. Research on these problems and modern measures will also be published. In addition to highlighting the role of universities in mitigating the effects of climate change through holding workshops, seminars, and conferences in cooperation with the departments of environment, electricity, oil and other departments related to this topic.</p> <p>The project will also include visits to foreign universities to learn about the latest technologies adopted in this field, which will promote cultural exchange and international cooperation. This project is expected to raise awareness of the importance of measures taken by universities in the field of climate change, and to promote joint efforts to address these global challenges.</p> <p>In addition, the results of the research project are planned to be presented at events organized in cooperation with the Ministry of Higher Education. Presentations and lectures will be given on key discoveries and solutions developed to address the challenges of climate change. This approach allows participants in these events to have a deep understanding of the role of universities and the innovative technologies that have been adopted.</p>
Project Duration	10 months (from 1/11/2023 to 1/8/2024)
Project Field	Multidisciplinary Engineering
Linkage with the SDGs	SDG13, SDG6, SDG7, SDG17



## 2. Project Details

Project Objectives	
1	Developing partnerships with foreign universities: activating or establishing effective and strategic cooperation with several foreign universities to promote scientific and research exchange in the field of climate change.
2	Participation in international conferences: The target is to represent the university and participate in international conference on climate change, energy or water internationally to exchange knowledge and experiences with international researchers and experts.
3	Research Publication: The expected objective of the project is to publish 8 research papers in refereed scientific journals to contribute to scientific knowledge and raise the university's balance in the number of sustainable development research. The research will be in collaboration with researchers from different disciplines. The nature of the research will be compatible with the Sustainable Development Goals.
4	Organizing workshops and seminars on campus: The aim is to exchange experiences, transfer knowledge and educate affiliates about climate change issues. Cooperation will be done with the University's Continuing Education Centre to do this. Participatory seminars will also be held in cooperation with state departments.
5	Create posters and awareness campaigns: Design professional posters on campus and organize awareness campaigns in cooperation with students to spread awareness about climate change issues. This is done in cooperation with engineering departments.
6	International reputation: participating in one of the conferences held by THE TIMES or QS and make presentations or brochures about the university for the purpose of introducing more about the achievements of the university.

## 2. Project Details

Benefits of the project	
1	Strengthening international cooperation and strengthening the research reputation of Al-Mustaqbal University is very important in the field of rankings. Through the project, presentations will be made, and introductory leaflets will be distributed, which it is hoped to display and distribute during visits to foreign universities.
2	Exchange of experiences and visits between Al-Mustaqbal University and foreign universities.
3	Keeping abreast of updates in the rankings and contributing to raising the university's rank through active participation in the events held by the international rankings and introducing more achievements achieved, especially in the field of scientific research.
4	Enriching scientific knowledge and enhancing awareness of the subject of climate change, water pollution and sustainable energy through the publication of scientific research and the establishment of various seminars and workshops in the field of sustainable development.
5	Stimulating local and international cooperation by holding or attending seminars and workshops inside and outside the university, which aim to encourage cooperation to enhance efforts to address climate challenges.
6	Produce a report on the project to be used in international rankings.
The success of this project and the achievement of its objectives will contribute significantly to strengthening the university's reputation as a leading institution in the field of research on environmental issues. This project will also open new collaborative horizons with foreign universities, which is crucial in the context of the international rankings in which the university seeks to achieve advanced rankings.	

## 2. Project Details

### Project Progress and Achievements

At the end of the sixth month since the start of the project, **199** points out of **130** points were achieved



<b>A</b>	<b>Publications</b>	<p>5 Publications were made</p> <p>No. of Points: 40 Point</p>
<b>B</b>	<b>Conferences &amp; Forums</b>	<ol style="list-style-type: none"> <li>1. The Third Arabic Forum for the effective institutional development to achieve the sustainable development goals: 20 Point</li> <li>2. = THE MENA Reputation Forum: 20 Point</li> <li>3. The International Conference of the future horizons to develop the renewable energy – the environmental challenges and solutions : 20 Point</li> </ol>
<b>C</b>	<b>Applied studies</b>	<ol style="list-style-type: none"> <li>1. The Impact Of Climate Changes On The Working Woman In Babylon Governorate. 8 Points</li> <li>2. The Impacts Of Visual Pollution From Waste Sites On The Mental And Psychological Performance Of School Students = 8</li> <li>3. The Impact Of Climate Change On The Migration Of People In Southern Marshes Of Iraq. 8 Points</li> </ol>
<b>D</b>	<b>Community campaigns</b>	<ol style="list-style-type: none"> <li>1. Planting Campaign 1 to tackle the challenges of Climate Changes.5 Points</li> <li>2. Planting Campaign at the distinguished girl's secondary school. 5 Points</li> <li>3. The hazards of plastic waste. 5 Points</li> <li>4. Planting Campaign 2 to tackle the challenges of Climate Changes.5 Points</li> <li>5. Initiatives of The Earth Day 2024. 5 Points</li> <li>6. Memorandum Of Understanding With Nan Jing University Of China. 5 Points</li> <li>7. Memorandum Of Understanding with the University of Petra, Jordan. 5 Points</li> </ol>
<b>E</b>	<b>Workshops and Seminars</b>	<ol style="list-style-type: none"> <li>1. Global The Sustainable Universities. 5 Points</li> <li>2. Solutions to end the environmental Pollution from the petroleum Industries. 5 Points</li> <li>3. The Impact of Climate Change on Iraq. 5 Points</li> <li>4. Sustainable Cities and climate change initiatives. 5 Points</li> </ol>
<b>F</b>	<b>Visiting Academics</b>	<ol style="list-style-type: none"> <li>1. Staff visitor to Ferdowsi University of Iran.. 10 Points</li> <li>2. Staff visitor to University of Petra, Jordan. 10 Points</li> </ol>



