

Final Project 1

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Project Template

Faculty of Management
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Project title

**Sustainability Projects at King Abdulaziz International Airport
Terminal 1: The Role of Project Management in Waste Recycling
and Green Airport Operations**

Student name

...Mohammad Mahmoud Abdullrahman Zain...

Graduation Project – 1

Faculty of Management - Midocean University

Supervisor

Dr. Abdullrahem Nader

Faculty member- Faculty of management- Midocean University

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Chapter 1

Sustainability Projects at King Abdulaziz International Airport: The Role of
Project Management in Waste Recycling and Green Airport Operations

Introduction:

Sustainability has become a strategic priority for airports worldwide due to increasing environmental concerns, climate change challenges, and the growing need to improve resource efficiency. Airports are complex operational environments that consume significant amounts of energy, water, and other resources while generating large quantities of waste. Therefore, implementing sustainability initiatives has become essential for reducing environmental impacts and supporting long-term operational performance.

King Abdulaziz International Airport (KAIA) in Jeddah is one of the largest airports in Saudi Arabia and serves millions of passengers annually. In line with Saudi Vision 2030 and global sustainability objectives, the airport has adopted several environmental initiatives aimed at improving resource management and reducing waste. These initiatives include waste recycling programs, the use of electric cleaning equipment, and the implementation of environmentally friendly operational practices that support green airport operations.

Project management plays a critical role in the successful planning, execution, monitoring, and evaluation of sustainability projects. Effective project management ensures that sustainability initiatives are implemented efficiently while meeting environmental, operational, and financial objectives. Through proper planning, stakeholder coordination, risk management, and performance monitoring, project management contributes significantly to the success of sustainability programs within airport environments.

Furthermore, sustainability projects provide several benefits, including reducing environmental pollution, improving operational efficiency, lowering operating costs, and enhancing the airport's environmental reputation. As airports continue to expand their operations, the integration of sustainability principles into project management practices becomes increasingly important.

This study focuses on sustainability projects at King Abdul-Aziz International Airport and examines the role of project management in supporting waste recycling initiatives and green airport operations. The research aims to highlight how effective project management can contribute to achieving sustainability goals while supporting operational excellence and the objectives of Saudi Vision 2030.

• Sustainability and Environmental Challenges in Modern Airports

Sustainability has become a critical issue in the aviation industry as airports continue to expand their operations to accommodate increasing passenger traffic and air transportation demand. Modern airports consume significant amounts of energy, water, and natural resources while generating large volumes of waste and carbon emissions. Consequently, airport authorities worldwide are implementing sustainability strategies to minimize environmental impacts and improve operational efficiency.

One of the major environmental challenges facing airports is waste management. Airports generate different types of waste, including food waste, plastic materials, paper products, and operational waste from airline and ground handling activities. Without effective recycling and waste reduction programs, these materials can create significant environmental burdens and increase landfill usage.

Another important challenge is energy consumption and greenhouse gas emissions. Airport terminals operate continuously and require extensive lighting, air-conditioning systems, transportation equipment, and operational facilities. These activities contribute to carbon emissions and increase the environmental footprint of airports. Therefore, many airports are investing in energy-efficient technologies, renewable energy sources, and electric ground support equipment to reduce emissions.

Water consumption is also a significant environmental concern. Airports require large quantities of water for terminal operations, cleaning activities, landscaping, and passenger services. Sustainable water management practices, including water recycling systems and efficient consumption monitoring, have become essential for reducing environmental impacts.

King Abdulaziz International Airport (KAIA) has adopted several sustainability initiatives that support environmental protection and operational excellence. These initiatives include waste recycling programs, the use of electric cleaning equipment, environmentally friendly operational policies, and continuous efforts to improve resource efficiency. Such projects contribute to achieving the sustainability objectives of Saudi Vision 2030 while enhancing airport performance and environmental responsibility.

Despite these efforts, airports continue to face challenges related to implementation costs, stakeholder coordination, employee awareness, and the continuous monitoring of environmental performance. Effective project management is therefore essential to ensure that sustainability projects are successfully planned, executed, and evaluated to achieve their intended environmental and operationa

2. Research Background:

Environmental sustainability has become a major concern for organizations worldwide due to climate change, increasing waste generation, and the growing demand for efficient resource utilization. Airports are among the most resource-intensive facilities, consuming significant amounts of energy and water while producing large quantities of waste through daily operations.

