Jordan University of Science and Technology

Climate Resilience and Environmental Sustainability Policy for JUST Campus

2022-2026

Contents

Foreword

In its pursuit of distinction and as part of its endeavor as a world-class university, Jordan University of Science and Technology (JUST) has been working on sustainability and climate resilience to support its status as a leading national university and enhance its international standing among top-ranked universities.

Sustainability and climate resilience policy is also a key strategic goal in our 2022-2026 strategic plan. To achieve our goal this sustainability and climate resilience policy was prepared and approved by the Dean's Council to manage and plan all components identified as pillars of sustainable environment on our campus. This policy reflects our dedication to continual improvement of our campus life and activities. The university administration is committed to allocating sufficient resources to ensure the implementation of this policy. All action plans evolving out of this policy will be implemented and monitored. Feedback and learning experiences will be employed to revise and improve this policy every five years.

JUST President

Introduction

Sustainability, defined as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs, has become an imperative for organizations worldwide. In its pursuit of sustainable excellence, JUST not only acknowledges the importance of responding to current needs but also strives to create a legacy that fosters a better environment for future generations. This commitment to environmental stewardship is reflected in the comprehensive Environmental Sustainability Policy, which serves as a roadmap for JUST to advance and mainstream sustainability across all its operations.

The policy is not merely a set of guidelines; it represents a profound commitment to managing JUST's relationship with the natural environment and life-sustaining ecosystems. It lays out meticulous procedures for the maintenance, restoration, and advancement of an environmentally friendly campus—a testament to JUST's dedication to being a responsible global citizen.

The policy outlines nine crucial areas of sustainable practices. Land Resources and Ecosystem Management underscore JUST's dedication to preserving biodiversity and ensuring the responsible use of land. Research and Innovation reflects the university's commitment to advancing knowledge that addresses pressing environmental challenges. Teaching and Learning emphasize the integration of sustainability principles into academic curricula, ensuring that every graduate is equipped with a holistic understanding of environmental responsibility. Sustainable Procurement policies pledge to make conscientious choices in sourcing materials, promoting environmentally friendly products, and contributing to a sustainable supply chain. The Health and Wellness Culture aspect extends beyond individual well-being to encompass a collective commitment to fostering a campus culture that values both human and environmental health. The Energy, Waste Management, Water Management, Wastewater Management and Climate Resilience components are practical manifestations of JUST's dedication to operational sustainability.

JUST demonstrates a strong commitment to continuous improvement through a thorough review and revision process of its Environmental Sustainability Policy. Regular assessments are conducted to evaluate progress against the baseline data. This regular assessment will allow the university to track achievements and adapt strategies in response to emerging environmental challenges. The policy, with clear goals, effective mechanisms, and key performance indicators, establishes a transparent and accountable framework for reducing the university's ecological footprint.

However, the successful implementation of this ambitious policy is contingent on a collective and cooperative effort from every stakeholder within the JUST community. From the administration to the teaching staff, employees, and students, each plays a vital role in ensuring that the outlined goals are not just aspirations but tangible achievements.

As these collaborative efforts unfold, JUST envisions itself not just as an institution of higher learning but as a sustainable, modern, and green campus—a living embodiment of its commitment to environmental responsibility. By setting this standard, JUST seeks to inspire other institutions globally to follow suit, fostering a ripple effect that contributes to a more sustainable future for academia and the planet at large.

Land Resources and Ecosystem Management

Ambitious Goal

Preserve and enhance the natural landscape of the university-owned ecosystems to improve the quality of life on campus.

Objectives

1. Increase cultivated area by 30% by 2026.
2. Increase the number and variety of plants on campus by 10% by 2026.
3. Plant a minimum of 500 trees and garden plants annually to enhance green spaces and contribute to carbon sequestration efforts.
4. Expand planted vegetation coverage by 5% annually to create more sustainable and aesthetically pleasing campus environments.
5. Annual count of annual plants planted in gardens: Increase the number of annual plants planted in gardens by 15% annually.

Actions

1. Establish habitat restoration projects to enhance biodiversity on campus, including the planting of native vegetation and the creation of wildlife corridors.
2. Develop sustainable agricultural practices and initiatives such as organic farming methods, composting programs, and the planting of various fruit trees and vegetables to increase the production of agricultural products on campus.

