جامعة بيروت العربية
BEIRUT ARAB UNIVERSITY

SUSTAINABLE DEVELOPMENT GOALS

SDG 17: PARTNERSHIPS FOR THE GOALS







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Beirut Arab University
SDG 9 Industry Innovation and Infrastructure

University and Community Alignment Report | Lebanon

Evidence review updated 19 October 2026

Understanding the goal

SDG 9 concerns resilient infrastructure, sustainable industrial development and innovation. Its targets include research capability, access to technology, environmentally sound infrastructure and stronger links between knowledge and productive activity. Universities contribute by educating technical professionals, maintaining research facilities and working with public, private and community partners to develop useful solutions.

Evidence: United Nations SDG 9 targets

BAU's contribution

BAU's contribution combines engineering and scientific research, curriculum development, innovation programmes and research dialogue. Student and staff projects address agriculture, assistive technology and energy, while external partnerships create opportunities to test ideas against practical needs. The evidence supports research and capacity development more clearly than claims of widespread commercial adoption or industrial transformation.

Relevant UN targets	Focus of this report
9.1 and 9.4	Resilient and more sustainable infrastructure
9.5	Research, technical capability and innovation
9.b	Local technology development and industry connections

Students staff and community

Students contribute to supervised technical projects and prototype development. Academic staff provide research and design leadership. Technicians sustain facilities, while administrative employees support agreements, budgets and purchasing. Industry, public-sector and community partners bring operating needs and help assess whether an idea is useful beyond the laboratory.

Evidence approach: dated activities and research from 2021–2026 are prioritised. Standing services are identified as such; policies and agreements have no date cutoff. Original links accompany the evidence. The final page proposes improvements and does not claim they are already implemented.

Building institutional capacity for useful innovation

Connecting researchers with industrial opportunities

BAU's March 2025 LIRA Innovation Program workshop introduced a mechanism for connecting academic research with industry and innovation support. It demonstrates institutional engagement with applied research opportunities. Funding awards, commercial agreements and completed industrial improvements require separate project records.

Evidence: BAU LIRA Innovation Program 2025 workshop

An effective connection begins with a well-defined problem. Industry partners can explain operating constraints, academic staff can assess the research question and students can contribute through supervised design and analysis. Administrative support is needed for agreements, purchasing, budgeting and records. Innovation therefore depends on a coordinated institutional process as well as a promising technical idea.

International curriculum development

BAU participated in DeCAIR, the Erasmus+ project on artificial intelligence and robotics curricula. At the final conference in December 2023, BAU representatives shared their institutional experience alongside other university partners. The event disseminated project results and recommendations to academic, ministry, professional and industry participants.

Evidence: BAU DeCAIR final conference December 2023

Curriculum cooperation can strengthen innovation by helping departments review what students need to learn and how they should learn it. International comparison is useful when adapted to local requirements, staff capability and available equipment. It should lead to assessed student competence, rather than a list of topics added without practical learning.

Facilities need people and continuity

Research infrastructure includes instruments, computing resources and laboratories, but also skilled technicians, maintenance and safe operating procedures. Students require training and supervision to use these resources responsibly. BAU can strengthen its account of infrastructure by documenting access, utilisation and the projects that facilities support, alongside any investment in new equipment.

A recognised invention in October 2026

BAU reported that its Faculty of Science research team received a patent from Lebanon's Ministry of Economy and Trade for green synthesis of zinc oxide nanoparticles used in dental materials. The work uses local plant extracts and links chemistry with material performance. The university announcement establishes a reported patent achievement, while commercial scale and routine clinical use require further evidence.

Evidence: BAU dental materials patent reported October 2026

Student and staff research on practical technologies

Precision agriculture through CropSync

The 2024 CropSync paper by BAU engineering staff and student coauthors explores artificial intelligence and Internet of Things methods for agricultural monitoring and management. It provides an example of students contributing to an applied technical research problem. The work concerns a proposed or prototype system; it does not establish measured yield improvements across commercial farms.

Evidence: BAU staff and student CropSync research published 2024

The innovation question extends beyond whether a system can collect data. Farmers need information that is dependable, understandable and affordable to act upon. Equipment maintenance, connectivity and local growing conditions influence usefulness. These issues make agricultural technology a suitable setting for collaboration between engineers, environmental specialists and the people expected to use the system.