### 3. Research Publication (Number of Points:40)

As part of this project is to successfully publish number of scientific publications that focusing on the climate change reduction means such as the transition to the renewable energy and water reuse. As up to June 2024, **five successful research articles** were published in peer-reviewed with high impact journals. The details of these publications are explained below:

#### 1. A comprehensive review of international renewable energy growth.

Journal	Publisher	Impact Factor	SDGs achieved	Publication URL	Publication QR Code
Energy and Built Environment	Elsevier	12.4	7,8,9,13, 17		

#### 2. Evaluating energy, economic, and environmental aspects of solar-wind-biomass systems to identify optimal locations in Iraq: A GIS-based case study.

Journal	Publisher	Impact Factor	SDGs achieved	Publication URL	Publication QR Code
Energy for Sustainable Development	Elsevier	5.5	7,13,17		

#### 3. The renewable energy role in the global energy transition.

Journal	Publisher	Impact Factor	SDGs achieved	Publication URL	Publication QR Code
Renewable Energy Focus	Elsevier	4.8	7,13,17		

#### 4. Hydrogen role in energy transition: A comparative review

Journal	Publisher	Impact Factor	SDGs achieved	Publication URL	Publication QR Code
Process Safety and Environmental Protection	Elsevier	7.8	7, 8, 9, 13		

#### 5. GIS-based multi-criteria analysis for solar, wind, and biomass energy potential: A case study of Iraq with implications for climate goals.

Journal	Publisher	Impact Factor	SDGs achieved	Publication URL	Publication QR Code
Results in Engineering	Elsevier	5	7, 13, 17		



## 4. Conferences and Forums (Number of Points:60)

One of the key objectives of this project is to participate in international conferences that can assist Al-Mustaqbal University to raise the international reputation of the university to spread its efforts in tackling the climate change regionally and globally. The attended conferences are explained below:

### 1. MENA Reputation Forum, Al-Ain, UAE, 13 February 2024.

The inaugural THE MENA Reputation Forum brought together thought leaders from across the region and beyond to discuss the importance of building and maintaining institutional reputation within a global context. Delegates discussed strategies and best practice around reputation, branding, communications, and marketing. Keynotes, panel discussions and case study sessions explored the vital role that reputation plays in the success of an institution. The event uncovered the connection between reputation and rankings and delivered strategies for establishing your university brand in a crowded and dynamic landscape. Delegates learned about how they can manage and measure reputation, and use it to enhance communication with prospective students, alumni, and donors.

Dr Tariq Jawad Kadhim, Head of Scientific Affairs at Al-Mustaqbal University, has attended the event and made significant networking with other attendees. There was deep negotiation and discussions about the role of the university in achieving SDGs and reducing the effects of climate change in Iraq.



**MENA  
Reputation  
Forum**

In partnership with





## 4. Conferences and Forums (Number of Points:60)

### 2. The Third Arabic Forum of The Effective Institutional Development to Achieve the Sustainable Development Goals. AL-Sharjah, UAE, 07-09 February 2024.

The Third Arabic Forum of the Effective Institutional Development to Achieve the Sustainable Development Goals (SDGs) is a significant event focused on enhancing institutional capacities in the Arab world to achieve the United Nations' 2030 Agenda for Sustainable Development. This forum typically gathers policymakers, government officials, development experts, and international organizations to discuss strategies and best practices for sustainable development within the region.

Key topics at such forums often include:

1. Institutional Reform and Capacity Building: Discussing how Arab institutions can be reformed or strengthened to better support the achievement of SDGs.
2. Governance and Transparency: Exploring the importance of good governance, transparency, and accountability in advancing sustainable development.
3. Regional Cooperation: Encouraging collaboration between Arab countries to tackle shared challenges, such as water scarcity, climate change, and economic diversification.
4. Implementation of SDGs: made towards the SDGs in the Arab region and identifying areas that require more focus.
5. Innovative Financing for Development: Discussing new and sustainable financial models to support SDG initiatives in the region.
6. Youth and Gender Inclusion: Addressing youth and women in achieving sustainable development goals, ensuring that these groups are empowered and included in decision-making processes.

The forum likely features panel discussions, workshops, and networking opportunities to facilitate the exchange of ideas and the development of actionable strategies for sustainable development in the Arab world.





## 4. Conferences and Forums (Number of Points:60)

### 9. The International Conference of the future horizons to develop the renewable energy – the environmental challenges and solutions.

Due to the increased demand for electrical energy and the decrease in energy source for many reasons, including wars (especially the Russian-Ukrainian war). The increase in demand for energy has affected energy supply, especially on the European continent, so the world is moving towards alternative energy for the following reasons:

- Preserving the environment.
- Lowering the costs.
- Providing job opportunities in the field of renewable energy.