Key Performance Indicators

1. Total number of varieties cultivated plant species.
2. Total area of lawns.
3. Total recorded number of trees and garden plants planted / per year.
4. Total area on campus covered in planted vegetation (Gardens, Orchards, Forests and Lawns).
5. Total number of annual plants planted in gardens/per year.

Alignment with Sustainability Development Goals

This Action Plan aligns with UN Sustainable Development Goals:

1. SDG 3 Good Health and well-being
2. SDG 11 Sustainable Cities and Communities
3. SDG 13 Climate Action
4. SDG 15 Life on Land

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal #5 University environment and infrastructure.

Challenges

1. Lack of data
2. Financial resources

Research and Innovation

Ambitious Goal
Strengthen JUST leadership in the creation of new knowledge and solving real-world problems related to climate resilience and sustainability.

Objectives
Increase the number of funded projects related to sustainability and increase the number of published articles related to sustainability by 5% annually.

Actions
1. Develop a structured reward and incentive system to foster sustainability engagement among faculty.
2. Integrate sustainability criteria into the selection process for the university's Distinguished Teacher Award.
3. Facilitate and endorse sustainability-focused research and innovation by providing support for funding proposals.
4. Foster an innovative culture among students, faculty, and staff to tackle sustainability challenges, leveraging resources like the Center for Excellence for Innovative Projects, The Queen Rania Al-Abdullah Center for Environmental Science and Technology, The Center for Sustainable Development Studies and Technology, and The Consultative Center for Science and Technology to provide support and encouragement.
5. Communicate sustainability principles to staff, students, and the local community, encouraging their involvement in sustainability activities through volunteering opportunities and educational events.
6. Organize a sustainability day in partnership with the Center for Excellence for Innovative Projects so that participants have access to the technical incubator to provide the necessary technical support to design and build prototypes of products and services.
7. Establish a UNESCO chair to promote training and research in climate resilience and sustainability

Key Performance Indicators
1. Number of published articles related to sustainability.
2. Number of projects related to sustainability.
3. Total funded projects amount (JD).

Alignment with Sustainability Development Goals
This Action Plan aligns with the UN Sustainable Development Goals of 2015:
1. SDG 8 Decent Work & Economic Growth
2. SDG 9 Industry, Innovation & Infrastructure
3. SDG 11 Sustainable Cities & Communities
4. SDG 13 Climate Action

Alignment with JUST Strategic Plan 2022-2026
This Action Plan aligns with JUST Strategic Goal #4 Scientific research and innovation and interaction with industry.

Challenges
1. Lack of available data
2. Financial resources

Teaching and Learning

Ambitious Goal

Strengthen JUST leadership in innovative educational experiences that foster and promote a culture of climate resilience and sustainability within the JUST and broader community.

Objectives

1. Increase the number of interdisciplinary courses/modules by at least 20% within 5 years.
2. Increase the percentage of graduates reporting confidence in their ability to address sustainability challenges by 15% within 5 years.
3. Increase the percentage of faculty participating in sustainable development professional development activities by 25% within 5 years.

Actions

1. Establish interdisciplinary seminars or workshops where students from various disciplines collaborate on climate resilience and sustainability projects, encouraging the exchange of ideas and perspectives.
2. Develop a mandatory sustainability-focused course or module that provides students with practical skills in sustainability assessment, problem-solving, and communication.
3. Organize faculty training workshops focused on integrating sustainability concepts into existing courses, providing resources on innovative teaching methods and technologies for sustainability education.
4. Implement a sustainability ambassador program where faculty, staff, and students receive training on sustainability principles and act as advocates within their departments and communities, organizing events and initiatives to promote sustainability awareness and engagement.

Key Performance Indicators

1. Current number of courses related to sustainability
2. Current number of training courses relevant to sustainability

Alignment with Sustainability Development Goals

This plan is in alignment with the UN Sustainability Development Goals of 2015:

1. SDG 4 Quality Education.
2. SDG 11 Sustainable Cities & Communities.
3. SDG 13 Climate Action

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal 2 Students, study plans, and e-learning.

Challenges

1. Financial resources.
2. Response and enthusiasm of JUST's community.

Sustainable Procurement

Ambitious Goal

To procure goods and services in ways that maximize efficiency and effectiveness while minimizing social, environmental, and other risks.

Objectives

1. Increase the number of tenders that adopt the sustainability issues by 10% annually.
2. Increase the percentage of environmental-friendly materials that will be purchased by 10% annually.

