

forward together sonke siya phambili saam vorentoe

Environmental Sustainability Plan

2020 - 2025



Contents

Cre	ating a s	sustainable legacy	2
List	t of abbr	eviations	2
Em	powerin	g future leaders to become global citizens	3
01	Introdu	ction	4
02	Vision:	environmental sustainability	5
03	Sustain	ability planning and governance	6
04	Contrib	ution to global goals	7
05	Environ	mental Sustainability Plan	8
06	SU sust	ainability principles	8
07	Themes	s at a glance	9
08	Main th	emes	10
	8.1.	Energy and emissions	10
	8.2.	Water	13
	8.3.	Waste	14
	8.4.	Biodiversity and land use	16
	8.5.	Goods and services	18
	8.6.	Sustainable buildings	20
	8.7.	Travel and mobility	22
	8.8.	Engagement	24
09	Toward	s a sustainable future	26

Creating a sustainable legacy

Educational institutions like Stellenbosch University should play a significant role in forging the path to a sustainable future. Sustainability is a core component of SU's strategic programme in which we aim to create a community of sustainable changemakers. Together we can design and leave behind a legacy in sustainability for future generations to follow in our footsteps.

List of abbreviations

coc	Chain of oustady
CUC	– Chain of custody
COD	– Chemical oxygen demand
DTI	– Department of Trade and Industry
GBCS	A – Green Building Council of South Africa
GHG	– Greenhouse gases
IDC	- Industrial Development Corporation
NMT	– Non-motorised transport
SDG	– Sustainable Development Goals
SU	– Stellenbosch University
SuDS	– Sustainable drainage systems



Empowering future leaders to become global citizens



Wim de Villiers Rector and Vice-Chancellor

Stellenbosch University (SU) is educating the world's future leaders. We must empower them to become global citizens for sustainable development.

SU's Environmental Sustainability Plan is our ambitious aim to address the sustainability challenge and further initiatives to reduce our campus operations' environmental and social footprints, because the climate crisis is upon us. SU can and should act as a catalyst for a sustainable society, offering new knowledge and insights and leading by example.

Our Plan details the guiding principles, targets, and priorities for 2020-2025 and supports SU's Vision 2040. The goal is to ensure that SU achieves carbon neutrality by 2030. These are bold steps towards becoming a benchmark for peer institutions locally and internationally.

SU has the opportunity through its strategic sustainability initiatives to create cultures of sustainability for today's students and tomorrow's leaders. We have to set their expectations – not just for how the world currently works, but also for how it should be – while creating healthier, cleaner, safer and more productive workplaces for students and staff.

In showing my full support for SU's environmental sustainability vision, I call upon the entire SU community to become our partners in achieving the ambitions set out in the SU Environmental Sustainability Plan.



01 Introduction

Globally Stellenbosch University (SU) is recognised as one of Africa's foremost and leading research-intensive universities. There are more than 31 000 students and 3 400 staff members located on its five campuses, who have a significant impact on the environment.

SU understands the complexity and magnitude of the impact it has on the earth's natural systems, from increasing climate change to the declining natural resources locally and internationally. The University has adopted its Vision 2040 and Strategic Framework 2019-2024, in which a key priority is the promotion of systemic sustainability in a social, economic and environmental sense to realise the institutional goal of bringing about "profound and sustainable change and regeneration in all facets and functions"¹ at Stellenbosch University.

1 Strategic Framework 2019-2024



02 Vision: environmental sustainability

Stellenbosch University acknowledges its leading role in society, both locally and globally, as well as its obligation to contribute to society and help build a better future for all.

All actions taken must be guided by the knowledge that the earth is a finite environment comprised of complex, interconnected systems. Therefore, all actions must be ecologically sound, socially just and economically viable.

Environmental sustainability needs to be included as a focus area across all aspects of SU's operational management, teaching and research, as articulated in Vision 2040. To this end, the University has developed a vision statement that empowers SU stakeholders to embark on a collective journey to reduce their carbon emissions and their impact on our natural resources and start living and operating better.

The goal of this plan is to ensure that SU achieves carbon neutrality by 2030 and in so doing positively contributes to climate change.