#### Conference objectives

This conference meets several objectives:

First: Finding safe, clean alternative energy to fill the shortage the world, especially the region and Iraq.

Second: Addressing the major pollution crisis resulting from toxic gas emissions from oil refineries, factories, cars, and generators, which led to many crises:

- 1- Desertification
- 2- Water pollution
- 3- Diseases and epidemics
- 4- Air pollution that causes diseases in livestock and agricultural livestock

Prof.Dr. Mudhafar Al-Zuhairi and Dr. Tariq Jawad Kadhim, from Al-Mustaqbal University, have attended the conference and made deep negotiations about the Creating agreements on climate change involves addressing various topics to ensure comprehensive coverage and consensus. Here are some key topics that were proposed: Greenhouse Gas Emissions, Renewable Energy, Energy Efficiency, Carbon Pricing, Forestry and Land Use, International Collaboration, Funding and Finance, Technology and Innovation.



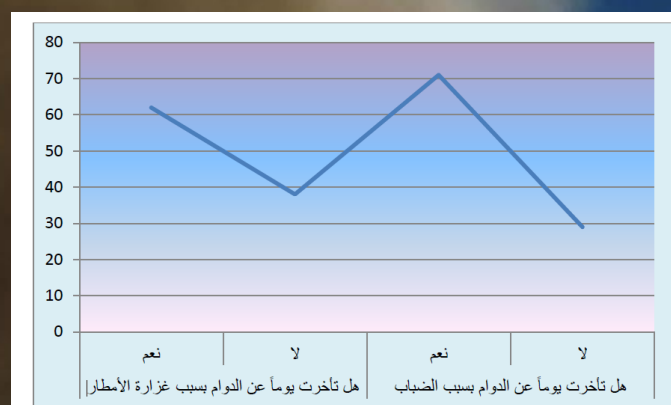
## 5. Applied Studies (Number of Points:24)

### Climate changes and their impact on working women in Babil Governorate Study Overview

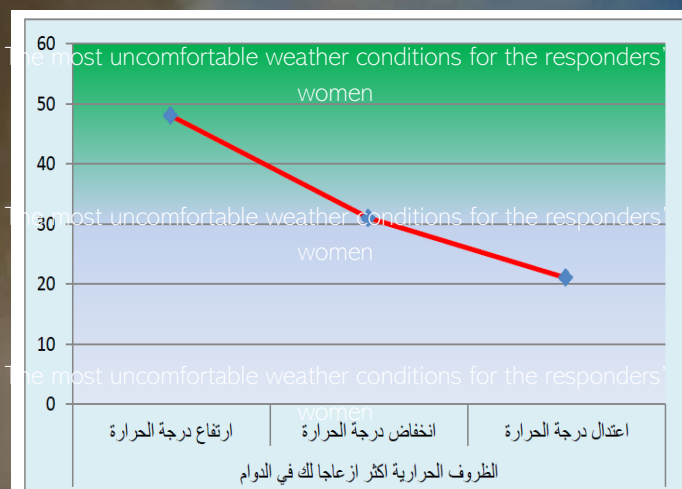
Climate change is one of the most pressing global challenges of our time, affecting ecosystems, economies, and societies worldwide. Its impact is far-reaching, influencing all aspects of life, including the labour market. Among those most affected are working women, who face unique challenges due to the intersection of environmental changes and existing gender inequalities. This essay explores how climate change affects working women, examining the economic, health, and social dimensions of these impacts. Climate change also poses significant health risks that disproportionately affect working women. Rising temperatures, extreme weather events, and changing disease patterns exacerbate health problems, particularly for women in low- and middle-income countries. For example, heat stress can lead to chronic health conditions, reducing women's capacity to work and increasing the burden of unpaid care work, as they often care for sick family members.

Furthermore, climate change can increase the prevalence of vector-borne diseases such as malaria and dengue fever, which disproportionately affect women, especially those in agricultural and domestic work. Pregnant women are particularly vulnerable to these diseases, which can lead to complications such as low birth weight and maternal mortality.

The study seeks to demonstrate the extent of the impact of climate change on the activity of working women as one of the most important workforces in work environments within the study area. This was done by relying on a questionnaire that was distributed in an intentional random manner to working women who are in work environments varying between closed and open, relying on the equation ( Stephen Thamson), where the research revealed that the extent of the impact of climate change was clear and had different dimensions, as the increase in the severity of climate phenomena and heat waves had an impact on the health and activity of working women, as well as early and late arrival to the workplace and other professional repercussions for women in Babil Governorate.



The delay in arriving to workplace due to weather conditions.