Actions

1. Develop regulations to organize the tendering and purchasing processes to put sustainability-based conditions on the purchased materials.
2. Provide guidance and training to support staff across the University with responsibility for purchasing all goods and services on sustainability matters.
3. Decrease the percentage of purchased materials and equipment that are already available in the university by developing a system to ensure the availability of requested materials in the university before starting the purchasing process.

Key Performance indicators

1. Number of tenders that include sustainability-based conditions.
2. Percentage of environmental-friendly materials that will be purchased compared to the whole materials.

Alignment with Sustainability Development Goals

This Action Plan aligns with SDG 12 Responsible Consumption and Production

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal 5 University Environment and Infrastructure and 6 Social Responsibility

Challenges

1. Financial resources.
2. Cultural obstacles and behavior.

Health and Wellness Culture

Ambitious Goal

Stimulate a culture of health and wellness that meets the physical and mental health needs of our students, faculty, and staff.

Objectives

1. Increase participation rates in on-campus health and wellness programs by 20%.
2. Achieve a satisfaction rate of 80% or higher among participants surveyed regarding the effectiveness and accessibility of health and wellness programs.
3. Implement at least 5 new campus policies or initiatives supporting healthy behaviors and sustainable practices.
4. Increase health and wellness seminars and workshops attendance by faculty, employees and students by 25%.

Actions

1. Implement regular mindfulness and stress management workshops for students, faculty, and staff, focusing on techniques for managing physical and mental health challenges.
2. Establish designated outdoor relaxation areas with seating and greenery, providing spaces for relaxation, meditation, and social interaction to support overall well-being.
3. Launch a campus-wide health and sustainability awareness campaign, utilizing various communication channels such as posters, social media, and newsletters to disseminate information and resources on healthy living and sustainable practices.
4. Provide more shade using native tree species that provide ample shading foliage.
5. Sustaining courtyard building designs in the campus expansion projects to create microclimates protected for the daily use of students and staff.

Key Performance indicators

1. The number of JUST employees and students who visit the medical center.
2. The number of JUST employees and students who have membership in the university GYM.
3. The number of activities related to health and wellness.

Alignment with Sustainability Development Goals

This Action Plan aligns with UN Sustainable Development Goals:
SDG 3 Good Health and well-being

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal 5 University Environment and Infrastructure

Challenges

1. Cultural obstacles
2. Unclear regulations regarding health and wellness

Waste Management

Ambitious Goal

Establishing a university-wide culture committed to waste prevention and minimization through the adoption of circular economy principles, aiming to achieve a zero-waste campus by the year 2050.

Objectives

1. Recycle 25% of the total solid waste generated on campus by 2026.
2. Reduce the amount of solid waste by 25% by 2025.

Actions

1. Collect data related to the amount and types of waste generated on campus by conducting a waste characterization study.
2. Form teams of volunteers, staff, faculty members and students to carry out awareness and clean-up campaigns.
3. Build and develop the capabilities of employees of both the housekeeping and transportation departments in the field of integrated waste management.
4. Provide appropriate solid waste sorting infrastructure.
5. Rewards and incentives for recycling amongst faculty and students.

Key Performance Indicators

1. Percentage of total solid waste recycled annually.
2. Percentage reduction in total solid waste generated annually.
3. Employee and student engagement in waste management initiatives.

Alignment with Sustainability Development Goals

This Action Plan aligns with UN Sustainable Development Goals:

1. SDG 7 Affordable and Clean Energy
2. SDG 9 Industry, Innovation, and Infrastructure
3. SDG 11 Sustainable Cities and Communities
4. SDG 12 Responsible Consumption and Production
5. SDG 13 Climate Action

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal 5 University environment and infrastructure.

Challenges

1. Financial resources
2. Lack of available data on solid waste composition
3. Existing behavior and culture

Water Management

Ambitious Goal
Become a model campus having multiple water supply alternatives and implementing efficient water use technologies.

Objectives
1. Reduce water consumption by 20% by 2026.
2. Reduce fresh water use for irrigation purposes by 20% by 2026.
3. Increase the use of treated wastewater for irrigation purposes by 20% by 2026.
4. Establish water harvesting systems for new buildings.

