



Al Balqa Applied University

Sustainability Report 2022



BAU-Green

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SUSTAINABLE
DEVELOPMENT
GOALS

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Preface

Al-Balqa Governorate lays to the west of Amman the capital of Jordan, forming a key crossing spot over the successive historical eras as it is relatively close to the cities of the region. Salt City presents the flourishing side of Al-Balqa' Governorate due to its substantial and stunning nature, laying at 1,100 meters above sea level embracing the Dead Sea within its borders -the lowest point on Earth. Today the old buildings and monuments stand to witness upon its original role and heritage.

Al-Balqa' Governorate is a province of intellectual heritage and folklore, and it is popular for recreational and religious tourism; traveler may visit many ruins and sacred shrines for Prophet Shu'ayb (Maqam Nabi Shu'ayb), Prophet Joshua Ben-nun, Prophet Gad Ben Jacob, Prophet Ayub, Prophet Hazir, and Prophet Gilad (May Peace Be Upon Them), as well as the shrines of two of Prophet Mohammad (Peace Be Upon Him) Companions: Abu Obeida Al-Jarah and Dirar Ibn Azwar.

Such an integral role along with other cities of the Kingdom was deeply rooted during the establishment of the Emirate of Jordan in 1921 moving towards developing the country. Salt City was prominent with its scientific and educational legacy, which was marked by the founding of Salt School, inaugurated by His Majesty King Abdullah the First – may God rest his soul – (Prince at that time) in 1923, to be the first school in the kingdom having its graduates as great officials and leaders of the nation.

Upon firmly acknowledging the educational and scientific long history of Salt City along with its leading role in the field of education by the Hashemite leadership, Late King Hussein Bin Talal – May God rest his soul – honored Balqa' governorate by the issuance of the royal decree to establish Al Balqa Applied University (BAU) in Salt city on the 22nd of August 1996. This has enhanced the city's role, commemorated the pioneers of its early graduates and scientifically empowered its legacy which we hope to continually flourish, since then, Al Balqa Applied University has become the largest public university in Jordan with an area of 11170659 m². Its buildings are designed through stages to have both ancient and modern buildings having its center campus on one of Salt City Mountains.

Green spaces, benches, and walkways are maintained to serve visitors, students, and staff at the university. Since its establishment, the university has aspired to form an effective partnership with the local community by allowing them to invest in and build facilities and services such as restaurants, shops, and bookshops near the university campus, allowing the community to serve the students' academic lives as part of an integrative society.

BAU offers programs tailored to the ever-changing needs of the labor market locally, regionally, and internationally through its 15 campuses spread across Jordan.

Through knowledge, engagement, collaboration, and innovation, we will become a university where sustainability is truly embedded. Every member of our staff and students will understand the principles of sustainability; it will be an integral part of our operations and will result in positive, long-term sustainable change. Our Sustainability Strategy outlines our commitments through 2025. A sustainable future for all, on the other hand, necessitates a permanent shift in behavior and a collaborative effort.

We understand that being sustainable creates value and that it's more than reducing our environmental impact; it's about resilience and intelligence – building the links between students, research and our operations, so that we can make a positive difference.

In 2018 we committed to a new global initiative, the SDG Accord, which is the higher education sector's collective response to the United Nation's Sustainable Development Goals (SDGs). The initiative's goal is to embed the goals across post education, recognizing and advancing education's critical role in achieving the goals and the value it brings to governments, businesses, and society as a whole. The SDGs aim to achieve a better and more sustainable future for all, addressing the global challenges that face societies, including poverty, inequality, climate change, environmental degradation prosperity, peace and justice.

Al-Balqa Applied University adopts the United Nations Sustainable Development Goals (UN_SDGs), and the goals of the Paris Agreement which are adopted by all nations as a universal call to protect the planet and ensure that all people enjoy peace and prosperity by 2030 through ethical management of resources, openness to societies and contributing to

their development and solving their problems, and creating a conscious generation of its students who adopt the dimensions of sustainable development in his life, directing scientific research to contribute to achieving sustainable development, and strengthening local and international relations and partnerships in this field, also (BAU) is a member of United Nations Academic Impact (UNAI), and a member of United Nation - Sustainable Development Solution Network (UNSDSN).



The United Nations
welcomes
Al-Balqa Applied University, Jordan

as a member of the United Nations Academic Impact
and values its commitment to the following ten principles:

- > Commitment to the United Nations Charter
- > Human Rights
- > Educational opportunity for all
- > Higher Education opportunity for every interested individual
- > Capacity-building in higher education systems
- > Global citizenship
- > Peace and conflict resolution
- > Addressing poverty
- > Sustainability
- > The "unlearning" of intolerance

Ramu Damodaran
Ramu Damodaran

Chief, United Nations Academic Impact
Department of Public Information
United Nations

29 January 2019

Sharing a culture of intellectual social responsibility with United Nation Academic Impact

Organization	Country	Networks	Additional Networks	Type
759 United Nations University	Japan	Japan		National SDSN
760 Keio University	Japan	Japan		Member
COUNTRY: Jordan Count 4				
781 West Asia-North African Institute	Jordan	Global		Member
782 AMMAN ARAB UNIVERSITY	Jordan	Global		Member
783 Al-Balqa Applied University	Jordan	Global		Member
784 Jordan University of Science and Technology	Jordan	Global		Member
COUNTRY: Kazakhstan Count 20				
785 Astana Civil Service Hub	Kazakhstan	Kazakhstan Global		Member
786 Akhmet Yassawi University	Kazakhstan	Kazakhstan Global		Member