The most uncomfortable weather conditions for the responders' women



## 5. Applied Studies (Number of Points:24)

### The impacts of visual pollution from waste sites on the mental and psychological performance of school students

Visual pollution, characterized by the presence of unattractive, chaotic, or harmful visual elements in the environment, is an often-overlooked aspect of environmental degradation. Waste sites, such as landfills, dumps, and unmanaged waste heaps, contribute significantly to visual pollution. These sites are not only eyesores but can also have profound impacts on the mental and psychological well-being of those who live or study nearby, particularly vulnerable populations like school students. This study explores the adverse effects of visual pollution from waste sites on the mental and psychological performance of school students, highlighting the importance of addressing this issue in the broader context of environmental health and education. It is well-known that the environment, both inside and outside the school, has a direct impact not only on the health of students but also extends to affect their learning and understanding levels. Therefore, this study aimed to investigate the impact of visual pollution from illegal waste disposal on the mental and psychological well-being of high school students. A sample of 400 students from a school located in the centre of Babylon Governorate during the academic year 2023-2024 participated in the survey. A questionnaire of 15-item visual pollution scale was used to collect data, with responses categorized as "frequently applies," "sometimes applies," and "does not apply at all," and scored as 3, 2, and 1, respectively. Data analysis was conducted using SPSS, calculating mean scores, standard deviations, and Pearson correlation coefficients. The results indicated statistically significant negative effects of visual pollution on various aspects of the students' well-being, with significance set at a level of 0.05. This study concludes that visual pollution resulting from illegal waste disposal sites negatively affects the well-being and performance of high school students, impacting their ability to understand lessons and their mood throughout learning hours. Municipal departments should address this issue by finding solutions to prevent illegal waste disposal and by increasing public awareness of the negative impact of visual pollution on society.

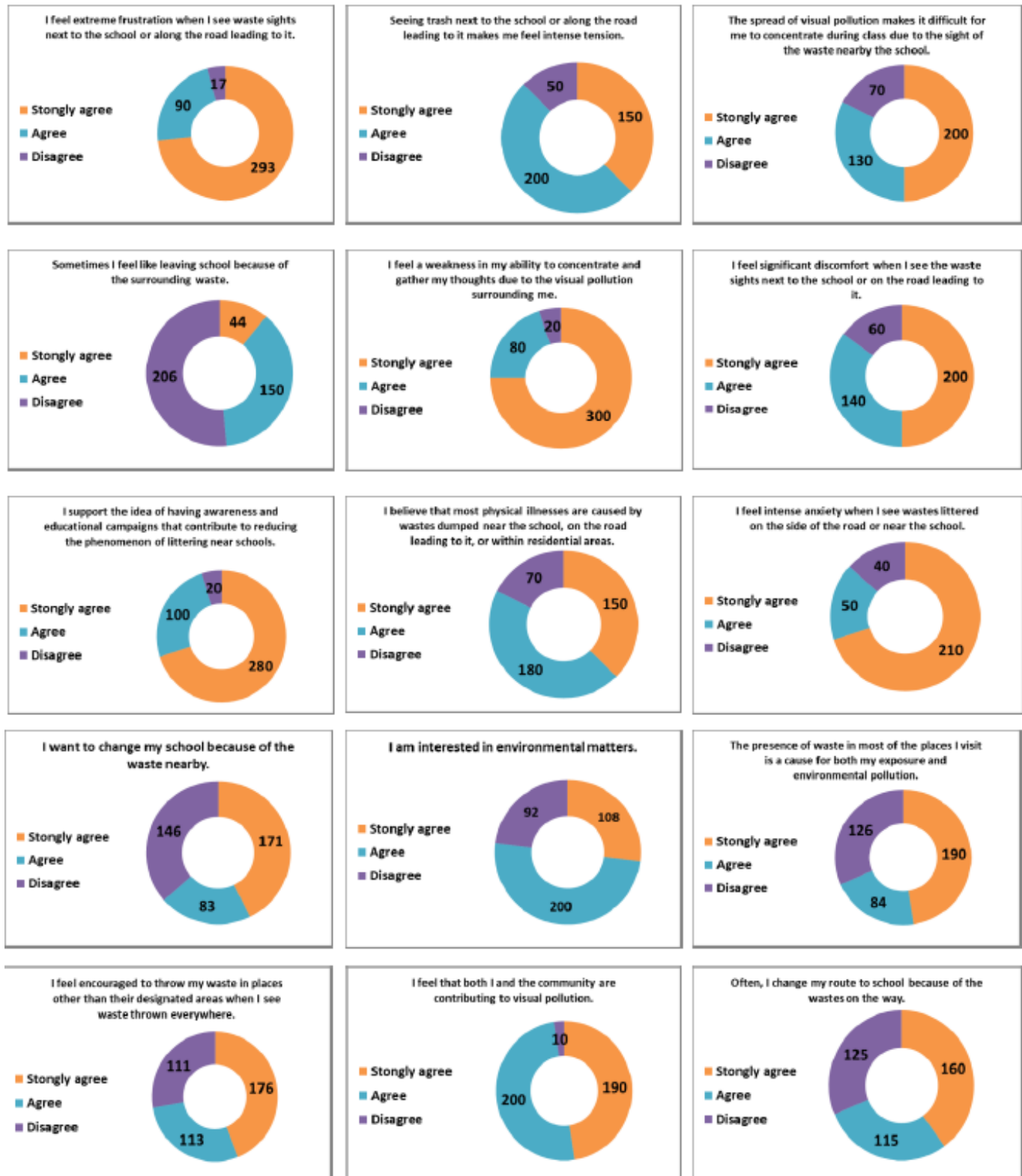
The impacts of visual pollution from waste sites on the



