

Al Balqa Applied University WMP

Waste Management Protocol (WMP)

01.09.2022

The high level of waste generated at the university has been initiated from not having a management strategy that deals properly with waste for a long time, resulting in having waste ending up in landfill sites without proper treatment. Although, this has dramatically changed over the past years as the university has established a variety of aims, objectives and targets for the purposes of mitigating its environmental impacts specifically the generated waste via a waste management protocol. This protocol has encountered a strict and effective strategy delivered by regulatory legislations and responsibilities with the goal of reducing waste to landfill to **70%** by the year **2027**.

The Sustainable Development Goals (SDGs) are a global call to action for the preservation of our planet and the promotion of human flourishing that has been endorsed by all countries. The responsibility for achieving such objectives should be shared by national and local governments as well as corporations, the media, universities, and NGOs. Al-Balqa Applied University (**BAU**) has adopted a sustainable strategy of continuous development and is a member of the United Nations Academic Impact (**UNAI**). Intent on achieving the SDGs via a variety of strategies, projects, and activities.

The university has adopted a combination of regulations, policies, programs and initiatives to meet its target in accordance with the governmental waste management legal framework **No.16** in March of 2020. Which obliges large waste generators, producing more than 1000 tons per year of non-hazardous wastes and any amount of hazardous waste to prepare a waste management strategy that should be updated every 5 years.

The strategy goals should be clear, quantifiable, practical, time-bound and achievable. That is why the university legislations and rules provide short and long-term improvements, policies and clear roles and duties. As so not only to ensure that goals would be met but also that the available resources such as finance is used as effectively as possible. Notable among the regulations and policies is utilising the four R's of waste management (**Reduce, Reuse, Recycle and Recover**) as outlined in **Chart 1** to improve the current waste management system at the university that is already in place.

According to the Ministry of Environment, a mandatory plan should be in place and comprises the following:

1. Measures and procedures to prevent or reduce waste generation.
2. Waste separation system.
3. Waste treatment and disposal.

Al-Balqa Applied University waste management protocol (**WMP**) outlines how waste generation and resource consumption will be minimized and managed while the establishment is operating. By using the statutory waste management hierarchy approach that is seen below (**chart 1**). The avoidance of waste generation is the option that is prioritized the highest in the university waste hierarchy, whereas waste disposal is considered to be the least prioritized alternative to keep materials and energy circulating through the economy.

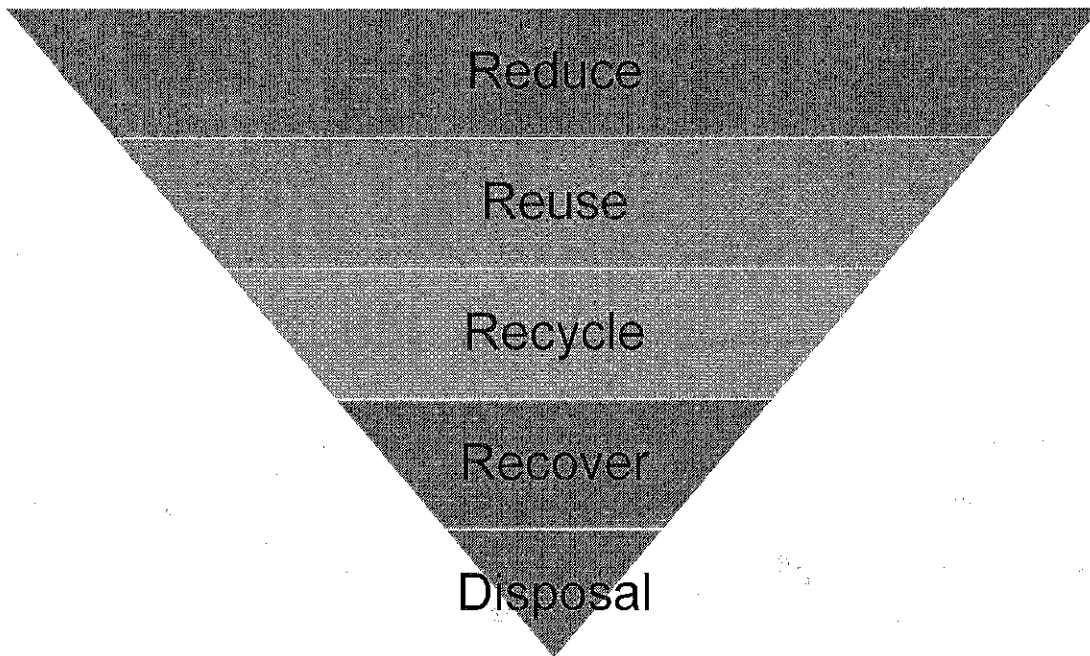


Chart 1: Stages of Al-Balqa Applied University WMP

The university waste management protocol comprises five main stages, as listed below:

1. Waste Reduction.
2. Waste Reuse.
3. Waste Recycle.
4. Waste Recovery.
5. Waste Disposal.

These 5 stages include several policies that facilitates the operation of waste management as outlined below:

1. Waste Reduction:

This includes reducing the volume of waste generated at the university or directing to measure the material before becoming waste by expanding its life span, through:

No.	Application	Short Term Policy	Application	Long Term Policy
1	✓	Compulsory printing double-sided papers (exams, quizzes, confidential documents).	--	Reducing the use of papers by computerizing all exams, quizzes, questionnaires and confidential documents.
2	--	Prohibiting the use of plastic bags at the university and permitting the use of paper bags instead.	--	Charging fees on any use of plastic bags (0.1 JOD/small bag and 0.2 JOD/big bag).
3	✓	Prohibiting the use of any disposable cutlery instruments such as dishes, spoons, forks, knives, cups, stirring sticks etc. ✓	--	Regulating the university staff with a limited number of papers each semester and apply fees on any extra use of papers at the university: <ol style="list-style-type: none"> 1. Academics: 200 free papers each semester and to be charged (0.1 JOD/paper). 2. Other staff members: 100 free papers each semester and to be charged (0.05 JOD/paper).

4	✓	Purchasing and using long lasting products such as refillable pens, erasable or reusable wall calendars.	✓	Requiring cafeterias to switch to reusable utensils instead of throwaways ones.
5	✓	Using reusable envelopes for interoffice mail.	✓	Having water stations across campus, so students and university staff can refill their water bottles.
6	✓	Encourage the use of electronic mail instead of making hard copies of all communications.	✓	Switch to electronic textbooks.
7	--	Using LED bulbs instead of regular bulbs to reduce the period of bulb replacements.		
Guide	✓: Currently Implemented			

Table 1: Short and long term policies of waste reduction

2. Preparation for reusing:

This covers checking, cleaning, or repairing of waste so they can be furtherly re-used without processing for the very same purpose it was originally used for.

No.	Application	Short Term Policy	Application	Long Term Policy
1	✓	Requiring suppliers to use reusable cartons, pallets, and crates.	--	Constantly arranging what so called a "SWAP DAY" twice a year. To allow the university staff and students to bring in their items from home to swap with others.
2	✓	Repairing old furniture and equipment.	✓	Incorporate the use of reusable into different programs and modules at the university.
3	✓	Shredding confidential papers for reuse.		
4	--	Reusing packing materials and other generated waste materials such as tires.		
5	--	Collecting other reusable such as clothing, books, engineering instruments for students and local charities.		
6	✓	Reusing greywater for flushing in toilets.		
Guide	✓: Currently Implemented			

Table 2: Short and long term policies of waste reuse

3. Collection, Sorting and Recycling:

This directs the processing of waste into recycled products or material by the help of waste recyclers. As the university adopts several policies aiding to accomplish its goals by involving the private sector via agreements and require faculties with the responsibility of sorting the generated waste at source in separated bins (containers) and recyclers to collect the separated waste to be recycled at their facilities for the same purpose or for other purposes. These containers can be removed and emptied immediately at their original place or brought to a different collection point (transfer station), where containers can be emptied there by the service provider. The university has level surface and accessible collection point that is not located behind locked gates to allow direct access and facilitate the use of authorised heavy vehicles.

This stage is applicable to the generated organic and inorganic waste to improve its recovery. As proper collection of waste at source (sorting) results in cleaner waste fractions. This includes defining waste stream and size, having waste collection bins, labelling and creating collection locations in suitable areas such as sports facilities, classrooms, meeting rooms, hallways, entrance ways, green spaces and cafeterias with protection measures. In the meanwhile, the institution is committed to making sure that everyone who works there is safe from exposure to any harmful substances. The university adheres to the guidelines of the toxic waste material protocol in handling it carefully by providing a clear, documented procedure for the secure and compliance collection, storage, and disposal of toxic waste in a specialized landfill for hazardous waste material under the supervision of the Ministry of Environment. The university's protocol for dealing with toxic waste materials requires that all employees operate under the assumption that all chemical and biological wastes are potentially hazardous and thus require the application of specific protocols and the strictest possible safety measures during handling and disposal.