1,745 records

Airtable Download CSV View larger version

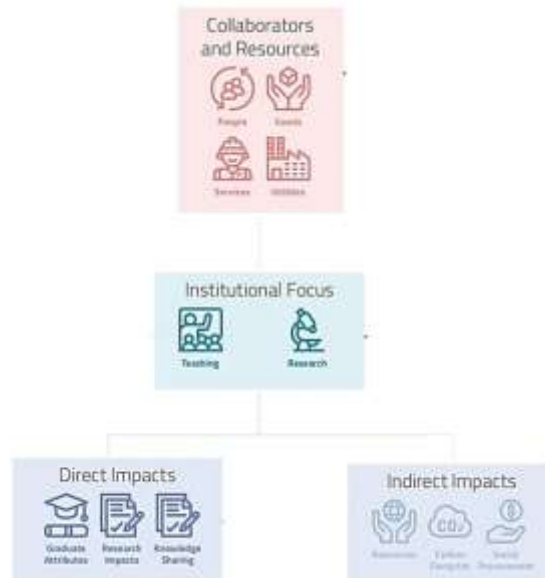


SDSN Members are the backbone of the SDSN and are invaluable resources for the National and Regional Networks and Secretariat. These institutions are fully independent with their own governance and leadership, completely separate from the SDSN's.

BAU's membership in UNSDSN (United Nation - Sustainable Development Solution Network)

How we create value

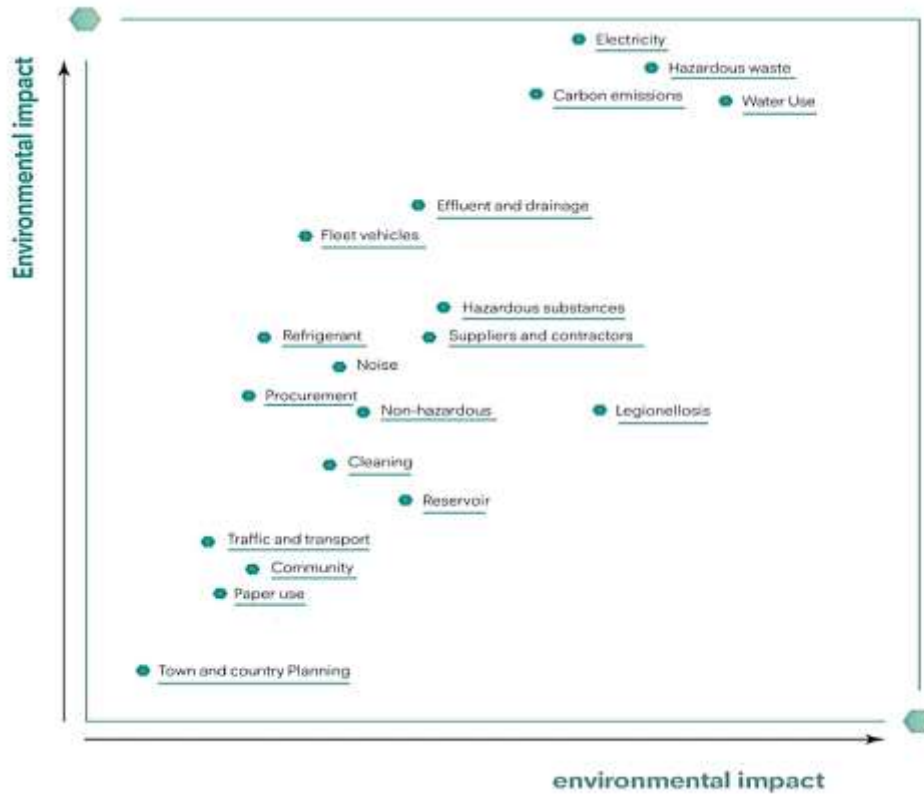
While the University is a large and complex organization, its key collaborators and resources, institutional focus direct and indirect impacts can be summarized by the following value chain diagram. With the size and complexity of the organization in mind, this value chain focuses on the material topics identified by stakeholders for this report.



BAU Model of Creating value of Sustainability

Our sustainability stories, Significance of Environmental Aspect

Evaluation Environmental Aspects –impacts collect from our system in BAU operation system and this where classified Probability Severity Likely, Unlikely Highly, Unlikely Serious, Intolerable and study the impact to the environment.



Evaluation Environmental Aspects – impacts

1- Settings and Infrastructure

BAU offers the programs through 15 campuses spread over Jordan, with total area (11170659) m². The Campus sites are designed through stages, and it contains ancient and modern buildings. The main Campus is located on a mountain at Al Salt City which is shown in the Google earth image. The total campus ground floor area of buildings (152,282) m² which means that the ratio of open space area to total area 98.6%, which is one of our advantage compering with urban university campuses. Most of the campus sites characterized by wide range of vegetation cover such as rangeland and forest. The University's headquarters is in the city of Salt, Al Balqa governorate where the climate is Semiarid / Suburban.



. The main Campus located on a mountain at Al Salt City

Maintenance Activities

BAU is taking a keen interest in implementing its strategies for managing resources and strategies for managing educational facilities infrastructure in order to ensure the readiness to be safe, healthy university environment and a sustainable workplace, providing services accordance with best practices.

BAU has own policy on maintenance activities states "ensuring the sustainability of a safe and a healthy university environment; By ensuring the readiness of the university's facilities and infrastructure, and the maintenance of equipment, materials and teaching aids, to provide academic and administrative services efficiently, to achieve the university's mission and strategic objectives", BAU also, has a policy "University's' environmental preparedness' which states on "ensuring the sustainability and readiness of a safe and a healthy university environment; by: applying global health and international environmental standards, using clean energy, rationalizing water consumption, expanding green spaces and parks, reducing carbon dioxide emissions and other forms of pollution, and managing waste properly, to provide services efficiently to achieve BAU's vision educationally, socially, and environmentally".