## 5. Applied Studies (Number of Points:24)

### Findings from the study:

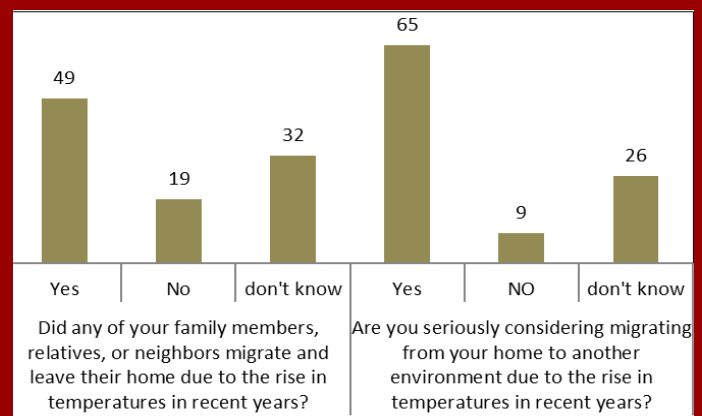
The impacts of visual pollution from waste sites on the mental and psychological performance of school students



## 5. Applied Studies (Number of Points:24)

### The Impact of Climate Change on Population Migration in the Marshes of Southern Iraq

The study aims to elucidate the impact that climate change can exert on population movements that may occur in dry and semi-dry areas in general, and specifically in the marshes area of southern Iraq. To achieve this, researchers adopted a multi-axis scientific methodology to understand the nature of the climate change impact, including relying on the change equation (annual change equation and change over the study period) to determine the direction of change for temperature and rainfall for each of the climate stations (Al-Amarah, Nasiriyah, and Basra) over a period of 50 years. The results showed a positive change in temperatures by (0.25%, 0.22%, 2.55%) for each of the stations respectively, and a negative change in rainfall values by (-0.16%, -0.20%, -0.38%) respectively. Researchers also relied on population data for the study area, which amounted to (97,544 individuals) in (1977) and (56,408 individuals) during (2017), indicating a significant decrease because of climate change, notably the trend of increasing temperatures and decreasing rainfall values. Researchers took the opportunity to administer a questionnaire form by relying on the STEVEN THAMPSON equation to obtain realistic results that serve the study in terms of understanding and addressing the impact of climate change phenomenon.





## 6. Campaigns and Initiatives (Number of Points:30)

### Brief

Iraq, once the lush breadbasket of Mesopotamia, now grasps with the tightening grip of climate change. Rising temperatures parch-thirsty land, transforming fertile fields into dusty plains. The Tigris and Euphrates, lifelines for millennia, shrink to mere threads, leaving farmers staring at cracked earth and dwindling livelihoods. Desertification creeps like a malevolent shadow, swallowing villages and displacing communities. This water crisis is not just environmental; it's a societal earthquake, threatening food security, fueling social unrest, and casting a long shadow over Iraq's future.

In Iraq, desertification is a complex issue driven by a combination of climate-related factors and human-induced actions. Climate elements such as high temperatures, water scarcity, and soil erosion contribute significantly to the problem. However, human activities, including population growth, unregulated tree felling leading to deforestation, poor water management, and inefficient farming practices, exacerbate the issue. During the active academic life of a university campus, there is a powerful tool for combatting climate change and fostering a healthy environment: trees. Their leafy presence isn't simply an aesthetic touch; it's a strategic investment in the fight against global warming and aligns with several United Nations Sustainable Development Goals (SDGs).

By acting as natural carbon sinks, campus trees devour harmful greenhouse gases, contributing directly to SDG 13 on Climate Action. A mature tree can absorb nearly 48 pounds of carbon dioxide annually, offsetting emissions and mitigating the impacts of climate change. This leafy network cools the urban environment, aligning with SDG 11 on Sustainable Cities and Communities by reducing the urban heat island effect and improving air quality. Cooler temperatures and cleaner air translate to healthier communities, directly impacting SDG 3 on Health and Well-being.

Planting trees on a university campus is a tangible step towards a sustainable future. It tackles climate change head-on, promotes health and well-being, fosters environmental responsibility, and empowers communities – all while creating a vibrant and flourishing campus ecosystem. By nurturing these verdant sanctuaries, universities can rewrite the narrative of their role in the world, becoming not just centers of knowledge, but also beacons of environmental action and positive change.



**C**limate change accelerates desertification, turning once fertile lands into barren deserts, and threatens the very foundation of our existence—our ability to grow food, sustain livelihoods, and preserve the natural world.



## 6. Campaigns and Initiatives (Number of Points:30)

### Campaign 1:

Al-Mustaqbal University in collaboration with Babylon Agriculture Directorate and under the supervision of Al-Mustaqbal University President Prof. Dr. Hasan Shaker Majdi organized a campaign to plant over 160 evergreen trees of different species including Eucalyptus, Casuarina, Dodonaea, and Albizia over an estimated area of 400 m<sup>2</sup>. The species was chosen carefully based on their different merits including water consumption and drought resistance. This campaign is part of the university's effort towards combating climate change and achieving United Nations sustainable development goals.