In response to these challenges, many international airports have adopted sustainability initiatives such as waste recycling programs, energy-efficient technologies, electric ground support equipment, and environmentally friendly operational policies. These initiatives aim to reduce environmental impacts while maintaining high levels of operational performance and passenger satisfaction.

In Saudi Arabia, sustainability has become a key component of Vision 2030. King Abdulaziz International Airport has introduced several environmental initiatives, including recycling programs, improved waste management practices, and the use of modern cleaning equipment with lower environmental impacts. However, the successful implementation of such initiatives requires effective project management practices to ensure proper planning, execution, monitoring, and continuous improvement.

Therefore, this study focuses on examining how project management contributes to the success of sustainability projects at King Abdulaziz International Airport and how these projects support environmentally responsible airport operations.

2.1 The Importance of Project Management in Sustainability Projects

Project management plays a vital role in the successful implementation of sustainability projects within modern airports. Sustainability initiatives often involve multiple stakeholders, environmental objectives, financial considerations, and operational requirements. Therefore, effective project management is essential to ensure that these projects are completed on time, within budget, and according to the desired environmental standards.

One of the primary contributions of project management is planning and resource allocation. Sustainability projects require careful planning to identify project objectives, define responsibilities, allocate resources, and establish realistic timelines. Proper planning helps organizations reduce risks and improve the efficiency of project implementation.

3. Research Problem:

Despite the increasing adoption of sustainability initiatives in airports worldwide, many airports continue to face challenges in effectively implementing and managing environmental projects. Sustainability programs such as waste recycling, energy conservation, and environmentally friendly operational practices require proper planning, coordination, monitoring, and resource allocation to achieve their intended outcomes.

At King Abdulaziz International Airport, several sustainability initiatives have been introduced to support environmental protection and operational efficiency. However, the success of these initiatives depends largely on the effectiveness of project management practices. Without proper project management, sustainability projects may encounter delays, increased costs, inefficient resource utilization, and difficulties in achieving environmental objectives.

Therefore, the research problem addressed in this study is to examine the role of project management in supporting sustainability projects at King Abdulaziz International Airport and to identify how effective project management contributes to the success of waste recycling programs and green airport operations while addressing environmental challenges in airport activities.

3.1 Environmental Challenges in Airport Operations

Airports play a significant role in supporting economic growth and global connectivity. However, airport operations also create various environmental challenges due to the large number of passengers, aircraft movements, and ground service activities. As airports continue to expand, managing these environmental impacts has become a major concern for airport authorities and stakeholders worldwide.

One of the most significant environmental challenges is waste generation. Airports produce large quantities of waste from passenger terminals, restaurants, retail stores, airline operations, and ground handling services. These wastes include plastic materials, paper products, food waste, and packaging materials. Without effective waste management and recycling programs, airport waste can negatively impact the environment and increase landfill dependency.

Another major challenge is energy consumption. Airport terminals require extensive lighting, air conditioning systems, security equipment, baggage handling systems, and other operational facilities that consume substantial amounts of electricity. High energy

consumption increases operational costs and contributes to greenhouse gas emissions, making energy efficiency an important sustainability objective for modern airports.

Carbon emissions also represent a critical environmental issue in airport operations. Emissions are generated from aircraft activities, airport vehicles, ground support equipment, and passenger transportation. Reducing carbon emissions has become a priority for airports seeking to support international environmental standards and sustainability goals.

Water management presents another environmental challenge. Airports consume large amounts of water for cleaning operations, landscaping, terminal facilities, and passenger services. Inefficient water usage can increase environmental pressure and operational expenses. Therefore, airports are increasingly adopting water conservation and recycling initiatives to improve sustainability performance.

In addition, noise pollution remains a significant concern for communities located near airports. Aircraft takeoffs, landings, and ground operations can create noise disturbances that affect the quality of life of nearby residents. Airport authorities must therefore implement noise management strategies to minimize these impacts while maintaining operational efficiency.

At King Abdulaziz International Airport (KAIA), environmental challenges are addressed through various sustainability initiatives, including waste recycling programs, the use of electric cleaning equipment, and environmentally responsible operational practices. Despite these efforts, continuous improvement and effective project management remain essential for overcoming environmental challenges and achieving long-term sustainability objectives.

Overall, environmental challenges in airport operations require strategic planning, stakeholder cooperation, and sustainable project implementation. Addressing these challenges is essential for protecting the environment, improving operational efficiency, and supporting the sustainability goals of the aviation industry

4. Research Significance

The significance of this study can be viewed from both theoretical and practical perspectives.