Operation and Maintenance activities

The university implements its policies through several comprehensive maintenance procedures, which include (preventive periodic maintenance and corrective maintenance program) for buildings, classrooms, labs and workshops, sports facilities, auditoriums, and theaters in all sites. Moreover, a number of maintenance activities have been done this year, such as renovated some fences and strengthening them in a way that enhances the requirements of a safe environment, and painting many buildings by using acrylic paint water resistant, insulation some roof, maintenance to the classrooms and equipped it with appropriate seats, equipment and data show tools. As well as the university-maintained alarm systems and Fire Suppression Systems, paving of corridors and maintained student dormitories, additionally to renovation, rehabilitation, and restoration buildings, grounds, warehouse/storage facilities, gardens, toilets, and halls, in addition of carrying out preventive maintenance before the winter season. which includes cleaning rainwater channels, water collection tanks, and others, and working periodically to clean drinking water tanks to keep them clean, and to maintain toilets to ensure that water is not wasted.

Green Area

BAU adopts a sustainable continuous improvement policy and seeking to achieve large vegetative area, so it is working within a well-organized strategic and action plans through a lot of initiatives, projects, and programs to increase the green areas throughout campus sites, such as convert (11600) m² parking areas to gardens and increase planted vegetation area from (1,137,194) m² to be (1,148,854) m², with an active contribution from the BAU's population to propagate plants at the BAU's nursery (plantation) and plant it in BAU gardens. Al Balqa Applied University spreads throughout the Hashemite Kingdom of Jordan where the trees are 100-300 years old with a total area of forest vegetation (463840 m²) for example in center part of Jordan we have Princess Rahma College with (94724 m²) covered with *Pinus halepensis*, while in northern part of the Kingdom we have Ajloun College with forest area (97591m²) with *Quercus spp* and east part we have Al Humra with (97708m²). Recently, the Faculty of Agricultural Technology has been very active in the domain of increasing the area of campus covered with forests and planted vegetation with area (17840 m²). It has had several projects and initiatives, the most prominent is the cultivation of Moringa trees, Al Sidr trees and *Quercus Ithaburensis* trees, as these trees do not consume a lot of water (drought resistant plants), rehabilitating olive trees and palms farms and established an orchard for tropical fruits.



Example of forest vegetation Areas and activities



Open Space Area

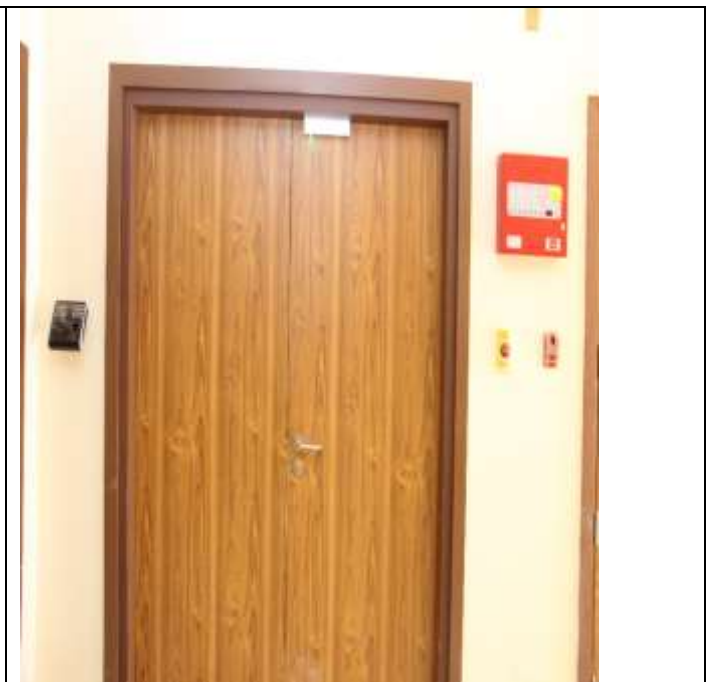
A water absorption area besides forest and planted vegetation, such as: soil, grass, etc, as shown above with 9,119,529 m² total area and forming 81.6% of the total area, This water absorption area of frequent moisture uptake has played an important source for plant and vegetation.

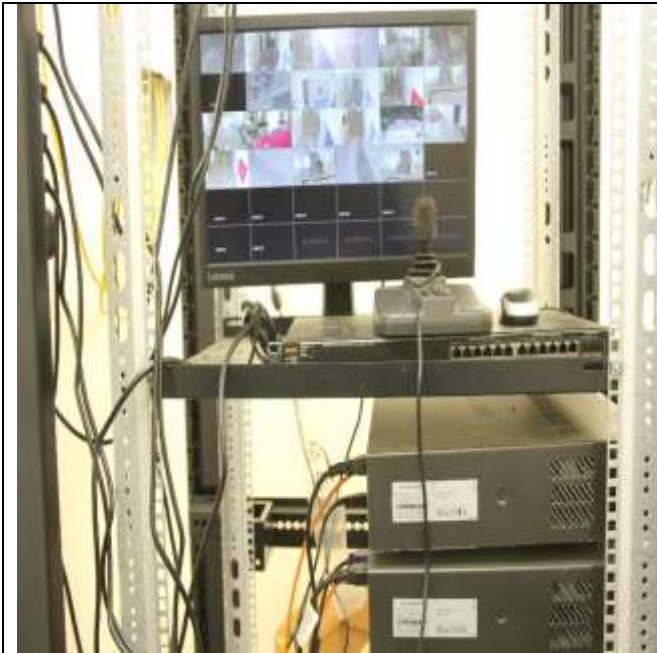


Water Absorption area in one of campus sites (Princes Rahma campus)

Smart Building Implementation

Real-time monitoring can be one of our most important issues for reducing energy costs by detecting equipment faults and inefficiencies early. Sensors mounted on critical operating equipment such as motors, pumps, and fans can measure variables such as vibration, power consumption, temperature, humidity, and others. We can better predict when equipment is likely to fail and fix it before it fails by identifying anomalies in those measurements. Furthermore, when combined with real-time energy monitoring and advanced analytics, demand response becomes much more effective. Knowledge of energy consumption and environmental information enables the system to run power-hungry components during off-peak power periods. In the future, we intend to equip lights with sensors that can detect occupancy, level of activity, temperature, humidity, and other factors and send this information to the cloud. In the short term, this is beneficial because the lights turn off automatically when no one is in the room, saving money. Nowadays, more than half of university buildings are classified as smart buildings.