### Campaign 2:

The Department of Scientific Affairs and the Sustainability Division organized a campaign to plant a variety of environmentally friendly plants in the outer space of Hilla High School for Excellence, in which many teachers and students participated, stressing that a good school environment is an integral part of the educational process.



This step comes as part of the Al-Mustaqbal's funded project which entitled "The role of the universities to reduce the effects of the climate change. Ongoing efforts to promote awareness of sustainability and its importance among students, faculty, and the local community. This initiative has been well received by the school's members, highlighting the effective role that universities can play in promoting healthy and sustainable environmental behaviours. The school students and the educational supervisor of Hilla High School for Excellence also thanked Al-Mustaqbal University for organizing this qualitative activity, which aims to achieve the edge of climate change impacts reduction.





## 6. Campaigns and Initiatives (Number of Points:30)

### Campaign 3: The hazards of plastic waste

In confirmation of support for the sustainable development goals, especially the fourth goal (quality education) and the thirteenth goal (climate action), a visit was made to Hilla High School for distinguished women. During the visit, a lecture was delivered on the dangers of plastic waste on the environment and humans, delivered by Dr. Tariq Jawad Kadhim, Director of the Department of Scientific Affairs. We were warmly received by the school administration, and a group of students from different grades interacted to discuss the dangers of plastic waste and exchange ideas to develop effective solutions to reduce the use of plastics and recycle them. At the end of the lecture, simple gifts were distributed to the participating students. The administration of Hilla High School for Excellence also thanked Al-Mustaqbal University for its prominent role in raising awareness of environmental hazards in Babylon Governorate, and for its support for distinguished students and charitable projects that contribute to improving the school environment.

### Campaign 4: Planting Campaign 2 to tackle the challenges of Climate Changes

#### On The Earth Day 2024

Earth Day is an international day celebrated on April 22 of each year, and its aim is to raise awareness of the importance of protecting the environment and preserving natural resources for current and future generations. Through Al-Mustaqbal University, it organizes many events and activities on time and focuses on energy conservation and sustainability. The Department of Scientific Affairs at the university has installed smart lamps with switching off and operating sensors, which help conserve energy when leaving the offices. The university has recorded a halving of electricity usage during the peak work period (8 a.m. to 12 p.m.) using these smart bulbs. This event was greatly admired by students who expressed their desire to apply this technology in their homes. Iraq, as one of the countries that suffer from electricity shortages, especially in the summer, needs integrated efforts to overcome this problem, as the application of systems that help reduce energy consumption in lighting used in buildings can be part of the solution. On the other hand, the Department of Scientific Affairs has planted many environmentally friendly trees, with a nature tolerant of drought and high temperatures, to increase the area of agricultural land. These efforts come within the framework of contributing to the development of vegetation cover and reducing climate change, in addition to reducing temperatures by paying attention to green spaces. These events were fully funded by Al-Mustaqbal University within the funded research project "The Role of Universities in Facing the Challenges of Climate Change".





## 6. Campaigns and Initiatives (Number of Points:30)

### Campaign 5: Initiatives of The Earth Day 2024

On World Earth Day, April 22 of each year...Al-Mustaqbal University organizes various activities on this occasion Which was adopted by the United Nations as an annual tradition aimed at protecting the environment and reducing the effects of pollution through events aimed at spreading environmental awareness .During this day several topics were discussed such as the challenges facing the world in general and Iraq, especially with regard to the negative environmental effects resulting from various agricultural, industrial and economic activities, including the waste that poses a threat to the environment and threatens human life and other living organisms

The central ceremony included other activities including:

1- Presenting a documentary film about the university's initiatives in preserving the environment and achieving sustainability,

2- A presentation by the Director of the Department of Scientific Affairs at the Presidency of the University, Assistant Professor Dr. Tariq Jawad, with the participation of a group of students of Al-Hilla School for Distinguished girls on the dangers of plastic waste.

Also, the President of the University, Prof. Dr. Hasan Shakir Majdi, inaugurated a number of agricultural reserves that indicate the university's interest in contributing to increasing green spaces on the one hand and embodying the concept of a productive university on the other hand. Seedlings of different types were also planted in the presence of the President of the University and the participation of a large group of students from several schools in the governorate, as a contribution from the university to spreading environmental awareness among school students and other segments of society, which is one of the important goals of celebrating World Earth Day.

In addition to the above, the celebration of World Earth Day witnessed the practice of green and sustainable transport to reduce the effects of pollution caused by car exhaust.



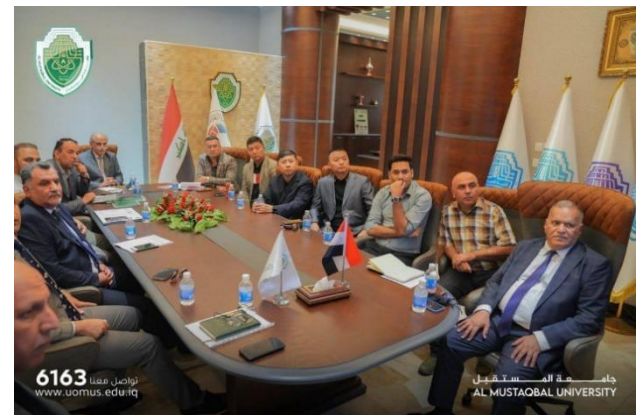
## 6. Campaigns and Initiatives (Number of Points:30)

### Campaign 6: Memorandum Of Understanding with Nanjing University of China

As per the interest of Al-Mustaqbal University to open the horizons of international scientific and cultural cooperation with sober international universities to achieve the desired benefit from cooperation and introduce the potential of Iraqi universities and raise their reputation in international forums. The President of the University, Prof. Hasan Shakir Majdi, received a delegation from Nanjing University of China, which included several officials and academics at the university, as well as the university's partners from the industrial sector, with the aim of activating the memorandum of understanding that was concluded earlier between the two universities.