Assistive technology research

A 2024 BAU Science and Technology journal paper examines a bionic prosthetic arm. It represents engineering research relevant to assistive technology and accessibility. A research design or prototype should be distinguished from a clinically validated device available as a routine healthcare service.

Evidence: BAU bionic prosthetic arm research published 2024

Assistive-device development benefits from the involvement of intended users, clinicians and rehabilitation professionals. Technical performance is only one requirement; comfort, usability, repairability and cost also matter. Students can learn responsible innovation by documenting design choices and testing limitations, while staff ensure that any human involvement follows appropriate ethical and professional processes.

What these projects demonstrate

These examples show BAU students and researchers applying technical knowledge to locally relevant needs. Their immediate contribution is the development and evaluation of ideas. Demonstrating wider impact would require evidence of later testing, adoption or service improvement. Keeping these stages clear makes the university’s innovation record more credible and helps identify the support needed for the next stage.

Resilient infrastructure and cross-sector research dialogue

Learning from campus energy infrastructure

BAU's published solar-microgrid case combines modelling with an account of campus implementation. It illustrates how university infrastructure can become a research and teaching resource for evaluating resilience and energy-system choices.

Evidence: Original BAU campus energy comparison published 2023

For SDG 9, the value lies in connecting infrastructure decisions with evidence. A campus can provide realistic operating conditions for examining reliability, integration and maintenance. Students gain a fuller understanding of engineering when they see how a design performs in daily use and what facilities teams must do to keep it operating.

A 2026 forum on research for sustainability

On 6 October 2026, BAU organised Advancing Research for a Sustainable Future with CNRS-Lebanon and the Hariri Foundation for Sustainable Human Development. Themes included a sustainable digital future, health, social and financial sustainability and climate-resilient communities. Researchers, policymakers, industry representatives and students participated in the conference.

Evidence: BAU Advancing Research for a Sustainable Future October 2026

A cross-sector forum can help identify priorities and potential partners. Its contribution becomes stronger when discussion leads to a defined research question, a working group or a follow-up project. Attendance and dialogue are valuable activities, while technology adoption and policy change are later outcomes that require additional evidence.

An innovation pathway suited to community needs

BAU could connect research presentations with structured opportunities for municipalities, enterprises and community organisations to describe problems. Staff would assess whether a need is suitable for a student project, a research collaboration or a professional service. Such matching can help use resources responsibly and avoid promising a finished solution before feasibility is established.

Students, technicians and administrative employees each have a role in this pathway. Clear project responsibilities, protected data, realistic budgets and agreed ownership of outputs can make collaboration more dependable. These are proposed improvements to support the research and dialogue already documented.

International computing research in 2026

BAU Debbieh hosted ICONET26 in October 2026, with researchers and academics from more than 13 countries. The IEEE Computer Society Lebanon Chapter event addressed intelligent computing and emerging technologies. It adds a recent forum for exchanging research and connecting young researchers with wider technical discussion.

Evidence: BAU ICONET26 international conference October 2026

Priorities for strengthening the contribution to SDG 9

BAU has a visible base of applied research, technical education and partnership activity. The following recommendations would make it easier to follow an idea from early investigation to a useful, responsibly developed application.

Maintain a portfolio that records maturity

A shared innovation register could distinguish a concept, laboratory result, prototype, pilot, adopted technology and continuing service. Each entry should identify the problem, team, partner, evidence and next decision. This would help departments find complementary expertise and prevent early-stage research from being described as an already deployed solution.

Priority	Suggested evidence of progress
Research capability	Trained users and functioning shared facilities
Applied projects	Defined needs, methods and reviewed results
Technology transfer	Pilot decisions and documented adoption
Partnership quality	Responsibilities, feedback and follow-up work

Support responsible testing and adoption

Promising projects could receive staged support based on clear technical and user evidence. Before field use, teams should consider safety, usability, data protection, maintenance and the intended user's ability to sustain the technology. Industry involvement should strengthen realistic evaluation while preserving appropriate academic judgment and student learning.

The university could also publish short case studies showing what was learned when a project did not proceed. Such accounts help others avoid repeating unsuitable approaches and demonstrate that innovation includes informed decisions to revise or stop a design. Successful cases should state the contribution made by each partner and the period over which results were observed.

BAU's contribution to Industry, Innovation and Infrastructure rests on connecting technical knowledge with real needs. A clearer pathway through testing, partnership and adoption would strengthen the benefits for students, researchers, enterprises and the wider Lebanese community.