Sample of smart building implementation

Security and Safety Facilities

The University is dedicated to fostering a safe culture among faculty, staff, students, and visitors, as well as to providing a safe and healthy environment to work, study, live, or visit. The University is committed to following all applicable workplace safety, health, and environmental rules and regulations, as well as respecting and caring for the environment without compromising future generations' ability to meet their needs.

With a large population of students, staff, and visitors, combined with widespread campuses, BAU's sites are providing a unique set of security measures and safety facilities to ensure safety and security measures are robust such as fire Suppression Systems.



Security and safety facilities

Facilities for disable, special needs and maternity care

The university is keen to ensure a sustainable safety and healthy environment by creating a stimulating environment for students and workers that allows everyone to develop and excel, by implementing public safety and security policy, and by applying the best security and safety practices to preserve the safety of property and individuals in order to enable staff to perform their tasks and responsibilities efficiently and competently, as well as to contribute to the achievement of the university's strategic objectives.



Energy and Climate Change

Al-Balqa Applied University (BAU) is one of the largest state universities in the Hashemite Kingdom of Jordan. It provides services through its distributed campuses across the country, covering nearly all climatic regions from the highlands in the mid-west to the very dry governorates in the south and far east of Jordan. This diversity in climatic conditions, motivated (BAU) to adopt wide range of activities related to climate variability and change, with the focus on climate adaptation. For example, (BAU) is innovative university in terms or water and draught research, capacity development, and pioneer technology transfer initiatives ranging from solar energy to wastewater treatment for reuse, to smart agriculture. Moreover, (BAU) established academic technical programs with the focus on smart agriculture, water treatment, smart buildings, electric and hybrid vehicles, not to mention the various awareness activities in climate change. Another clear example of the serious role Al-Balqa applied University play in the region is demonstrated by hosting the 76th United Nations Days in 2021 with the focus on climate change. Despite the well-established practices of (BAU) in conserving resources and protecting the environment, this climate action plan is the first written plan. The purpose of this plan is to document the existing successful practices, and to build on it is considering the Jordanian National Climate Change Policy.



Photovoltaic Solution Package at BAU

The objective of this project has been to implement small-scale solar systems in different university buildings, including innovative solutions, such as substitute sheets of photovoltaic

glass or photovoltaic coverage of building roofs. The photovoltaic installations have been carried out in the faculties of science and Administrative Building, using a crystalline silicon photovoltaic glass with dimensions of 1,500 x 1,100 mm and medium transparency. In the faculty of science, glass has been installed in a photovoltaic canopy consisting of 126 units with a total area of 208 m² and a power of 26,6 kWp. This canopy is located on top of a conventional glass skylight providing even more thermal insulation to the building. The total electricity production of the system is 1,471,400 kWh, this energy being able to reduce the emission of 94,5 tons of CO₂ in 35 years. The second installation of photovoltaic glass with an area of 191, 4 m² has been carried out in a brise-soleil on the facade of the Administrative Building. The 116 glass units of this installation have a total power of 24, 48 kWp, and enough power to produce 1,354,115 kWh in 35 years. Here it is worth to mention that through its renewable energy projects the university tries to possess the most efficient technology. So, BAU signed an agreement with one of the privates' sector to generate the energy from the 7-megawatt solar park that will cover 60 percent of the university's energy requirements.

Agreement to build the largest solar power plant at a university in Jordan

Inverters from KACO new energy for 7 MW solar park at Al-Balqa' Applied University

Neckarsulm / Salt, 13 February 2019 – In order to cover 60 percent of its energy needs with renewable energy, the Jordanian Al-Balqa' Applied University has selected KAWAR Energy to build a solar park with a power of 7 megawatts. German manufacturer KACO new energy is supplying the inverters for this largest PV plant to date at a university in Jordan. Construction will start in the second quarter of 2019.



Signing Ceremony at Al-Balqa' Applied University on 14 January 2019: Dr. Jamal Al-Risour, Vice President Al-Balqa' Applied University (Middle-left), Hanna Zaghtout, CEO KAWAR Energy (Middle-right)

Agreement to build the largest solar power plant at BAU



Solar panels



Solar tracking systems



Use of LED lighting and lamps and natural ventilation and

2- Water

BAU is seeking to achieve 6th UN SDG (Clean Water and Sanitation), by its policy which aims to:

1. Using water harvesting techniques to collect rainwater from building roofs in tanks for reuse in agriculture.
2. Using various technologies to reduce water consumption in various locations (toilets).
3. Improve sewage treatment plants to use treated water for irrigation purposes.
4. Raising awareness of rationalizing water consumption at the University.

In 2009 the German Ministry of Education and Research agreed with the Jordanian Ministry of Water and Irrigation to fund the creation of a demonstration site for different wastewater treatment systems at Al-Balqa Applied University. “We are looking to solve the water problem in Jordan,” says the university’s president, Abdallah Al-Zoubi. We are looking not just to have more water treatment plants; we are planning to teach the people how to treat their own water”. So, BAU tries to search and put in works international partnerships and collaboration one of the them fruits to collaboration with Helmholtz Environmental Center (UFZ) from Germany, and in coordination with (Ministry of Water and Irrigation) MWI, (Sustainable Management of Available Water Resources with Innovative Technologies) SMART-Move [Picture: 1&2] provides fund to BAU to sustain, operate, maintain, and monitor the facility and other technologies SMART-Move is one of the pioneer and unique development projects in Jordan, and in the Middle East. It provides principles and applications of decentralized wastewater management in way that simulates the European approach considering conditions such as wastewater characteristics and climatic variability in Jordan and in the Arab Region. Further, this project focuses on decentralized wastewater treatment and reuse as a management strategy to alleviate demand on conventional water resources. The project provides demonstration, operation and maintenance of decentralized wastewater treatment technologies and it builds on and completes the efforts exerted earlier

in the previous SMART 1 and SMART 2 projects by the design and operation of a competence facility for demonstration, decentralized wastewater management in Fuhais Figure 14, within the premises of Fuhais wastewater treatment plant and in coordination with the Jordanian Ministry of Water and Irrigation (MWI). This facility provides services in demonstration, research, and training these services cannot be found in one spot but in this facility and it helps researchers and institutions from Jordan and from the Arab Region as well.