VISION STATEMENT

To develop Stellenbosch University in a manner that respects ecological thresholds and enhances both society and the natural environment in order to avoid depletion or degradation of natural resources and ensure diverse, resilient and productive ecosystems for current and future generations.





03 Sustainability planning and governance

Effective governance is critical for any environmental sustainability effort to succeed. SU commits to including environmental sustainability in its decision-making processes and the management of all aspects of the organisation.

This will be achieved by promoting a culture of awareness in all the University's activities, including teaching and learning, research and operations.

Substantial changes in social and human behavior are required to reduce the impact and contribute to the wellbeing of the planet.

Best practice is considered to include transparent governance through accountable reporting. This reporting framework will include current verification and validation of information. The University commits to developing and maintaining a sound decision-making framework and structure.

This will ensure that the commitments of the Environmental Sustainability Plan are integrated within SU's faculties and environments. Reporting structures will be clearly defined, with set reporting periods as relevant to the key performance targets agreed. This also means that the entire University community will be kept informed of progress through transparent and effective reporting and communication.



04 **Contribution to global goals**

SU is committed to both local and global sustainability action. The University supports the United Nations' Sustainable Development Goals (SDGs) as a pathway to responsible development. As a member of national and international organisations and institutes, SU actively engages in the broader national and international aspects of sustainable development and environmental sustainability.

Apart from the SDGs, the University's Vision 2040 also takes into account South Africa's own National Development Plan and the African Union's Agenda 2063. As such, SU is uniquely positioned to drive the adoption of the SDGs and environmental sustainability both locally and on the African continent through the promotion of environmental sustainability at SU.



05 **Environmental Sustainability Plan**

By adopting the Environmental Sustainability Plan, SU commits to advancing environmental sustainability across all aspects of the Institution. This includes planning and development, operational management, teaching and research. SU acknowledges that collaborative and ongoing efforts are integral in ensuring that a culture of environmental sustainability persists at the institution.

This plan aims to articulate a set of high-level principles that inform tangible targets under eight core themes. These themes, in turn, translate into priority actions through this Environmental Sustainability Plan. The eight themes that SU has highlighted in its drive to become more environmentally sustainable and resilient are indicated on page 9.

06 **SU's sustainability principles**

Stellenbosch University commits to be guided by a set of environmental sustainability principles in its daily operations, decision- making, the identification of projects and how the projects are executed. These principles help integrate environmental sustainability within all facets of the University on an ongoing basis, and are:

Ethical use of natural resources: SU strives to use resources responsibly.

Meaningful engagement: SU actively engages the University and local communities to foster a regenerative culture that promotes and drives environmental sustainability.

••••••

Research: The University acknowledges its responsibility to support innovative research towards creating a more environmentally sustainable world.

.....

Education: SU acknowledges that teaching and learning programmes must inspire and support future generations and students to be leaders who nurture an environmentally sustainable future.

••••••

Ethical procurement: SU seeks to procure goods and services using sustainable and certified ethical sources and practices.

Themes at a glance



08 **Main themes**

8.1 **Energy and emissions**

OVERARCHING AIM

To reduce Scope-1 and Scope-2 emissions and dependence on fossil-fuelled energy through dynamic and continuous energy management programmes.

An estimated 95% of electrical energy in South Africa is supplied by the national utility, with more than 80% of all electricity generated at fossil-fuelled power stations. Electricity demand in South Africa is nearing the national supply capacity, resulting in constraints on the national utility's ability to cope with any increases. Therefore, using municipal-supplied electricity more wisely will not only help alleviate the pressure on the national supply system, but will also reduce the University's dependence on fossilfuelled electricity. Setting ambitious energy targets demonstrates SU's commitment to reducing its impact on the environment by reducing its emissions generated from fossil fuels. The University is a largescale energy consumer, both on and off campus, specifically electricity from the grid, liquid petroleum gas as well as fuel for operations, transport and backup generators.