### Campaign 7: Memorandum Of Understanding with University of Petra, Jordan.

Al-Mustaqbal University has signed a significant Scientific and Academic Cooperation Agreement with the University of Petra . This partnership aims to strengthen ties with Iraqi, Arab, and international universities, focusing on collaborative academic activities, conferences, and faculty and student exchanges. The agreement was signed by Dr. Tariq Jawad Kazim, Director of the Scientific Affairs Department at Al-Mustaqbal University, and Dr. Kenza Abdel Hadi Mansour, Assistant President International Cooperation at the University of Petra. The ceremony was attended by senior officials, including Professor Dr. Rami Abdul Rahim, President of the University of Petra, and Professor Dr. Khairuddin Al-Amin, Cultural Advisor to the Republic of Iraq.





## 7. Seminars and Workshops (Number of Points:20)

### Workshop 1: Globally Sustainable Universities

The workshop was held in the Artificial Intelligence research center Hall, given by Prof. Dr. Ahmed Abdel-Aal from Muthana University, representing the Green Metric Foundation, entitled "Globally Sustainable Universities". The workshop witnessed lively discussions and exchange of ideas on enhancing the commitment of universities to sustainability, and discussing the good results obtained by the university in the Green Metric Ranking. He also discussed the steps to be taken to maintain these results, especially after the increase in the number of universities competing in international rankings. Workshop has witnessed the participation of many personalities and professors from different disciplines.



### Workshop 2: Solutions to end the environmental Pollution from the petroleum Industries

Within the framework of the research project the role of universities in facing the challenges of climate change and within the activities of the Department of Scientific Affairs, a scientific workshop entitled "Finding solutions to environmental pollution resulting from the oil industries and their impact on the climate", the Director of the Department of Scientific Affairs, Dr. Tariq Jawad Kadhim, began the talk on the impact of oil emissions on the environment and pollution. During the workshop, the talk was about polymers and their impact on climate change, where Prof. Dr. Alaa Khudair Hashem / Al-Qasim Green University / College of Environmental Sciences participated as a first speaker, where he presented a comprehensive analysis of the effects of polymers on the environment and climate change, pointing to their role in increasing heat warming and climate change due to greenhouse gases. Dr. Alaa Khudair Hashem highlighted the importance of moving to environmentally friendly alternatives to reduce the negative impact on the environment and climate, such as recyclable packaging and sustainable alternative materials, while Dr. Abdullah Musa Kadhim / Al Qasim Green University, the second speaker, highlighted the challenges related to oil waste and ways to address it, and the workshop focused on finding optimal solutions to recycle this waste and use it in the cement and concrete industry in an environmentally friendly manner, pointing to research successes in this context.





## 7. Seminars and Workshops (Number of Points:20)

### Workshop 3: The Impact of Climate Change on Iraq

An important lecture was held at the College of Engineering and Engineering Technologies, where the lecture was delivered by Prof. Dr. Tariq Jawad Kadhim, Director of the Department of Scientific Affairs, and Dr. Muhammad Latif Hussein, where the topic of "Climate Change and its Impact on Iraq" was addressed. Students from the fourth stage in the Department of Building and Construction Technologies Engineering attended this lecture. The lecture focused mainly on the problem of climate change and its negative impact on Iraq. The phenomenon of desertification and its relationship to the lack of rain and scarcity of water resources in the Tigris and Euphrates rivers and tributaries coming from neighbouring countries were highlighted. The overuse of groundwater storage was also reviewed. The role of global warming and its causes, and how this leads to an increase in temperatures and climate change in the world in general and in Iraq in particular, were also discussed. It was pointed out that climate change is a global challenge that requires international cooperation to confront it and address its effects. The national initiative proposed by the Presidency of the Council of Ministers to deal with climate challenges in Iraq was presented. The initiative included proposals to address the impacts of climate change, including developing strategies to combat desertification and reduce dependence on river water resources and groundwater reservoirs in sustainable ways. This lecture and proposed initiative are related to the Sustainable Development Goals, specifically Goal 13 on urgent action to combat climate change and its impacts.



Rising global temperatures due to climate change have significantly increased the frequency and intensity of wildfires. Warmer temperatures lead to drier conditions, which create the perfect environment for fires to start and spread more easily, resulting in longer and more severe wildfire seasons around the world.



## 8. Visiting Academics (Number of Points:20)

### Al-Mustaqbal University delegation visits Ferdowsi University of Iran.

In light of the focus of Al-Mustaqbal University, to open up to international universities and see the pioneering and successful experiences from them. The university delegation visited the sites of the scientific and technological incubators of Ferdowsi University of Iran, where the delegation was briefed on several scientific products and applied and technological projects that will provide the local market and the industry sector with many qualitative products and innovations.

