The motto carved on the Main Gate of the American University of Beirut (AUB)—That they may have life and have it more abundantly—is a biblical text that reflects the school’s evangelical origins when it was founded in 1866. But like many profound statements, its meaning can adapt to new realities with the passage of time. The pursuit of a more abundant life continues to incorporate AUB’s mission of providing excellence in education, advancing knowledge through research, and serving the region and beyond. For 152 years, our institution has fashioned individuals with a strong commitment to creative and critical thinking, life-long learning, personal integrity, civic responsibility, and leadership. However, to safeguard an abundant life in the second decade of the 21st century, we are also in the process of steering the mission towards even greater efforts in environmental sustainability.

Excellence in teaching
Improving population health is at the heart of any effort to create a sustainable environment and AUB’s environmental health undergraduate program, launched in 1961, is the oldest of its kind in the region. Hosted by the Faculty of Health Sciences, the pre-eminent public health school in the global south, the program’s focus is on evaluating and controlling major environmental health problems in developing countries in such fields as water supply, waste disposal, food hygiene, occupational health, and air pollution. The Interfaculty Graduate Environmental Sciences Program which offers a master’s of science (MS) degree in environmental sciences was launched in 1997 as a means of addressing salient issues on the environment and development in Lebanon and the Arab World using an interdisciplinary approach. AUB’s school of engineering, which in a past life enabled the rapid development of petroleum and affiliated industries in the Persian Gulf, is now endowed along with architecture and design as the Maroun Semaan Faculty of Engineering and Architecture (MSFEA) with a new environmentally-friendly vision under the maxim of “a viable, livable, equitable world.” Contemporary issues in energy systems are the focus of MSFEA’s master’s degree in mechanical engineering, aiming to find energy solutions that have a minimal impact on the environment. Meanwhile, the MS in energy studies engages students in the development of energy initiatives needed in regional and international markets, and supports energy dialogue for the development of appropriate and informed public policies. A new online graduate diploma in building energy systems seeks to train professionals on effective ways to develop and advance sustainable energy solutions for improving building performance. AUB is also collaborating with other regional universities on an online professional diploma in green technologies in three concentrations—energy, buildings, and water.

Dedicated centers and units
The AUB Nature Conservation Center (NCC) is the only transdisciplinary academic center in the MENA region addressing nature conservation. It plays a major role in addressing challenges such as climate change, air pollution, water pollution and scarcity, and the consequent loss of crops and biodiversity, through raising awareness and designing holistic interventions and adaptation measures based on transdisciplinary action research. One project among many is the mapping of local environmental resources and assets with the help of rural communities to be used in eco-tourism and development of local micro-economical projects. The center has also engaged local stakeholders in assessing local water quality and co-creating solutions, as well as deriving pharmaceuticals and paramedical products from local endemic plants and promoting their cultivation as alternative crops. Every year for the last dozen years NCC has held the International Biodiversity Day at AUB (IBDAA) competition, which attracts contestants from across Lebanon to propose original and viable solutions to pressing environmental concerns in the country.

The Munib and Angela Masri Institute of Energy and Natural Resources is another dedicated university body which works on creating opportunities for top-quality research and teaching by promoting academic and professional collaboration. Interdisciplinary research is focused through support for targeted competitive projects with a view towards establishing a community of energy experts across the disciplines. Since its foundation, the institute has awarded grants to study energy technologies with an eye towards a sustainable energy future, focusing on the Lebanese context.

At the Faculty of Agricultural and Food Sciences (FAFS), the
Environment and Sustainable Development Unit (ESDU) is an inter-disciplinary research and development center specialized in community development and sustainable agriculture, in and around urban areas. It also offers a master’s degree in rural community development, which is unique to the region. Among the many activities of this unit is the Eco MENA Initiative, which is a network of self-generative eco-communities based on indigenous knowledge and appropriate green technologies, and the Rural Empowerment and Entrepreneurship Forum, which gathers stakeholders for developing and implementing sustainable collective projects as well as linking rural communities with project implementers.

Knowledge creation
At AUB, we have ongoing research covering a wide range of fields. MSFEA research ranges from energy efficient systems and reducing energy use in buildings, to water pollution and how to prevent it, how pollution travels in the ocean and the atmosphere, and developing a sensor that estimates excess CO2 emissions that result from poorly maintained roads. Researchers are also looking at pharmaceutical waste treatment solutions to reduce contamination of water supplies; biomass derived fuels; sustainable construction with a focus on waste management; organization-based shared mobility solutions in contexts which lack formal public transport; developing a new class of photovoltaic cells; the use of microorganisms to degrade environmental pollutants such as sea water contaminated with crude oil; and sustainable architecture. Researchers have also invented a device to detect oil spills that is unique in its ability to operate while being dragged in open water in the presence of waves and under variable lighting and temperature conditions. The faculty also houses the Atmospheric and Analytical Laboratory that researches the interplay between human exposure, health and behavior in the field of air pollution and inhalable smoke particles, as well as emission sources and ambient pollution concentrations. At FAFS, research is being conducted into conservation agriculture; helping identify the public satisfaction from the progress of waste management initiatives; developing a scenario-based trade-off analysis tool for primary resource management; and pioneering a new paradigm in soil science that addresses the organization of soil landscape and the hierarchical internal organization of the soil medium.