Fuhais Station for wastewater management

Furthermore, in order to meet the demand in the local and regional markets, BAU offers a new two- to three-year diploma program in wastewater treatment at Al Salt Technical Faculty.

BAU treated its sewage using down cycling technology in which the waste is divided into its main components. Semi-solid waste (sludge) the by-product of the treatment process is disposed off. The University has a purification plant and disposes of wastewater through the sewage network. The gray water coming out of the station is suitable for some agricultural or construction purposes and also may be used for flushing WC.

3- Transportation

BAU is achieve and adopts a sustainable continuous improvement plan to decrease number of vehicles that enter to campus by a number of initiatives to reduce the movement of vehicles within the university campuses, such as preventing the movement of vehicles in some streets, reducing the areas allocated for parking and convert some of them to gardens, Moreover, administrative and academic staff coming from far distance, gathered themselves in groups and coming with a single vehicle. It may be noticed that in 2020 The total number of cars within university's campuses has decreased almost to the half as a result of these initiatives and because Covid19 pandemic played a big role by shifting the work regime from regular to remote working and teaching, therefore campus' population went down.

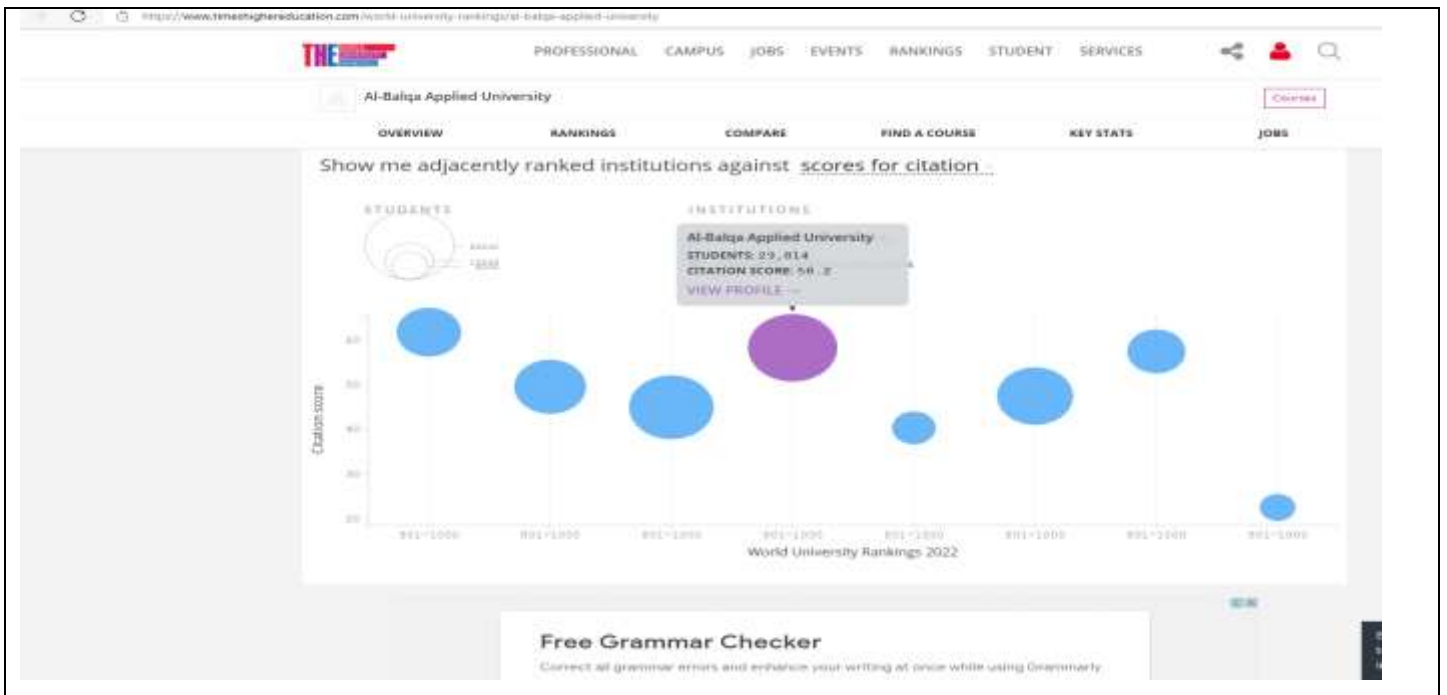




Sample of gardens area

4- Education

The people of BAU are aware of the importance of scientific research in all of its activities, particularly those related to the SDGs. As a result, all governance councils (council of trustees, council of deans, department councils) pay attention to scientific research that has appeared through Google scholar publications, as well as Al Balqa Applied University's position locally, regionally, and internationally in the number of scholar output and Field Weight Citation Index published by Elsevier Scopus. BAU was ranked among the best (801-1000) universities in the world in the most recent edition of the Times Higher Education World University Rankings 2023.



BAU is expanding its outreach by working directly with communities. Recognizing the importance of teaching the next generation to incorporate sustainability into their lives, the university offers many courses that cover all aspects of sustainability (environmental, social, and economic); through its study plans, the university demonstrates its supportive commitment to all aspects of sustainability. BAU strives to incorporate sustainability concepts into its study plans as actual practices.

In recent years BAU has developed a number of diplomas directly related to the sustainable development, such as diploma in renewable energy, smart buildings, organic agriculture and wastewater treatment.

