UNIVERSITY OF JOHANNESBURG

2022 ANNUAL REPORT

The Future Reimagined

Statement on Environmental Sustainability

OVERVIEW

UJ has committed itself to improving on its sustainable practices in all of its University activities. The development of the UJ Strategic Plan 2025, anchored in the overarching goal of global excellence and stature (GES), has placed a requirement on the institution to improve on its sustainability footprint.

Strategic Objective Six

Strategic Objective Six, fitness for global excellence and stature, states that "We will also minimise harmful impact on our environment through managing our carbon footprint, reducing energy and water wastage, encouraging paperless communication, and overall fostering of a culture of responsible stewardship".

UJ has seen a growing commitment towards the goal of being a sustainable institution that strives to implement improvements and actions across all spheres of its campus activities. UJ firmly believes that sustainable development is a long-term commitment and aims to contribute to sustainability by reducing its environmental footprint, while enhancing its contributions to the social and economic development of South Africa.

This report highlights some of the specific focus areas, as well as improvements achieved during 2022.

ENERGY MANAGEMENT

Carbon footprint

UJ's carbon footprint analysis was based on its actual 2022 energy consumption. The total carbon footprint for 2022, based on energy consumption from various sources, is approximately 44 986 tons of CO2 compared to the 38 196 tons reported during 2021 (refer to Tables 21 and 22, respectively). This indicates an increase of approximately 17,76%. This can be attributed almost entirely to the impact of a return to normality after the extended two years of reduced campus attendance during the COVID-19 lockdown levels that were applied at various times during 2020-2021. In a sense this is a return to the more normal carbon footprint figures of 2019 (54 642 tons) and, from that perspective, UJ is still showing a substantial reduction in carbon generation (a reduction from 2019 to 2022 of 25,28%).

In considering this figure, the following should be noted:

- UJ has increased its built area footprint by 13,43% since 2013 and a further 2,52% in 2022.
- The Auckland Park Kingsway Campus continued to contribute significantly to the overall carbon footprint with a net 24 731 tons of CO_2 compared to the overall University footprint of 44 986 tons.
- The methodology of measuring the carbon footprint is based on absolute consumption on main campus areas, and now also includes UJ-owned properties such as off-campus residences, but still excludes JBS Park and UJ on Empire, as these facilities are still being upgraded in terms of measurement equipment.
- While the reported solar photovoltaic power generation has led to a measurable decrease in the carbon generated by UJ – the decrease is approximately 5,53% – a reduction in the savings from the 6,501% saved in 2021 – this must be seen against the overall increase in electricity consumption experienced in 2022.

WATER MANAGEMENT

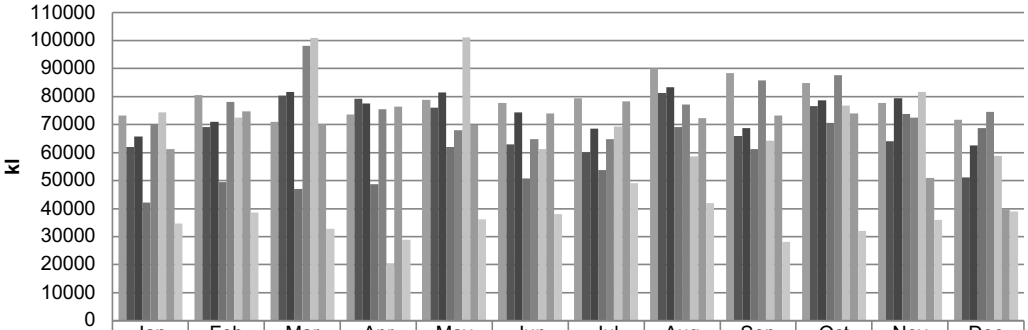
Using water sparingly has become a necessity at UJ. A water savings was achieved for 2022, and compared to 2015, there has been an overall decrease of 46,58% against the very high value of 2021. The APK water consumption in 2022 showed a 54,78% decrease from the 2020 data, a direct result of fixing of a major pipe leak on campus in 2022. As far as possible, borehole water is now being used on all campuses, and the four new boreholes for supply subvention from 2022 are now in operation.

A number of initiatives implemented in 2022 contributed to some water savings. The key focus areas in the reduction of water consumption for 2022 were as follows:

- Achieving 95% installation of water restricting showerheads in residences and installing 100% of new residences with low flow showerheads.
- Reducing water usage due to reduced supply by the CoJ as a direct result of the Eskom load shedding processes.

