جامعة بيروت العربية
BEIRUT ARAB UNIVERSITY

SUSTAINABLE DEVELOPMENT GOALS

SDG 17: PARTNERSHIPS FOR THE GOALS







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Beirut Arab University
SDG 6 Clean Water and Sanitation

University and Community Alignment Report | Lebanon

Evidence review updated 19 October 2026

Understanding the goal

SDG 6 seeks safe water and sanitation for all, better water quality, efficient use of water and protection of water-related ecosystems. Universities contribute through their own facilities, scientific assessment, professional education and cooperation with water users and public authorities. At BAU, laboratory capacity and research on Lebanese rivers, pollution treatment and groundwater provide particularly relevant evidence.

Evidence: United Nations SDG 6 targets

BAU's contribution

BAU connects chemistry, biology, environmental science and engineering with practical water questions. Its contribution is strongest where research identifies conditions in a named watershed or evaluates a clearly defined treatment method. Students learn analytical and design skills, researchers interpret results, laboratory staff maintain quality, and community partners can help translate findings into locally appropriate decisions.

Relevant UN targets	Focus of this report
6.1 and 6.3	Water safety, pollution assessment and treatment research
6.4 and 6.5	Water efficiency and informed resource management
6.6 and 6.b	Aquatic ecosystems and participation in local solutions

Students staff and community

Students develop sampling, analytical and design skills. Academic staff lead research on water quality and management, while technicians maintain methods and instruments. Facilities employees influence campus conservation. Water users, municipalities and research partners can help define relevant questions and assess whether proposed solutions are practical.

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.

Water knowledge and responsible campus practice

Specialist analytical capability

BAU's Specialized Water and Soil Analysis Laboratory describes facilities for environmental analysis, including water and soil contaminants. Its published scope covers trace metals, organic pollutants and methods for assessing environmental samples. This is an institutional resource for teaching and research; the page does not establish that every test is offered free to the public.

Evidence: BAU Specialized Water and Soil Analysis Laboratory

The contribution of a laboratory depends on reliable sampling, documented methods and interpretation that is understandable to the person using the results. Academic staff design investigations, technicians maintain instruments and quality controls, and students learn how uncertainty affects conclusions. These roles connect environmental science with the professional responsibilities required for safe water management.

A framework for conservation

BAU's Climate Action Policy includes water conservation and more efficient resource use among its intended actions. This is a policy basis for campus improvement. Implementation should be demonstrated through maintenance records, consumption data and completed projects rather than inferred from the policy alone.

Evidence: BAU Climate Action Policy

In practice, campus water stewardship can involve facilities staff, laboratory managers, cleaners, catering teams and building users. Leaks, unsuitable cleaning practices and unnecessary consumption can undermine efficiency even where a building has modern equipment. Clear reporting routes and assigned maintenance responsibility would make conservation part of normal campus operation.

Education that supports local decision making

Water problems cross disciplinary boundaries. Chemical results require environmental interpretation; treatment options require engineering judgment; and proposed interventions must consider affordability and the people using the water. BAU's existing laboratory and research activity offers a basis for student projects that connect these perspectives. Any community-facing advice should state the sample date, purpose of testing and limits of the conclusions.

Evidence from Lebanese rivers and watersheds

Upper Litani water quality

A BAU-affiliated study, indexed in December 2024 and published in the 2025 volume of Environmental Monitoring and Assessment, assessed microbiological and physicochemical water quality in the Upper Litani Basin. It compared measured conditions with relevant water-quality guidance. Such research helps identify where pollution investigation and protection measures are needed; it does not by itself demonstrate that the river has been remediated.

Evidence: Original upper Litani water quality study

The value for the surrounding community is a more specific understanding of water conditions. Different uses, such as drinking, irrigation or ecological protection, require different interpretations. Researchers can help communicate those distinctions so that a general statement about pollution is not mistaken for a complete assessment of every possible use.

Rachiine River contamination

A 2024 Heliyon paper with BAU participation investigated water and sediment pollution in the Rachiine River. The work examined 25 locations across wet and dry seasons, combining physical, chemical, heavy-metal and microbiological measurements. The seasonal and spatial design provides a stronger basis for understanding variation than a single isolated sample.