Samples Courses/Subjects Related to Sustainability Offered

Course name	Description
Food Safety	Introduction to the concept of food hygiene and its importance. Food –borne infections and intoxication and the problem of residues in foods. Hygienic requirements in food production and harvesting areas and in food establishments with emphasis on hygienic food handling, processing, and storage. Personal hygiene and health requirements, cleaning and disinfecting and pest control as well as the application of hazard analysis critical control point (HACCP) system in food establishments, and workplace safety standards.
Ecology and Sustainable Production	This course deals with main principles of sustainable agriculture, as well as, with farming production systems that aim to enhance the health of the environment, natural resources and improve horticultural farm income. This course will also, provide a base of knowledge of the principles of alternative horticulture farming systems including soil biological processes (compost, humus, fertility and pest management).
Health, Safety, and Professional Environment	The overall aim of this course is explaining the work environment and outlining the methods of protecting people and others at work. It provides examining the most commonly known dangers of distinguishing dangers of chemical and biological materials, falling from high floors, physical dangers, fire, electricity, other types of dangers, and how they influence health, work safety, controlling dangers and risks, in order to reduce the potential damage in case of any accident. The course also explains the hierarchy of dangers control processes, methods and

	techniques of personal safety, first aid methods in case of human casualties, and knowing the Jordanian legal requirements and national codes for protecting workers and employees.
Waste Management and Composting	Integrated sustainable waste management; Organic waste generation and characterization; Organic waste collection and transport; Organic waste treatment technologies; Science of composting; Composting technologies, compost quality, and its economic feasibility; Operating the composting technologies; Vermicomposting; Compost uses and global compost market; Case study composting; Governance of organic waste management; Impact of organic waste management on the environment.
Smart Lighting and Electrical Installations	Study and design of electrical wiring networks in the building by calculating the loads and the amount of lighting needed to illuminate the various facilities in it according to the standard specifications, components of household electrical wiring of one and three phase, electrical measurements, drawing and reading electrical diagrams, grounding, wireless electrical installations and smart home systems.
Renewable Energy Technologies	Introduction to renewable energy and the concept of energy generation and conversion, types of renewable energy, benefits of renewable energy, solar energy, wind energy, and smart electric grids.
Heating, Air Conditioning and Cooling Technologies	Acquiring heating and cooling skills, calculating thermal loads and cooling loads for buildings, the principles of psychometric and its use in air conditioning calculations in buildings, places of equipment placement and drawing plans, control systems for air conditioning and heating devices, and the use of renewable energy in heating and cooling.
Meteorology and Air Pollution	Structure of the atmosphere and its thermodynamics; water and its transformations; cloud formation; precipitation... etc. Current climate issues such as global warming. Fundamentals of air pollution, major pollutants, their sources and their effects (environmental, economic and health), air pollution from mobile/stationary sources and indoor air quality. Pollutant sampling and measurement devices, pollutant distributions and dispersal modes as well as available methods to control the pollutants. Relevant Jordanian air quality policies and standards and presents

	relevant case studies.
Hydrochemistry and Water Quality	Origin of water, properties, influence of soil and aquifer materials on groundwater quality. Classification and assessment of groundwater quality. Changes in drinking water quality and quality criteria, water pollution and physiochemical treatment.
Wastewater Treatment and Reuse:	Composition and characterization of wastewater and sludge, Wastewater microbiology, Municipal wastewater treatment systems including physical unit operations (physical treatment) and biological unit processes (biochemical treatment), treatment and disposal of sludge, and wastewater reuse.
Soil, Water, and Plant Relationships:	Basic relationships between soil, plant, and water that make it possible to better manage and conserve irrigation water. Review physical laws of solutions: vapor pressure, solution potential, and latent heat. Soil water terminology. Physical characteristics of soil, soil and water interactions, available soil water, and how plants use water to determine what crops to plant and when to irrigate. Review irrigation scheduling that determines when and how much water needs to be added to a crop's root zone to promote optimum yields.
Pests and Diseases of Honeybees	This course is designed to contribute to the enjoyment and profitability of honeybees by giving you the knowledge and skills to recognize and manage their pests and diseases.
Organic Farming	Method of preparation and fermentation of organic materials, factors affecting its fermentation, effect of microorganisms, effect of organic materials, on the soil and its content of nutrient elements, its effect on production and quality of fruits, methods and time of applications.
Biological Control	Biological pest control concepts, environmental aspects, ecology, and strategies. Conservation and augmentation of natural enemies. Importation and colonization of natural enemies from abroad. Examples of successful utilization of parasitoids, predators and microbial agents. Biological control ecology.
Organic Chemistry	Study the chemical properties of the compounds is cyclic, clarify the nature of inter-linkages in the molecules, the study of public reactions and the stereochemistry of these compounds. Includes the study of alcohol and aromatic compounds, chemical reactions, substitution reactions of various types, some of these mechanical interactions, methods of analysis of different kinds of class to determine the composition of the binary compounds.

Principles of Psychology	Learn about the basic principles in psychology and the experimental origins on which psychological knowledge is based, a presentation of the concept of psychology, its origin, development and branches, with a focus on psychology schools of learning, motivation, personality, memory, psychological disorders and intelligence.
Communication skills	Definition of communication, its nature, types and components, its models and characteristics, the efficiency of communication, studying some misconceptions about communication, mental perception and self-concept, the relationship between verbal communication and non-verbal communication, and writing a CV and interview.
Principles of plant protection.	The course is designed to familiarize students with the principles of plant protection including plant pathology, entomology, pesticides and weeds and their control. It will focus on the basic aspects of entomology and plant diseases, identify the pesticides and their main groups. In addition its focus on the weeds morphology and taxonomy, the bad effects and their control.
Agriculture in Jordan	This course covers topics related to the development and development of agriculture and its global, Arab and local importance, agricultural climate, elements of plant production in rainy and irrigated areas, animal production, marketing of agricultural products, water sources and their uses. Agricultural operations used. Agricultural pests and methods of combating them, agricultural mechanization, food industries. Institutions and bodies working in the agricultural service in Jordan.
Environment and society	The proposed course provides a general and comprehensive description of the environment: its definition, evolution, and the benefits that can be achieved through preserving environmental resources. In addition to addressing the relationship between society and environmental resources. The course also discusses topics known as the environmental reality in Jordan in terms of the nature and types of ecosystems, the most important environmental problems facing Jordan and their implications for society in general, not only from an environmental aspect, but also from a health, social, economic and developmental aspect.
General entomology	Phylum Arthropoda and its main classes. External anatomy including head, thorax, abdomen, and their appendages. Internal anatomy including digestive, endocrine, respiratory, circulatory, nervous, and reproductive systems. Development,