During the visit, several specialized laboratories in the field of nanotechnology, biotechnology and food industries were also reviewed, in addition to specialized laboratories in the field of mechanical and communications industries.

The experts responsible for the work of technological incubators at Ferdowsi University praised the recent results and advanced ranks achieved by Al-Mustaqbal University in international rankings, in which the scientific research movement is an essential joint, stressing while the university has all the ingredients to establish scientific and technological incubators similar to what exists in leading Iranian universities in this field. During the visit, it was agreed to organize mutual visits between professors and to benefit from the Iranian experience in this field.

It should be noted that the delegation included Assistant Professor Dr. Azhar Mohsen Abed, Dean of the Faculty of Engineering and Engineering Technologies, Assistant Professor Dr. Tariq Jawad, Director of the Department of Scientific Affairs, and Mr. Mohsen Abed, Director of the Student Affairs Department at the Presidency of the University.

### Academic staff from Al-Mustaqbal University visits Petra University, Jordan.

Assist. Prof.Dr. Tariq Jawad Kadhim from Al-Mustaqbal University has visited the university of Petra in Jordan to further exchange knowledge and have extensive vision about the scientific facilities and research laboratories available at the university.

During the visit, a group of innovative projects and scientific products that contribute to the promotion and development of local industries were reviewed, by visiting a number of specialized scientific incubators in pharmaceutical industry centres, engineering workshops, artificial intelligence centre, in addition to medical parks.





## 8. Project conclusions and Recommendation

**The final achieved conclusions from this project can be highlighted as following:**

1. Urgent Action is Required: The project highlights the pressing need for immediate and coordinated global action to mitigate the effects of climate change. The consequences of inaction are severe, including rising sea levels, extreme weather events, and irreversible damage to ecosystems.
2. Interdisciplinary Approaches are Essential: Addressing climate change requires a multifaceted approach that integrates science, technology, policy, and social sciences. Effective solutions must consider environmental, economic, and social dimensions to be sustainable and equitable.
3. Local and Global Collaboration is Key: Collaboration between local communities, governments, international organizations, and private sectors is critical. Localized strategies tailored to specific environmental and cultural contexts, combined with global efforts, are necessary to address the diverse impacts of climate change.
4. Education and Awareness are Powerful Tools: Raising awareness and educating people about climate change is crucial for driving change. Universities play a pivotal role in fostering climate literacy and empowering the next generation of leaders to act.
5. Technological Innovation Can Drive Solutions: The development and deployment of new technologies, such as renewable energy sources, carbon capture, and climate-resilient infrastructure, are vital in reducing greenhouse gas emissions and adapting to climate impacts.
6. Policy and Legislation Must Support Sustainability: Effective climate action requires strong policies and legislation that support sustainable practices, enforce environmental protections, and incentivize green innovations. Governments must lead by setting ambitious targets and ensuring compliance.
7. Individual Actions Matter: While systemic changes are essential, individual actions also contribute to the broader effort to combat climate change. Small changes in daily habits, such as reducing energy consumption, supporting sustainable products, and advocating for climate action, collectively make a significant impact.
8. Continuous Research is Necessary: Climate change is a complex and evolving challenge that requires ongoing research. Continuous monitoring, data collection, and analysis are necessary to understand emerging trends, refine models, and develop more effective strategies for mitigation and adaptation.
9. Equity and Justice Should Guide Climate Action: Climate change disproportionately affects vulnerable populations, including low-income communities, indigenous peoples, and developing countries. Climate strategies must prioritize equity and justice, ensuring that the benefits of climate action are shared fairly and that those most affected receive the support they need.
10. Resilience and Adaptation are Critical: As some degree of climate change is now inevitable, building resilience and enhancing adaptive capacities are crucial. Communities, ecosystems, and economies must be equipped to withstand and recover from climate-related shocks.

These conclusions underscore the complexity of the climate change challenge and the need for a comprehensive, collaborative, and forward-thinking approach to address it effectively.

# Appendix A:

Project leader:

Dr Tariq Jawad Kadhim

PhD in Water treatment Engineering

Head of the scientific affairs at Al-Mustaqbal University

Contact info:

[tariq.jwad@uomus.edu.iq](mailto:tariq.jwad@uomus.edu.iq)



Project Website:

<https://uomus.edu.iq/ArSustainability/ArscientificResearchdetils.aspx>

Project related URLs:

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=734>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=710>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=699>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=672>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=657>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=655>

<https://uomus.edu.iq/Units/Details.aspx?UnitID=5&NewsID=629>

<https://uomus.edu.iq/Units/TrainDetails.aspx?UnitID=5&WorkshopID=159>

<https://uomus.edu.iq/Units/TrainDetails.aspx?UnitID=5&WorkshopID=160>





**Al-Mustaqbal University**

**The Funded Project:**

# **"The Role of Universities in Facing the Challenges of Climate Change"**

**Final Report**

**01-08-2024**

**The Department of Scientific Affairs**

**Al-Mustaqbal University**

**Contact info: [tariq.jwad@uomus.edu.iq](mailto:tariq.jwad@uomus.edu.iq)**