Evidence: Original Rachiine River pollution study published 2024

This work connects science education with environmental responsibility. Students and early-career researchers can learn sampling discipline and data analysis while academic staff contribute interpretation. Community usefulness would be strengthened by accessible summaries explaining the findings, the limits of the sampling and the actions that require confirmation by the responsible authorities.

From publication to a continuing public resource

These river studies show a research contribution to SDG 6. A continuing monitoring partnership would add a different form of evidence: repeated measurements, agreed quality controls, comparable sampling sites and a clear route for communicating concerning results. Such arrangements should be documented when established. Research publication and a permanent public monitoring service are distinct contributions, each with its own responsibilities.

Groundwater planning and treatment innovation

Identifying recharge opportunities in North Bekaa

BAU and CNRS researchers developed a GIS-based assessment of artificial groundwater recharge opportunities in North Bekaa. The paper appears in BAU's 2025 journal volume and was made available in January 2026. It identifies suitable locations and discusses possible recharge approaches, including basins, trenches and other interventions. These are planning recommendations, not evidence that the proposed infrastructure has been built.

Evidence: BAU and CNRS North Bekaa groundwater recharge study

The study is relevant to communities facing pressure on water supplies because location matters. A technically plausible recharge method may be unsuitable where geology, contamination, land use or maintenance conditions differ. Mapping can help narrow the options, while field verification and consultation remain necessary before investment or construction.

Investigating low-cost treatment materials

A BAU-affiliated 2025 Frontiers in Environmental Science study investigated tomato leaves as a biosorbent for lead and organic dyes in water. It connects agricultural material with pollution-treatment research. The evidence concerns laboratory performance under specified conditions; it does not establish an operating municipal treatment plant or universal drinking-water safety.

Evidence: BAU tomato leaf water treatment study published 2025

Treatment innovation becomes more useful when research addresses regeneration, disposal of contaminated material, cost, competing pollutants and performance with real wastewater. These questions provide opportunities for collaboration between scientists, engineers and potential users. They also teach students to distinguish promising experimental results from a technology that is ready for routine deployment.

Working with the community

BAU could use these research themes to structure small, well-defined partnerships with municipalities, agricultural organisations and other water users. A useful project would agree its question, sampling plan, responsibilities and reporting route before testing begins. Community knowledge can identify practical concerns, while university methods can help assess them systematically. This is a proposed route for extending the existing research contribution.

Priorities for strengthening the contribution to SDG 6

BAU's strongest verified contribution is the combination of analytical capability and place-specific water research. The following recommendations would strengthen the link between scientific work, efficient campus operation and community benefit.

Build a measurable campus water programme

Facilities teams could establish a documented baseline for each campus, distinguish major uses and maintain a log of leaks and corrective work. Laboratory and clinical facilities should receive particular attention because their water needs and discharge risks differ from ordinary teaching rooms. Consumption should be interpreted alongside occupancy and activity rather than as an unexplained annual total.

Priority	Suggested evidence of progress
Campus efficiency	Meter coverage, consumption and completed repairs
Water quality	Sampling plan, methods and reviewed results
Community research	Partner questions and accessible findings
Innovation	Pilot results, costs and safe residual disposal

Make research usable without overstating certainty

For each watershed study, a short public brief could identify the area, sampling period, principal findings and appropriate contact points. Results should explain uncertainty and avoid implying that an untested location is safe. Where follow-up monitoring is agreed, a schedule and responsibility for reviewing results would help maintain trust.

For treatment and recharge research, the next step should match the maturity of the evidence. Laboratory studies may need pilot testing; mapped recharge opportunities need site investigation and the required approvals. Students could contribute through supervised projects while staff and community partners review practicality and maintenance needs.

BAU's contribution to Clean Water and Sanitation lies in developing knowledge, professional skills and an institutional basis for stewardship. Documenting operational results and the use of research by local partners would make the connection to safer and more sustainable water management clearer.