	metamorphosis, and insect taxonomy are also covered.
Principles of Microeconomics	This course is an introductory course that covers fundamentals of Microeconomics with major emphasis on the theory of the market system. The course introduces economic concepts and analysis, demand and supply analysis, elasticity concepts, theories of the individual and the firm behavior mainly consumer and producer choice and how they interact to determine prices, output and resource allocations. The course also covers market structure in particular competition, monopoly, monopolistic competition and oligopoly.
Economic Feasibility Studies and Projects Evaluation	This course provides an introduction to the theory and practice of cost-benefit analysis and its link to basic economic and financial theory. Topics include: discounting and the valuation of benefits and costs, projects' appraisal phases including; economic, market and financial study, risk analysis, time value of money, and criteria for projects evaluation. Students will analyze and investigate contemporary cases from areas in economics and finance that are related to public policy issues and private projects.
Environmental Resources Management	Basic principles of environmental management; Environmental and sustainable development objectives; Nature's ecosystem services; Global environmental trends and issues Complexity; Managing biodiversity; pest and weed management; Soil, sediment, air and water – environmental degradation; Overview of environmental resources management assessment; Production, consumption, urbanization and extractive industries; The ecosystem approach and adaptive management; Strategic Management and SWOT Analysis.

BAU has implemented that through faculties, scientific centers, the Students Affairs Deanship, the Local Community Development Unit by supporting all initiatives and student's organizations related to sustainability that produced several activities.



Free Medical Day at BAU



Orphans clothing campaign



Awareness workshop in Solar energy for schools students



Jordan Volunteer Work Camps



The First National Robotics Championship



Smart Agriculture course (more than one course/ 500 students)



Environmental camp under the slogan "Youth for a Safe Environment"



Training course: Modern irrigation techniques and the reuse of treated water in agriculture



Jordanian Heritage Day



Training course: Using aloe Vera gel in soap making



Books exchange campaign



A training course in the field of proper disposal of toxic waste



Training workshop in the art of accessories and recycling



Pedestrian path campaign at the university



"WATRA Week II" training project was organized by BAU, IHE Delft, and funded by the World Water Academy (WWA) in the Netherland



World Civil Defense Day



.Breast cancer awareness lecture



Workshop: The Global Sustainability Solution Challenge



Training Course for Artificial Intelligence Students: Fundamentals of Digital Product Design (UX/UI)



Workshops :The role of universities in sustainable development



Elixir Medical Club



,Sample of Students Organizations

On other hand BAU is seeking now to achieve the 4th UN Sustainable development goal (quality education) by providing access to inclusive education, that raise the competencies, skills and abilities of those who want to learn regardless of gender, race or religion, to ensure achievement principles of learning for all and long life learning by providing flexible learning with various patterns and shapes and providing an appropriate educational environment that contributes to overcoming all obstacles that prevent them from the completion of their educational, such as housewives, people with disabilities,

who live in remote rural areas, and workers who cannot enroll in traditional education programs, as well as providing open educational resources, such as educational platforms and global database that are consistent with the global education system and ensure obtaining accredited certificate and recognized internationally.

Also, Serving the local community is one of three aims for Al-Balqa Applied University addition to teaching and scientific research. The university also adopts the United Nations' sustainable development goals through local communities outreach and solve their problems.

Education After Covid_19

BAU monitors the effects of the Covid-19 pandemic on people, countries, and local communities, as well as their impact on rising poverty and unemployment rates, and has analyzed numerous research and studies in this field.

As a result, it has contributed to the SDGs through actions and initiatives that combat poverty and unemployment through directed education, research, and community services, such as offering professional bachelor's degrees with four programs this year as the first public university:

(Smart Organic Agriculture Technology, Hydraulic Systems Technology in Heavy Machinery, Electric and hybrid Vehicles Service Technology, in addition to Air Conditioning and Refrigeration Technology), that are related to the needs of the labor market to enhance its role in pioneering vocational and technical education in Jordan.

The university has also worked on analyzing its performance during the pandemic and the challenges that have arisen, as a result of which it has increased its efforts in training and qualifying faculty members in the field of technology integration in education. As a result, BAU introduced a number of capacity-building training programs on blended learning tools, strategies, exam design, and assessments, such as the training courses held within the WATRA project indidactics class observation and portfolio preparation, Teaching Program, Masterclass on course and material development, and blended learning training workshop.

Also BAU has sent- within the technical education development project between Korea International Cooperation Agency (KOICA) and Dong-Eui University of Korea - **24 faculty members** to attend training course in Republic of Korea for two-month, in the field of **developing educational programs, implementing them and using modern education and training strategies**. This project aims to creating advanced modern diploma programs, rehabilitation facilities at the university and training the faculty staff on seven specialized training programs on the latest technology of devices and equipment in several fields:

(**Associate degree in dental laboratories technology, electronics technology, building technology, in Hybrid and Electric Vehicles Technology, Welding and Plumbing technology, Graphic Design , and Fashion and Knitting Technology**).