The key focus areas in the reduction of water consumption for 2023 are as follows:

- As far as possible replacing existing taps with push-taps at kitchen hand basins and bathrooms, and further trialling push-taps in shower cubicles to reduce water loss due to inadvertent open tap losses after water supply cuts.
- Additional drilling for water on other UJ properties.
- Conducting further awareness campaigns on campuses and in residences to achieve water savings.
- Continuing with the ongoing installation of water restricting showerheads and extending the retro-fitting of push-taps in residences and ablution facilities as funds and technological factors permit.
- Considering the use of waterless urinals to reduce water consumption and investigating a waste concentration system on the APK Campus to reduce sewage costs and allow for substantial water recovery for irrigation purposes.
- Installing the first functioning grey water trial on the APB Campus for two large residences – this is expected to save more than 4 million liters of water per annnum.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	73158	80544	70927	73669	78822	77771	79440	90022	88473	84743	77708	71791
2016	61918	69125	80266	79138	75987	62988	60147	81248	65956	76664	64064	51098
2017	65786	70927	81654	77476	81403	74447	68537	83248	68746	78597	79358	62587
2018	42141	49537	47030	48802	61999	50861	53777	69197	61327	70617	73860	68653
2019	70094	78093	98118	75430	68003	64769	64862	77256	85798	87729	72424	74550
2020	74413	72395	100929	20310	101147	61281	69309	58591	64269	76802	81562	58781
2021	61316	74745	70154	76470	69898	73921	78271	72378	73155	74038	50912	39746
2022	34588	38559	32824	28822	36229	38063	49060	42029	28137	32011	35993	39077

Figure 3: UJ total water consumption comparison from 2015 to 2022

WASTE MANAGEMENT

An analysis of the different types of waste generated in the reporting year is depicted below, while Table xx provides an overview of total waste generation compared to recycled waste. Interestingly, Table xx makes it clear that, in 2022, UJ recycled a substantially larger quantum of waste, which is admirable, but it must be

noted that although the absolute amount of waste generated increased after the very reduced values in 2020 and 2021, it has not yet reached the pre-pandemic levels of 2019. As the total waste generated returns to pre-pandemic levels, the percentage of recycled waste is reducing to be in line with the pre-pandemic levels as well. In terms of a comparison with the 2019 recycling, we are still improving from 33,65% to the 2022 level of 40,25%.

Table 25: Different types of waste recycled from January 2011 to December 2022

YEAR	COM PAPER	WHITE PAPER	PLASTIC	CANS	E WASTE F TUBES	CARDBOAR BOXES	GLASS	SCRAP METAL	WET WASTE	GARDEN REFUSE	TOTAL	%
2011	22.452T	26.934T	26.689T	13.742T	0.14T	37.427T	28.74T	29.803T	0	0	**188.71T**	3,9
2012	42.385T	41.505T	18.797T	9.45T	1.7T	56.417T	30.38T	11.108T	7.671T	0	**288.27T**	8,1
2013	39.46T	40.142T	18.028T	10.005T	1.21T	37.805T	18.793T	7.364T	14.2T	136.5T	**416.63T**	17,64
2014	40.088T	36.855T	19.615T	9.964T	1.44T	48.274T	13.93T	6.768T	36.22T	325.5T	**538.7T**	34,75
2015	31.579T	51.725T	20.335T	7.117T	0.17T	63.932T	31.521T	4.071T	15.16T	329.14T	**506.51T**	28,55
2016	53.681T	21.877T	34.056T	6.347T	0.11T	52.574T	16.218T	17.048T	18.68T	293T	**513.6T**	28,89
2017	40.667T	17.526T	42.149T	8.189T	6.08T	59.824T	27.062T	0.552T	4.61T	250.98T	**456.66T**	19,56
2018	37.016T	45.997T	44.592T	5.5515T	1.91T	40.346T	5.102T	1.34T	8.82T	263.14T	**521.48T**	22,54
2019	32.614T	43.121T	25.062T	5.908T	3.385T	41.16T	47.057T	4.051T	15.23T	407T	**625.33T**	33,65
2020	21.63T	17.98T	12.68T	2.58T	2.72T	31.58T	19.77T	10.26T	30.66T	524T	**673.86T**	47,81
2021	13.952T	17.34T	6.31T	1.408T	3.112T	23.877T	22.317T	14.194T	12.506T	780T	**895.016T**	51,16
2022	32.158T	16.746T	13.811T	2.728T	2.862T	29.423T	19.771T	5.03T	2.629T	719.2T	**844.33T**	40,25

Table 26: Waste generated versus waste recycled – 2011 to 2022

YEAR	GENERATED	RECYCLED	PERCENTAGE RECYCLED
2011	4 838.48T	188.71T	3,9%
2012	3 559.19T	288.27T	8,1%
2013	2 361.88T	416.64T	17,64%
2014	1 551.27T	539.71T	34,79%
2015	1 773.81T	506.52T	28,56%
2016	1 818.89T	513.6T	28,24%
2017	2 333.52T	456.66T	19,57%
2018	2 312.87T	521.48T	22,55%
2019	1 858.48T	625.33T	33,65%
2020	1 409.3T	673.86T	47,82%
2021	1 749.37T	895.02T	51,16%
2022	2 097.93T	844.33T	40,25%