No.	Application	Short Term Policy	Application	Long Term Policy
1	✓	Supply all faculties at the university (centre campus) with separated bins (organic and inorganic waste bins, paper and cardboard bins and plastics bins).	-	Supply the rest of the faculties at the university (outside the centre campus) with separated bins (organic and inorganic waste bins, paper and cardboard bins and plastics bins).
2	✓	Require all staff members at the university to sort out waste at source.	--	Audit the existing waste sorting practices at each faculty.
3	✓	Assign a staff member in each faculty to be responsible on ensuring waste is sorted at source.	--	Apply fines for those who does not comply with the university regulations by sorting out waste at source if spotted.
4	✓	Creating a green team from students and staff members to educate, empower and inspire fellow students and staff to establish and promote environmentally sustainable practices within their organization.	--	Encouraging students and staff members to take ownership of their faculty's sorting and recycling program by holding competitions.
5			--	Giving two warnings for any faculty that does not comply with the regulations of the university by sorting out waste at source. After the two warnings, the assigned staff member will be fined.
			--	Developing or establishing a recycling facility or plant at the university
Guide	✓: Currently Implemented			

Table 3: Short and long term policies of collection, sorting and recycling

The sorting at source is an essential practice in the university waste management process, since it increases the potential and effectiveness of waste recovery and increase the production of recycled materials and reduces the transportation distances to recycling facilities which benefit waste recyclers.

- a. **Organic waste:** Organic waste is any waste material that is originally from plants or animals (biodegradable) which can be piled up as a compost such as food leftovers, coffee grounds, eggshells etc. The process of recycling organic waste at the university is the most common way to safely manage organic waste until it becomes nutrient-rich fertilizer. This process occurs onsite and starts with separating the organic waste in an individual bin (compost bin) and mixed occasionally, as the finished compost settles to the bottom of the bin. This process allows the university to use it in order to improve the soil while reducing the use of fertilizer and water.

In addition, the university's present objective is to improve the treatment of organic waste to cover as much as possible of the organic waste generated. Particularly when there is still a considerable quantity of organic waste that goes to landfill sites and not being processed through composting. This concept involves the installation of organic waste digesters that anaerobically digest organic waste to produce methane gas or biogas through a complex process that is still being researched by the university. To generate renewable power and heat for a sustainable future and circular economy.

- b. **Inorganic, paper and cardboards as well as plastic waste:** These waste materials are those that do not contain any organic compounds such as glass, cans, metals, papers, plastics etc. Sorting in this type of waste is vital as mentioned previously since it increases the potential and effectiveness of waste recovery. As outlined above this type of waste is dealt with by partnerships between the university and private recycling companies to collect the separated waste materials to be treated in their facilities.
- c. **C&D waste:** The university deals with C&D waste by either two options which are legal dumping in a permitted landfill site according to the waste management legal framework **No.16** or backfilling if it has been proved experimentally to be suitable.

4. Other recovery:

This directs the recovery of any type of waste that does not comply with the requirements of the previous stages. The university has adopted a combination of regulations and policies to meet targets and fulfil its goals via sustainable procurement of any leftovers of waste materials. As this stage, waste materials are successfully disposed of in a sustainable manner prior the least preferable environmental alternative which is landfilling. This includes timber, steel and other removable or disassembled components such as doors and window frames. The total percentage of inorganic waste being recovered by procurements and tenders accounts for nearly 60% of total generated inorganic waste.

5. Disposal of waste (Landfilling):

This is the least preferable environmental stage as mentioned previously that includes disposing of any unrecycled, un-reused or unrecovered waste to permitted landfill sites by the help of the local authority.

- **WMP Monitoring:**

The university WMP is subjected to a periodic review and revision (yearly basis and a 5-yearly basis) particularly when new practices, standards, legislation must be made to the strategy. This monitoring focuses on WMP goals and targets to ensure that corrective measures are taken immediately to address any challenges. Including activities schedules and targets are met by time and report the reasons for delays and apply corrective measures to address them, legislative developments, any relevant available techniques and training of personnel.

The university monitors the waste generated on campus according to numerous quantifiable categories, including generation, reuse, recycle, recovery, and disposal. This tracking criteria enables the institution to identify and quantify waste types and amounts. Which allows the university to measure the amount of waste generated and collaborate with local authorities and private companies to aid in the preservation of the environment, the circulation of the economy, and the enforcement of environmental legislation (No.16).

The chart below demonstrates an explanation of the waste flow at the university from generation to disposal under the restriction of the university's protocol regulations.