Another capacity building initiative that has been hold is **ELEGANT project** under vision "**Enhancing Teaching, Learning and Graduate Employability through University-Enterprise Cooperation**" which aims to enhance universities cooperation in improving the teaching and learning experience of students and enhance the employability of graduates, The project involves upgrading and updating the capacities of university staff and improving the curricula of at least ten subjects in each university. Study periods to EU universities will be arranged to provide the updating and upgrading opportunities for academic and technical staff during which they can improve their own knowledge of the latest developments in their subjects and upgrade the curricula of their subjects.

The university also developed and published **post Covid-19 pandemic teaching and learning instructions and course profile**, which focused on integrating technology into education, as they were directed to enhance interactive education and self-learning by promoting activities and teaching and learning methods based on problem solving, critical thinking, scientific research, and providing students with the twenty-first century skills **as the following:**

1- Preparing a course plan that includes a description of the course, teaching and learning methods (online, blended, face-to-face), expected learning outcomes and teaching

activities (individual and group activities and discussions, and research papers) distributed according to a schedule.

2- Add a content in different types of files, including presentation, links, or any other type of multimedia.

3- Preparing electronic exams and test bank to be used through the guide, which published, on the website of the Center for Teaching and Learning Technology.

4- Diversifying education strategies through (flipped learning and project-based learning, active learning strategies.

5- Preparing a student communication report after each educational activity.

6- Finding models for providing individual electronic feedback and distributing office hours through the office and online by using forum

7- Changing the distribution of marks and assessment mechanisms according to the course teaching mechanism, and increasing the activities weights from 10% to be 30% of total points according the teaching style.

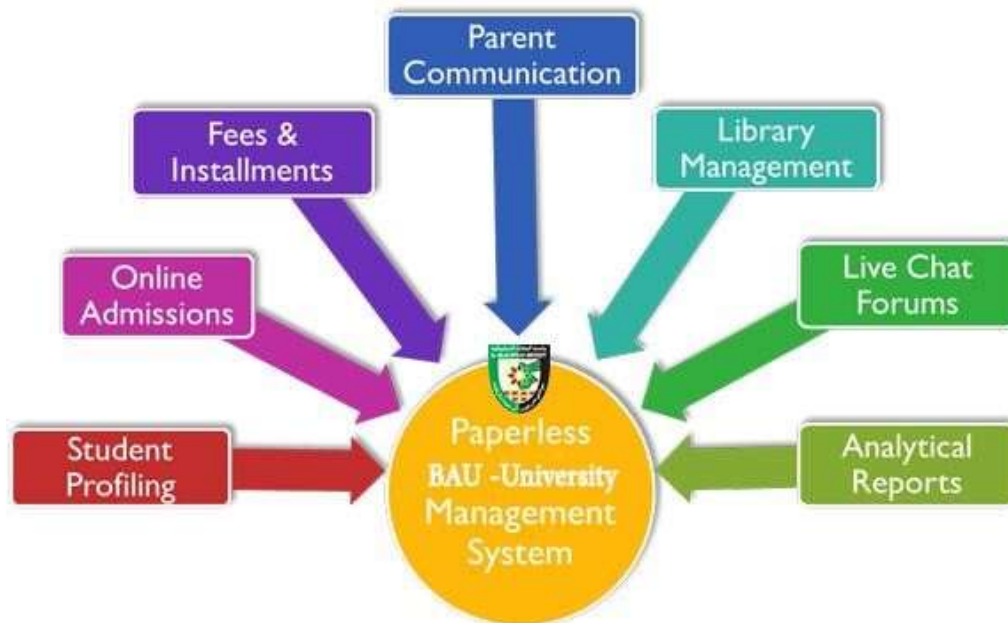
5- Waste

The University implements recycling and sorting programs for two- third of its waste through several initiatives, allowing students, faculty and administrative staff to put waste in suitable containers (sorting of waste), which can be easily recycled.

The University has implemented a number of policies and programs to reduce the use of paper, including more than three programs to reduce the use of paper and plastic on campus, which reduces the rate of paper combustion and thus carbon dioxide emissions:

- 1- Electronic Correspondence (activating e-mail and electronic correspondence system), paperless university.
- 2- E-learning system and electronic tests.
- 3- Recycling paper by assembling it in some special containers.
- 4- Rather than using paper cups or bottled water, the university encourages employees to use coffee mugs by distributing mugs with the university's logo on special occasions and Canvas bags.

- 5- Reduce paper usage by duplex printing and check the correctness of data before printing.
- 6- Reduction the number of examinations (mid-term exam + final exam, early there were three exams first, second and final exams).



The University adopts a number of policies to reduce the use of paper

The University produces Compost using organic waste (Dead plants) and use carpentry workshop remains (Mulch) after treatment in agricultural purposes Figure 19. There are a number of initiatives from the student population concerning organic treatment, namely; digester for producing methane gas using organic waste. Since the university encourage innovation, a proposal for recycling organic waste is expected to see light in the near future within at least one of the university's campuses. The University disposes the inorganic wastes resulting from the scientific laboratories, the wastes treated through specialized companies and the disposal of damaged electrical and electronic equipment and devices through a tender.



Compost Operations Training Course

There are several initiatives from the student population regarding organic treatment, such as a digester for producing methane gas from organic waste, because the university encourages innovation and tries to spread environmental awareness among its population, particularly students.



Recycling Organic Waste Project

Management of Inorganic Waste Treatment at BAU achieved through the following actions:

1. The university provides a place for the collection of inorganic waste (waste electrical and electronic equipment) and offer a bid to recover valuable precious metals and rare earth elements through these tenders.
2. Enhancing awareness among university population about the advantage of collection and recycling of electrical and electronic waste.
3. BAU disposes a big ratio the inorganic wastes resulting from the scientific laboratories, the wastes treated through specialized companies and the disposal of damaged electrical and electronic equipment and achieved accomplished as mentioned above devices through a tender.



Recycling inorganic waste