Total annual electricity consumption is in the order of 74 million kWh for all campuses, while the amount of fuel consumed by the transport fleet also contributes to overall emissions. The use of fossil fuels for operations, electricity and transport has a negative environmental impact and contributes to climate

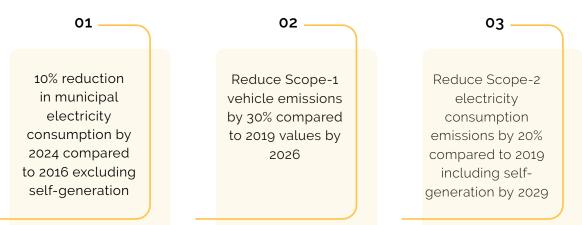
A LO MARKED

change effects through increased carbon emissions and local air pollution.

SU aims to identify and reduce gross emissions and improve its overall energy efficiency in line with global targets on climate change and the SDGs. To this end, the Facilities Management Division are implementing energy-efficiency initiatives for the next decade with the aim of lowering the University's total emissions and reducing operational costs.

The University has identified specific targets that must be met under this overarching aim. Realistic estimates of short-term to medium-term electricity savings can be made, considering that an estimated 70% of the main campus's electricity consumption originates from only 40 different buildings out of a portfolio of 490 buildings. A reduction in scope-1 fuel combustion emissions of the transportation fleet can be achieved through various monitoring and driver awareness programmes that improve vehicle fuel consumption per kilometre. Where possible, alternative energy sources such as biodiesel and electrical vehicles are being investigated or tested, along with a modal shift towards cycling and walking.

Targets



Ident										
E1	Validation and final implementation of metering system	•	•							
E2	Develop and implement energy efficiency programme.	•	•	•	•	•				
E3	Identify and implement energy conservation measures	•	•	•	•	•				
E4	Investigate and implement renewable energy programme	•	•	•	•	•				
Deve										
E5	Complete a full GHG and carbon footprint audit	•	•							
E6	Develop a GHG master plan to identify and reduce emissions		•	•						
E7	Develop a carbon reduction strategy towards zero carbon footprint in line with SDG's									
E8	Formalize a greenhouse gas programme				•					
Skills										
E9	Coordinate behavioural change programme	•	•	•	•	•				
E10	Coordinate work groups and forums for energy and emissions	•	•	•	•	•				
E11	Network with DTI, Eskom, IDC, local municipalities and GBCSA specialists	•	•	•	•	•				



Targets

- 01

40% reduction in potable water use (kl) compared to 2015 baseline

___02

50% reduction in per-capita potable water use (kl) (*staff and students*) compared to 2015 baseline

____03

30% reduction in irrigation water consumption when using primary freshwater resources

____04

10% reduction in the concentration of COD in water effluent from specified facilities compared to 2019 baseline

8.2 Water

OVERARCHING AIM

To conserve potable and irrigation water by reducing, reusing, and exploring alternative sources.

Climate change is altering weather patterns across the globe. In the Western Cape, we have started experiencing severe environmental effects, such as increased drought and flood conditions. These conditions require resilient systems that are better able to cope with changing weather patterns. The severe drought from 2016 to 2018 required SU to develop and implement a drought response plan and take proactive steps to mitigate the effects of water scarcity and ensure a sustainable supply of water to all SU campuses. SU remains a major potable-water user. Presently, the University accounts for 10% of Stellenbosch Municipality's total potable water consumption, using an estimated 2 000 kll per day. However, through the optimisation of water consumption, including efficiency fittings and alternative sources, SU has already managed to achieve a 50% saving on potable water consumed compared to 2015 values.

		Year								
						2024				
Monito	pring and evaluation									
W1	Validate and complete implementation of water metering system	•								
W2	Update water use licences, quotas, intermediary and dam licences	. . 19	•							
W3	Implement water management systems	•								
Impler	nent schemes to reduce the use of potable water									
W4	Complete augmentation schemes started in 2018 (including Mariendahl)	•	•							
W5	Complete and implement harvesting of rain, storm and alternative water on all campuses	•	•							
W6	Complete and implement outstanding water, sewer and stormwater infrastructure projects as part of precinct master planning	•	•	•	•	•				
W7	Update, validate and develop irrigation infrastructure master plan on all campuses		•							
W9	Complete greywater schemes on all campuses	•	•		•					
W10	Improve quality of wastewater		•							
W11	Complete water efficiency programmes on all campuses	•	•							
Skills o	development, training and awareness programmes									
W12	Liaise with municipalities	•	•	•	•	•				
W13	Provide training and continue with awareness programmes	•	•	•	•	•				
W14	Coordinate work groups and forums	•	•	•	•	•				