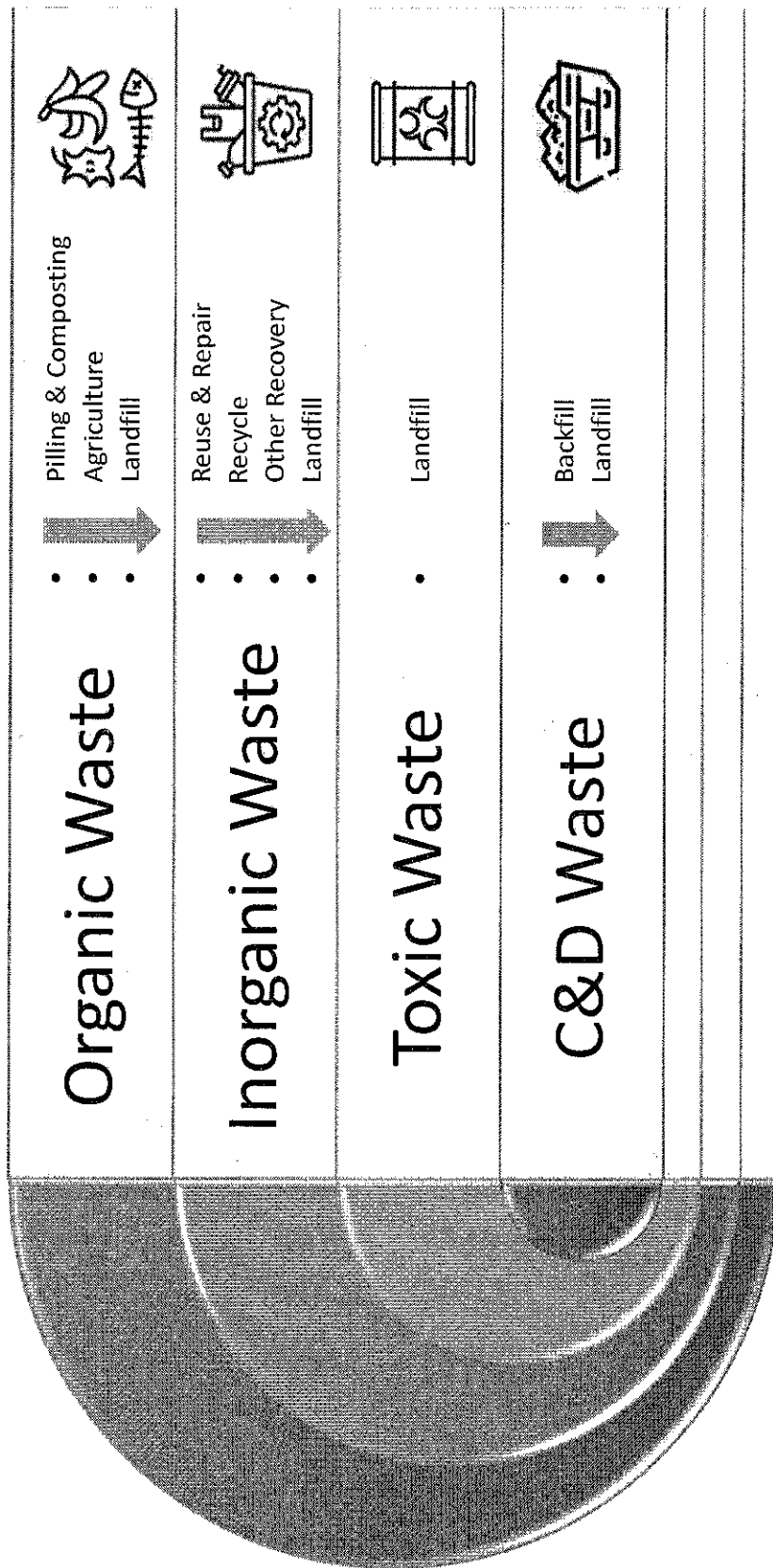


Chart 2: Waste management at Al Balqa Applied University

The deanship of scientific research and innovation at Al Balqa Applied University gives grants to support high-impact academic research projects. To adopt an effective and productive research environment, make optimal use of resources and technologies, and encourage international cooperation in order to produce creative community service research studies that contribute to the process of moving Jordan's economy toward sustainable future economies. Some examples of these sectors include the energy sector, water resources, advanced materials, health, tourism, archaeological sites, education, communications, IT, agriculture, transportation, **environment**, and applied physics. To boost Jordan's knowledge-based economy, decrease the country's reliance on natural resources, and enhance health and social services for all community members that help support their concerns and provide solutions to their problems.

- **Additional key policies of the university WMP:**

1. Adding a provision in the specifications of tenders to include recyclable waste material and recycled materials.
2. Initiating the use of recycled C&D waste materials for minor utilizations rather than backfilling.
3. Creating a market for recycled materials to increase the demand on such products and develop the concept of waste management.
4. Providing certifications to faculties who practice the best towards sorting.
5. Providing trainings for staff members and students in waste management.
6. Increasing the public awareness and education in relation to solid waste management and motivate the public to be part of it.
7. Promote scientific research conducted by AlBalqa Applied university staff members in as a means of addressing national waste issues and other environmental concerns.