Actions
1. Storage of roof-top rainwater from existing campus buildings for local use for irrigation and other esthetic uses.
2. Maintain campus earth dams to enhance rainwater collection.
3. Install water meters for each building to detect any leakage for immediate action.
4. Monitor water consumption data to assist in identifying areas of potential savings.
5. Install water-saving devices for taps (replacing or renovating fittings). Buildings under construction or undergoing major renovation should have the most efficient Water Efficiency Labeling and Standards.
6. Conduct water use efficiency awareness programs to encourage students and staff to save water.
7. Use best practices for efficient irrigation.
8. Increase on-site stormwater collection hardware used for irrigation.
9. Establish regular maintenance schedules to repair leaks promptly.
10. Implement smart metering systems to monitor water usage and identify areas for improvement.

Key Performance Indicators
1. Fresh water consumption.
2. The volume of fresh water used for irrigation per dunm of green area.

Alignment with Sustainability Development Goals
This Action Plan aligns with the following UN Sustainable Development Goals:
1. SDG 6 Clean water and Sanitation
2. SDG 9 Industry, Innovation, and Infrastructure
3. SDG 11 Sustainable Cities and Communities
4. SDG 12 Responsible Consumption and Production
5. SDG 13 Climate Action

Alignment with JUST Strategic Plan 2022-2026
This Action Plan aligns with JUST Strategic Goal #5 University environment and infrastructure.

Challenges
Financial Resources

Wastewater Management

Ambitious Goal

Establish a pioneering campus for wastewater reuse in agriculture, setting a benchmark for sustainable resource management.

Objectives:

1. Increase treated wastewater utilization for irrigation by 20% by 2026.
2. Improve the quality of treated wastewater stored in the lake by 2026.

Actions

1. Use best practices for efficient irrigation.
2. Monitor treated wastewater quality used for irrigation.
3. Enhance treated wastewater storage in the lake by inducing circulation.

Key Performance Indicators

1. Amount of treated wastewater used for irrigation (m3 per dunm).

Alignment with Sustainability Development Goals

This Action Plan aligns with the following UN Sustainable Development Goals:

1. SDG 6 Clean Water and Sanitation
2. SDG 9 Industry, Innovation and Infrastructure
3. SDG 11 Sustainable Cities and Communities
4. SDG 12 Responsible Consumption and Production
5. SDG 13 Climate Action

Alignment with JUST Strategic Plan 2022-2026

This Action Plan aligns with JUST Strategic Goal 5 University environment and infrastructure

Challenges

Financial resources

Energy

Ambitious Goal
Achieve net-zero energy consumption for the university campus by 2050.

Objectives
1. Increase the share of renewable energy in the total energy consumed at the campus.
2. Decrease the number of solo car trips by 25% by 2026.

Actions
1. Implement energy efficiency and green measures in all new projects and buildings.
2. Expand the solar farm to meet the full energy demand of the campus.
3. Apply in a gradual manner energy efficient standards to existing buildings.
4. Use an electricity incentive scheme, to provide a financial incentive for colleges and units to reduce their electricity use.
5. Monitor and analyze energy, carbon data, and provide relevant information to colleges and units.
6. Raise student and employee awareness and invest in their training.
7. Review the operation of heating and cooling to ensure needs are met efficiently.
8. Install sub-meters where appropriate for energy audit purposes.

Key Performance Indicators
1. Total electrical energy consumption from the grid
2. Electrical energy Generated from the solar power plant
3. Total gasoline consumption
4. Total diesel consumption
5. Number of cars owned by university (sedan, trucks, buses, vans)

Alignment with Sustainability Development Goals
This Action Plan aligns with UN Sustainable Development Goals:
1. SDG 7 Affordable and Clean Energy.
2. SDG 9 Industry, Innovation, and Infrastructure.
3. SDG 11 Sustainable Cities and Communities.
4. SDG 12 Responsible Consumption and Production.
5. SDG 13 Climate Action.

Alignment with JUST Strategic Plan 2022-2026
This Action Plan aligns with JUST Strategic Goal SDG 5 University environment and infrastructure.

Challenges
1. Lack of data
2. Financial Resources
3. Existing behavior and culture

Climate Resilience

Ambitious Goal

Commit to transforming the university campus into a model of climate resilience by implementing a comprehensive set of adaptation and mitigation measures.