OVERARCHING AIM

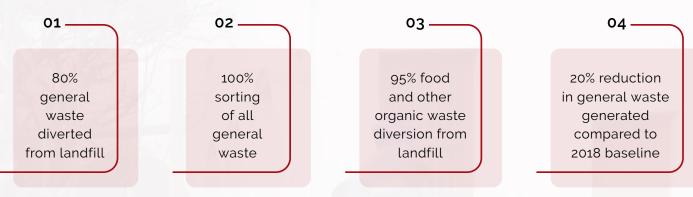
To actively manage and reduce waste generated on campus and divert it away from landfill through prevention, reduction, reuse, recycling, beneficiation, and responsible disposal.

SU currently produces an estimated 1 000 tons of general solid waste per annum. As Stellenbosch's landfill site is closed, the University has committed to reduce the amount of waste generated over the next five years in collaboration with local business and municipalities. This contributes to SU's journey of zero waste to landfill.

The University acknowledges that waste reduction will help preserve resources. This implementation of circular economy thinking will also have cascading benefits, both upstream and downstream, through the type of products chosen and the waste diverted. To manage waste, SU follows the waste hierarchy of prevention, reduction/ minimisation, reuse, recycling, beneficiation, and the least preferred option of responsible disposal. The University's improved material handling and operational systems will also result in a decrease in GHG.

Waste includes all solid non-hazardous material, as well as all streams of hazardous waste, but excludes wastewater. SU has a three-bin system on all its campuses to sort waste into recycling, non-recycling and food waste at source. Food waste is diverted from landfill and repurposed either as compost or for use in the fly-larvae protein system. Awareness campaigns and training programmes form part of the programme to reduce waste and achieve this overarching aim. ood logetable peels iarden waste bod omginers

Targets



	Wester Dweite ste		Year						
Waste Projects			2021	2022	2023	2024			
Base	line development, streamline data collection and technology to measure waste								
Q1	Validate waste monitoring system	•	•						
Q2	Develop a waste reduction, reuse, recycling strategy and Zero Waste to Landfill Plan	•	•						
Infra	structure and investment projects								
Q3	Minimise generation of waste, shifting to reuse systems		•						
Q4	Develop an efficient, integrated waste management and logistics system	•	•						
Q5	Provide waste separation infrastructure in all required spaces	•	•						
Q6	Develop a plan to optimise composting facilities		•						
Q7	Investigate sustainable dining options		•						
Q8	Develop a food waste programme	•	•						
Q9	Develop a programme to reuse office furniture and other products		•						
Q10	Introduce a construction material management system	•	•						
Q11	Divert hazardous, chemical and e-waste	•	•	•					
Q12	Introduce a programme to eliminate single-use materials		•	•	•	•			
Q13	Develop beneficiation solutions	•	•						
Skills	s development, training and awareness programmes								
Q14	Continue with awareness programmes	•	+	•	•	•			
Q15	Continue training all stakeholders	+				•			
Q16	Implement zero-waste events process		•						
Q17	Engage with vendors and service providers to reduce waste	- 1 , 1 , 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	nicisi 🔶	•		•			

8.4 **Biodiversity and land use**



OVERARCHING AIM

To maintain and design all landscapes to be resilient to environmental change and to improve biodiversity and the sustainability of open spaces.