Knowledge transfer and collaboration
AUB acts as a hub for addressing Lebanon and the region’s local and global problems, and involving all stakeholders to find solutions. The university organizes and participates in various forums and collaborations that support knowledge dissemination and exchange and give the opportunity for students and professionals to develop and implement solutions for a sustainable future. For example, the Water-Energy-Food-Health
Nexus Renewable Resources Initiative was initiated at AUB, involving faculty members from across the university with the aim of achieving primary resources’ security through transdisciplinary collaboration with other universities within Lebanon and the region. Recent conferences held at AUB include a policy dialogue to overcoming bottlenecks in water governance and a panel discussion about Lebanon’s energy mix between oil and renewables. Faculties are also implementing and pursuing academic collaborations such as the new global master’s in health and sustainable development with EARTH University in Costa Rica. The Issam Fares Institute for Public Policy and International Affairs has operated a dedicated program since 2008 called the Forum on Climate Change and Environment in the Arab World which leverages academics’ technical expertise to answer socially driven questions on climate change and environment in order to fill policy gaps in Lebanon and the Arab World.

AUB believes in taking learning outside the classroom and into the world. That is why we encourage our students to work together and think in terms of practical implementation of their acquired knowledge. One of the most impactful and innovative projects by AUB students has been “Light up a Village”. For this project, students take care of raising funds, working with suppliers, and collaborating with NGOs and local communities to install solar-powered streetlights in underserved Lebanese villages and to provide solar kits for some of the underprivileged homes. Student competitions are also held at AUB to encourage experiential learning, such as the “Climate Change and Water Scarcity: Exploring the Water-Energy-Food Nexus” and the “Climate Change and Land Degradation” competitions.

Community involvement and service
Through its Center for Civic Engagement and Community Service, AUB works closely with underserved communities to design and implement projects that tackle pressing environmental challenges, such as an urban agriculture model and training program informed by the aspirations of disenfranchised female groups, which was developed in Lebanon’s Ayn El Helweh Palestinian refugee camp. AUB’s Neighborhood Initiative is another entity that mobilizes the university’s resources to serve the community outside its gates. One of its projects is a “Sorting at the Source” campaign establishing a network of buildings in the neighborhood committed to sorting recyclable household waste. Urban Hives is another initiative currently being executed which aims to implement raised gardens above parking lots in Beirut to increase green public spaces in the city.

AUB is determined to maintain its role of modeling a better society, and taking the lead on important and forward-looking ideas. Our campus was designated as a botanic garden in 2016 underlining AUB’s responsibility as a custodian of its natural environment in a city where green spaces are few and far between. AUB was also declared tobacco-free at the beginning of 2018, which has reaffirmed that instituting a tobacco-free policy on university campuses leads to few students taking up a lifetime of smoking.

Collection, recycling, management, and disposal programs are all being implemented at the university for different types of waste including batteries, chemical waste, bio-hazardous waste, radioactive waste, plastic, and other products. AUB is also constructing sustainable buildings with a focus on energy efficiency and emission reduction. Pilot projects demonstrate the important role of buildings for mitigation and adaptation to climate change, such as the Penrose Hall Dormitory which is being converted into a green building. Other environmental initiatives are the installation of photovoltaic cells on roofs for electricity generation, grey water collection, rainwater collection, controlled heating and cooling, planting native plant species to preserve on water consumption, using sustainable material and appliances, holding green-friendly events, and recycling and reusing existing material when possible.

Safeguarding an abundant life
If it is human action that has caused our looming environmental crisis, so too is it human action that can put us on a different path. The words of the author, activist, and role model Helen Keller, «Alone we can do so little; together we can do so much,» remind us that our ecosystem knows no campus walls, no political divisions, no national borders. We all breathe the same air, are all connected to the same soil and the same oceans. Therefore, responsibility lies with all of us to ensure our children will inherit an environment that supports life in all its diversity. As educators of the future leaders and creators of new knowledge, the higher education sector—with AUB at the forefront—can and must play a leading role in this effort, so that we may all enjoy more abundant lives.