Objectives

1. Limit carbon emissions from energy usage across the campus by 25% by 2026.
2. 15% reduction in air conditioning emissions by 2026.
3. Enhance campus infrastructure resilience.
4. Transition to renewable energy sources and increase energy efficiency.
5. Implement sustainable transportation options.
6. Foster community engagement and education.
7. Implement water conservation and management strategies.
8. Protect and enhance biodiversity on campus.

Actions

1. Conduct climate vulnerability assessments in accordance with Greenhouse Gas (GHG) and Intergovernmental Panel on Climate Change (IPCC) protocols and guidelines and in alignment with National Climate Change Policy 2022-2050.
2. Establish partnerships for knowledge exchange.
3. Implement measures to enhance the resilience of campus infrastructure against climate-related hazards, such as extreme weather events, floods, and heatwaves, ensuring minimal disruption to operations and safety of occupants
4. Implement sustainable water management practices to conserve water resources, reduce water consumption, and mitigate risks associated with water scarcity and flooding through rainwater harvesting, graywater recycling, and efficient irrigation systems.
5. Implement green building standards. Adhering to recognized green building standards to create environmentally responsible structures.
6. Encourage sustainable transportation options.
7. Restore and enhance natural habitats on campus through habitat restoration projects, native plantings, and invasive species management
8. Conduct a comprehensive biodiversity assessment to identify key habitats, species, and ecosystem services present on campus
9. Other actions underwater, energy, wastewater, teaching, and research will contribute to climate resiliency

Key Performance Indicators (KPIs)

1. Percentage reduction in carbon emissions

Alignment with Sustainable Development Goals (SDGs)

1. SDG 7 Affordable and Clean Energy.
2. SDG 11 Sustainable Cities and Communities.
3. SDG 13 Climate Action
4. SDG 15 Life on Land.

Challenges

1. Financial constraints
2. Stakeholder engagement and awareness.
3. Technological limitations

Sustainable Buildings

Ambitious Goal

Achieve carbon-neutrality for all new campus buildings by 2026 through the integration of advanced sustainable technologies and practices, while adhering to and exceeding the green building standards at JUST.

Objectives

1. Reduce net energy consumption in university buildings by 25% by 2026.
2. Reduce water consumption and water wastage in buildings by 50% by 2026.
3. Reduce waste production during building construction by 50% by 2026.
4. Integrate smart building technologies in 30% of buildings by 2026.

Implementation Mechanisms:

1. Implement site design according to the green building standards in Jordan.
2. Use thermal insulation according to the green building standards in Jordan.
3. Recycle and reuse building materials in new projects.
4. Achieve minimum levels of indoor air quality.
5. Focus on water and energy-saving techniques.

Key Performance Indicators

1. Percentage of energy consumption savings.
2. Percentage of water savings.
3. Percentage of waste reduced.
4. Maintenance costs for new buildings.

Alignment with Sustainable Development Goals (SDGs)

1. SDG 7 Affordable and Clean Energy.
2. SDG 11 Sustainable Cities and Communities.
3. SDG 13 Climate Action
4. SDG 15 Life on Land.

Challenges

1. Financial constraints
2. Stakeholder engagement and awareness.
3. Technological limitations

Sustainable Transportation

Ambitious Goal

Achieve a sustainable transportation system by 2026, significantly reducing fuel consumption, distance traveled, and single-occupancy car trips while promoting alternative modes of transportation and increasing carpooling rates.

Objectives

1. Reduce fuel consumption by 25% by 2026.
2. Reduce distance traveled by 25% by 2026.
3. Reduce the number of single-occupancy car trips by 25% by 2026.

Implementation Mechanisms

1. Monitor and collect all employee travel data.
2. Adjust the academic schedule to reduce student commuting.
3. Develop a framework for implementing best practices for sustainable travel and transportation within and outside the campus, such as walking, cycling, and carpooling.
4. Replace old vehicles with hybrid or fully electric cars.
5. Implement a green transportation awareness program for employees to encourage best travel practices.
6. Collaborate with the public transportation authority to expand and improve the campus transportation network.

Key Performance Indicators

1. Percentage reduction in fuel consumption.
2. Percentage reduction in distance traveled.
3. Percentage reduction in the number of single-occupancy car trips.

Alignment with Sustainable Development Goals (SDGs)

1. SDG 7 Affordable and Clean Energy.
2. SDG 11 Sustainable Cities and Communities.
3. SDG 13 Climate Action
4. SDG 15 Life on Land.

Challenges

1. Financial constraints