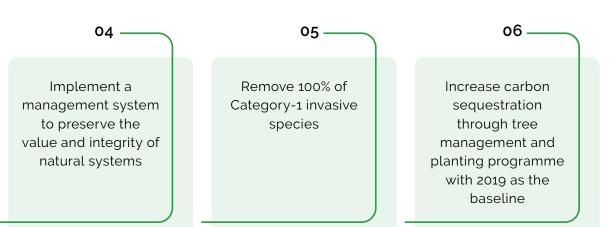
SU is located in the highly diverse Cape Floral Kingdom in the Western Cape province of South Africa where increasing urban development threatens this fragile and endangered ecosystem. Our land use choices in conjunction with local authorities and other stakeholders therefore have a significant impact on this complex system.

Sustainable landscapes create ecologically resilient communities that are better able to withstand and recover from episodic events, such as floods, droughts, wildfire and other environmental events. Unlike buildings, natural systems can protect and even regenerate, making them vital providers of ecosystem services. The efficient and effective functioning of these complex systems such as sequestering carbon, filtering air and water, and regulating climate are essential to humankind's survival. SU fully appreciates the economic, social and environmental value of these systems.

Targets

01. 02 03 Convert 90% (m2) Designate 5% (m2) Designate all new of new landscaping of total landscapes and upgraded to vegetation as green areas and landscapes in that is resilient accordance with greenbelts to environmental SUDs principles change and that improves biodiversity





Biodiversity and Land use Projects		Year				
		2020	2021	2022	2023	2024
Moni	toring and evaluation projects					
B1	Validate and complete implementation of monitoring system	•	•	•	•	•
B2	Implement urban tree management system	•	•	•		
Infra	structure and investment projects					
B3	Develop sustainable landscape guidelines for all new landscaping developments	•				
B4	Finalise a list of all plant and tree selections suitable for each campus, directed towards more water-wise plants and landscapes	•				
B5	Develop and implement conservation and recreational management programmes	•	•	•	•	•
B6	Develop urban master plan consisting of landscape precinct plans which includes wellness, recreation and experience		•			
B7	Develop guidelines to introduce hard landscaping elements and root barriers around trees	•	•			
Skills	development, training and awareness programmes					
B8	Launch awareness programmes to educate users of the University's grounds and gardens	•	•			
B9	Introduce signage and use app and online platforms to increase awareness of plants, trees and the importance of habitats	•	•			
B10	Involve Environmental Science/Biology students in monitoring and evaluation programmes	Þ	•	•	•	•



OVERARCHING AIM

To purchase goods and services from companies and organisations where Chain-of-Custody (COC) credentials are available and evaluated.

The University purchases a wide range of essential goods and services to support its teaching and learning, research and campus operations. The environmental impact of the goods and services used and consumed by the SU needs to be evaluated in order to calculate a baseline for being more environmentally responsible. SU acknowledges that all purchasing decisions made will have an impact on the providers of goods and services. By educating these companies and organisations, the University will increase awareness of environmental sustainability across the region.

Actions

	Goods and Services Projects —					
			2021	2022	2023	2024
Iden	tify and implement environmental sustainability procurement procedures at SU					
G1	Review procurement policy		•			
G2	Incorporate sustainability aspects into policy as per ISO standards			•	•	
Revie	w existing contracts and services					
G3	Develop a sustainable procurement guideline and associated scorecard to assist buyers and suppliers				•	
Revie	w existing monitoring system for contracts and services to understand progress achieved					
G4	Develop and implement sustainable goods and services monitoring system			•		
G5	Train and develop procurement staff				•	
G6	Communicate sustainability policy to staff, students and stakeholders through training and guidance				•	
G7	Develop supplier engagement programme for sustainability				•	•

18

Targets

01 ____

Develop sustainable procurement criteria and include these in procurement policy by 2024

02 _

Commit to a monitoring system to measure progress and impact of procurement processes on society and the environment

03 -

Procure 70% in quantity of all goods and services from local suppliers that meet the sustainable procurement guidelines by 2024

8.6 **Sustainable buildings**



OVERARCHING AIM

To include sustainable design principles aimed at reducing the environmental impact of SU construction, refurbishment, and operations.

Universities are in a state of change. As new teaching paradigms emerge, innovative space management techniques are essential to optimise the use of existing buildings and develop new ones. New buildings at SU are to obtain a minimum GBCSA four-star rating and be certified as having a minimal and measurable impact on the natural environment. Buildings must be performance-rated according to international standards to become more sustainable, which, in turn, will save money through increased efficiencies and improved productivity. At SU, the well-being of building users will be incorporated into the design of building spaces, which will also increase productivity.