Theoretical Significance

This study contributes to the existing literature on sustainability and project management by examining the role of project management in supporting environmental sustainability initiatives within airport operations. It enhances academic understanding of how sustainability projects can be planned, implemented, and monitored effectively in the aviation industry. Furthermore, the study provides a framework for future researchers interested in sustainability practices, waste recycling programs, and green airport operations.

Practical Significance

From a practical perspective, this study provides valuable insights for airport managers, project managers, and decision-makers involved in sustainability initiatives. The findings may help improve the planning and execution of waste recycling projects, environmental programs, and green operational practices at King Abdulaziz International Airport. In addition, the study supports the achievement of Saudi Vision 2030 objectives by promoting environmentally responsible airport operations and improving operational efficiency through effective project management practices.

4.1 Importance of Sustainability Projects in Airports

Sustainability projects have become increasingly important in airports due to the growing need to reduce environmental impacts while maintaining operational efficiency. Airports consume significant amounts of energy, water, and resources and generate large quantities of waste through daily operations. Therefore, implementing sustainability initiatives helps airports minimize their environmental footprint and comply with international environmental standards.

In addition, sustainability projects contribute to reducing operational costs through energy-efficient technologies, waste recycling programs, and the use of environmentally friendly equipment. These initiatives also improve the airport's public image, increase customer satisfaction, and support long-term economic growth.

For King Abdulaziz International Airport, sustainability projects such as waste recycling programs, electric cleaning equipment, and green operational policies contribute to achieving environmental objectives and supporting Saudi Vision 2030. Effective project management ensures that these sustainability initiatives are implemented successfully, monitored continuously, and aligned with organizational goal

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إقرار طالب بإعداد وتسليم بحث علمي

أُقر أنا الطالب/الطالبة:محمد محمود عبد الرحمن زين.....

المقيد/ة بكلية:الادارة.....

التخصص:ادارة المشاريع.....

المستوى:المشروع "1".....

الرقم الجامعي:252000489.....

بأن البحث المقدم بعنوان:

أثر ممارسات الاستدامة البيئية على الكفاءة التشغيلية في مطار الملك عبدالعزيز الدولي

هو من إعدادي الشخصي بالكامل، وأتحمل المسؤولية الكاملة عنه من جميع الجوانب، وذلك بدايةً من اختيار فكرة البحث، وتحديد المشكلة البحثية، وصياغة الأهداف، ووضع الفروض أو التساؤلات، مروراً بجمع البيانات والمراجع، وتحليلها باستخدام الأساليب العلمية المناسبة، وصولاً إلى استخلاص النتائج والتوصيات.

كما أُقر بما يلي:

الالتزام بالأمانة العلمية في إعداد البحث، وعدم النقل أو الاقتباس غير المشروع.

توثيق جميع المراجع والمصادر المستخدمة توثيقاً علمياً صحيحاً.

أن البحث لم يتم اقتباسه كلياً أو جزئياً من أي مصدر دون الإشارة إليه.

أن البحث لم يُقدَّم سابقاً لأي جهة تعليمية أخرى للحصول على درجة علمية.

الالتزام بكافة قواعد ومعايير إعداد البحوث العلمية المعتمدة.

وأتحمل المسؤولية القانونية والأكاديمية كاملةً في حال ثبوت خلاف ذلك.

وتحرر هذا الإقرار بناءً على رغبتي، ودون أدنى مسؤولية على المؤسسة التعليمية.

الاسم:محمد محمود عبد الرحمن زين.....

التوقيع:.....

التاريخ:21/6/2026.....

جامعة ميدأوشن

كلية الإدارة

قسم إدارة المشاريع

تقرير أخلاقيات البحث العلمي

أثر ممارسات الاستدامة البيئية على الكفاءة التشغيلية في مطار الملك عبدالعزيز الدولي

إعداد الطالب /

محمد محمود عبد الرحمن زين

إشراف

د. عبد الرحيم نادر

العام الدراسي

2026

جامعة ميدأوشن
كلية الإدارة
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أثر ممارسات الاستدامة البيئية على الكفاءة التشغيلية في مطار الملك عبدالعزيز الدولي