Ageing infrastructure requires adaptive reuse and renewal methodologies. At SU, audits are used to inform the performance rating of existing buildings with a view to facilities upgrades. This results in more efficient and effective spaces, cost reductions, and a lower overall environmental impact.

In terms of sustainable development, the University follows a precinct approach to understand the environmental demand of developing and upgrading building spaces. This approach will highlight constraints and optimise environmental benefits in these precincts.

Targets

20

 01
 02

 Implement a standard based on GBCSA principles for sustainable construction and refurbishment
 Obtain minimum of GBCSA four-star rating for certain new developments

 03
 04

 Create green star-rated portfolio certification of selected precincts
 Performance-rate buildings based on top 50 consumers in energy

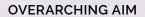


Actions

	Actions					
			2021	2022	2023	2024
Ident	ify and establish standards for sustainable construction					
S1	Customise GBCSA standards for SU		٠			
S2	Customise building performance rating tools for use at SU		•			
Imple	ement rating for new and existing buildings as well as precincts					
S3	Develop guidelines to be included in new builds and refurbishments		•			
S4	Introduce portfolio certification using Green Star rating tools	•	•	•	•	•
S5	Obtain GBCSA star rating of buildings on all campuses	•	•	•	+	•
S6	Introduce living building challenge certification guidelines		•			
S7	Focus on regenerative design to guide planning of new buildings		•			
Skills	development, training and awareness programmes					
S8	Train staff and students on how to use buildings		•	•	•	•

21

8.7 **Travel and mobility**



To minimize the environmental impact of travel and encourage the use of efficient modes of transport that will contribute to the reduction of emissions.

The environmental impact of transportation systems, from infrastructure to vehicle operations, is extensive. This includes noise pollution, atmospheric pollution and greenhouse gas emissions that contribute to climate change. Various studies have been initiated to gather data so as to make decisions that will promote and optimise sustainable transport options. By developing a sustainable transport strategy, using the transport plan, for all students, staff, visitors and service providers, SU will be able to reduce transport emissions and the associated impact on the environment.

	Travel and Mobility Projects		Year						
			2021	2022	2023	2024			
Meas	sure and mitigate GHG emissions from different transport modes								
T1	Analyse and implement transport options and indicators by establishing a baseline of current operations for a GHG inventory	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	í,	•	-	•			
T2	Analyse transport route systems and investigate alternative fuel models			•					
T3	Develop low-carbon vehicle purchase guidelines	ALE:	+						
T4	Develop GHG reduction and mitigation guidelines and policies for vehicles								
Deve	lop transport infrastructure and new programs								
T5	Incentivise and assist commuters to choose alternative (low-carbon) transport to get to campus								
Т6	Reduce single-occupancy vehicle (SOV) use			•					
T7	Develop NMT options on all campuses								
T8	Investigate alternative options for reducing air travelby providing flexible alternatives, such as high- quality videoconferencing facilities			•	,				
Skills	development, training and awareness programs								
T9	Develop walking, busing and cycling campaigns			•	•	+			
T10	Collaborate with the transport services and Stellenbosch Municipality			•	•	•			
T11	Involve students in carbon emissions monitoring projects and surveys (fleet and commute)				•				



Targets

Develop transport strategy for all campuses by 2024 to reduce emissions

01 -

02 _

Measure transport emissions from student and staff commuting, air travel and vehicle fleet, with targets to reduce GHG emissions Develop and incorporate NMT and end-ofroute facilities into urban plan to optimize sustainable transport

03 -

23

8.8 **Engagement**



OVERARCHING AIM

To engage the campus community to accept responsibility for the environment.

Bringing about change in human behaviour through information drives and positive lifestyle adjustments is a major contributor to reducing SU's environmental footprint.

Building a committed and engaged University community through key programmes and increased engagement can provide students and staff with the insight and foresight to protect our environment in the years ahead. At SU, students and staff have been engaged on the issue of sustainability in various ways – from campus planning and campaigns aimed at behavioural change, to energy and water conservation and waste reduction strategies. The University encourages informed leadership and engagement to help reduce the institution's environmental impact.

The call for change is both global and personal. Apart from contributing to the broader picture of a healthier earth, the role of SU students and staff in environmental sustainability is also a personal investment in their own long-term prospects of finding work and engaging in family and community life. Therefore, SU commits to continue engaging both students and staff in a positive way to reduce its impact on the environment.

Targets

01 -

Engage all students and staff to participate in environmental sustainability on all campuses

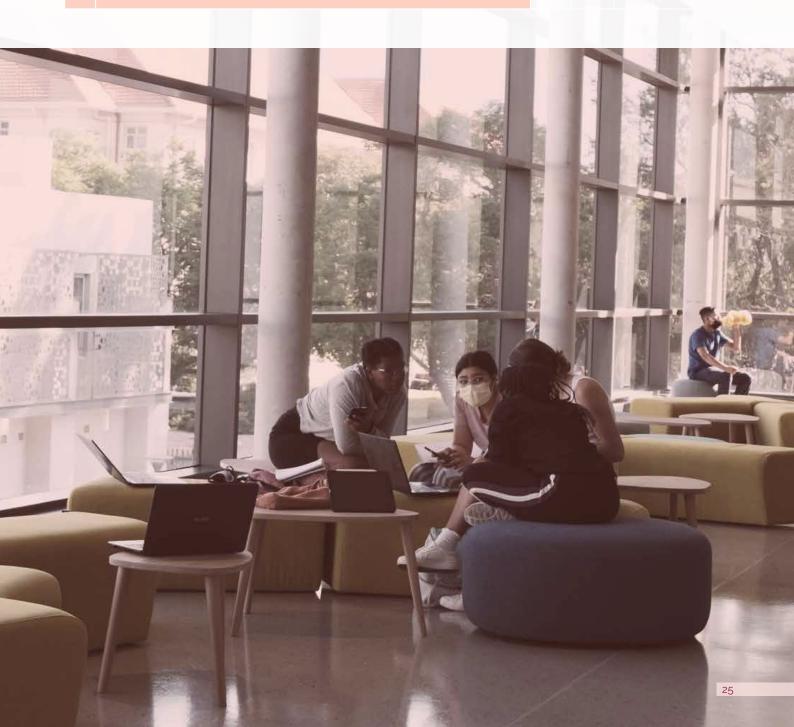
02 -

Report on all sustainability goals by 2024

03 -

Empower students, staff, and faculty to be agents of change who collaborate and share knowledge in concrete ways

	Engagement					
			2021	2022	2023	2024
Envir						
E1	Create and implement systems that facilitate participation in sustainable processes		•	•		
E2	Develop structure and plan for sustainability communication and information-sharing	•	•			
E3	Ensure participation in Green Living awards and competitions across all campuses	•	•	•	•	•
E4	Coordinate and develop ways, including the facilitation of events, that bring the campus community together around sustainability	•	•	•	•	•
Benc	hmarking and reporting					
E5	Continue to report on sustainability goals and targets	•	•	•	•	•
E6	Benchmark SU sustainability indicators against other global universities		•	•	•	•
E7	Investigate and implement sustainability accreditation system		•	•	•	•
E8	Investigate and implement rating systems (STARS)		•	•		
Empo						
E9	Encourage debate and consultation with staff and students with regard to sustainability on campus	•	•	•	•	•



09 **Towards a** sustainable future

The future we want to create depends on the sustainable work we do today. This Environmental Sustainability Plan is our guide to creating the sustainable institution we want to leave behind.

We have had few sustainability gains in the past and learned engaging lessons from them. Our plan is flexible and will adapt to the environmental changes that will come over our path in the next few years as we implement, educate and research better ways of becoming a sustainable institution.

SU will encourage its community to become students of sustainability and reach the targets we have set for ourselves. This is SU's contribution to global efforts to combat climate change – efforts that require commitment, behaviour change and the willingness to adjust the way we work, learn and live.