المقدمة

تعد أخلاقيات البحث العلمي مجموعة من القيم والمبادئ التي تحكم سلوك الباحث أثناء تنفيذ الدراسة العلمية. وتساعد هذه المبادئ على ضمان المصداقية والنزاهة والشفافية في جميع مراحل البحث العلمي. كما تسهم في حماية حقوق المشاركين والمحافظة على جودة النتائج وإمكانية الاعتماد عليها في اتخاذ القرارات المستقبلية. تعد أخلاقيات البحث العلمي مجموعة من القيم والمبادئ التي تحكم سلوك الباحث أثناء تنفيذ الدراسة العلمية. وتساعد هذه المبادئ على ضمان المصداقية والنزاهة والشفافية في جميع مراحل البحث العلمي. كما تسهم في حماية حقوق المشاركين والمحافظة على جودة النتائج وإمكانية الاعتماد عليها في اتخاذ القرارات المستقبلية. تعد أخلاقيات البحث العلمي مجموعة من القيم والمبادئ التي تحكم سلوك الباحث أثناء تنفيذ الدراسة العلمية. وتساعد هذه المبادئ على ضمان المصداقية والنزاهة والشفافية في جميع مراحل البحث العلمي. كما تسهم في حماية حقوق المشاركين والمحافظة على جودة النتائج وإمكانية الاعتماد عليها في اتخاذ القرارات المستقبلية.

أهمية أخلاقيات البحث العلمي

تتمثل أهمية أخلاقيات البحث العلمي في تعزيز الثقة في نتائج الدراسات، وحماية المجتمع من المعلومات غير الدقيقة، وضمان احترام حقوق الأفراد المشاركين في البحث. كما تساعد في منع الانتحال العلمي والتلاعب بالبيانات وتحسين جودة الإنتاج العلمي. تتمثل أهمية أخلاقيات البحث العلمي في تعزيز الثقة في نتائج الدراسات، وحماية المجتمع من المعلومات غير الدقيقة، وضمان احترام حقوق الأفراد المشاركين في البحث. كما تساعد في منع الانتحال العلمي والتلاعب بالبيانات وتحسين جودة الإنتاج العلمي. تتمثل أهمية أخلاقيات البحث العلمي في تعزيز الثقة في نتائج الدراسات، وحماية المجتمع من المعلومات غير الدقيقة، وضمان احترام حقوق الأفراد المشاركين في البحث. كما تساعد في منع الانتحال العلمي والتلاعب بالبيانات وتحسين جودة الإنتاج العلمي.

المبادئ الأساسية لأخلاقيات البحث العلمي

تشمل الأمانة العلمية، والنزاهة، والموضوعية، والسرية، والموافقة المستنيرة. ويجب على الباحث الالتزام بهذه المبادئ خلال جمع البيانات وتحليلها وعرض النتائج. تشمل الأمانة العلمية، والنزاهة، والموضوعية، والسرية، والموافقة المستنيرة. ويجب على الباحث الالتزام بهذه المبادئ خلال جمع البيانات وتحليلها وعرض النتائج. تشمل الأمانة العلمية، والنزاهة، والموضوعية، والسرية، والموافقة المستنيرة. ويجب على الباحث الالتزام بهذه المبادئ خلال جمع البيانات وتحليلها وعرض النتائج.

يتضح أن أخلاقيات البحث العلمي تمثل أساساً ضرورياً لضمان جودة الدراسات الأكاديمية ومصداقيتها. ويساعد الالتزام بهذه الأخلاقيات في إنتاج معرفة علمية موثوقة تخدم المجتمع وتسهم في تطوير المؤسسات. يتضح أن أخلاقيات البحث العلمي تمثل أساساً ضرورياً لضمان جودة الدراسات الأكاديمية ومصداقيتها. ويساعد الالتزام بهذه

الأخلاقيات في إنتاج معرفة علمية موثوقة تخدم المجتمع وتسهم في تطوير المؤسسات. يتضح أن أخلاقيات البحث العلمي تمثل أساساً ضرورياً لضمان جودة الدراسات الأكاديمية ومصداقيتها. ويساعد الالتزام بهذه الأخلاقيات في إنتاج معرفة علمية موثوقة تخدم المجتمع وتسهم في تطوير المؤسسات. ويتضح أن أخلاقيات البحث العلمي تمثل أساساً ضرورياً لضمان جودة الدراسات الأكاديمية ومصداقيتها. ويساعد الالتزام بهذه الأخلاقيات في إنتاج معرفة علمية موثوقة تخدم المجتمع وتسهم في تطوير المؤسسات .

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