



  
**UNIMAS**  
UNIVERSITI MALAYSIA SARAWAK

# Low-Carbon Campus Roadmap 2030

Community-Driven University For a Sustainable World

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# Foreword



# Foreword



**Professor Datuk Dr.  
Mohamad Kadim Suaidi**  
*Vice-Chancellor of Universiti Malaysia  
Sarawak*

Climate change affects us, across all scales of life, from small communities to whole nations, and the consequences of a changing climate are unavoidable. The unprecedented levels of greenhouse gas emissions in recent human history are the main cause of this existential threat. As greenhouse gases accumulate in the atmosphere, they trap heat and cause Earth's temperature to rise, resulting in more extreme weather events such as droughts, floods, and intense tropical storms.

Sustainability is part of our DNA, and much of our campus's research and initiatives are focused on helping the communities that surround us transition to a greener, more resilient future. As a public institute of higher education, we have a greater responsibility to lead in climate change mitigation and adaptation efforts. While the climate change discussion has infiltrated spaces from boardrooms to parliaments, the university remains the cradle of climate change knowledge creation, communication, and corroboration. Moreover, a university has a tangible impact on society and the natural world. UNIMAS is a prime example. We educate, produce knowledge, provide services, and engage our local communities.

We want to continue to rise to the challenge of climate change; hence, the publication of our UNIMAS Low Carbon Campus Roadmap. This roadmap details the framework that will support our goal of being a low-carbon campus by 2030. It is the culmination of discussions, engagement sessions, and other forms of collaboration that have led to a roadmap that truly represents the various needs, priorities, and contributions of our campus community to a low-carbon society. It includes our motivations and decarbonisation targets, as well as the actions we need to take in the upcoming years to achieve these targets.

Although a low-carbon campus transformation may be complex and challenging, we believe that this roadmap is a critical first step towards this transition, as it will be the key document that guides the measuring, managing, and mitigating processes we will undertake to reduce our climate impact in the years to come. In this roadmap, we are laying out not only our goals for the next seven years, but the foundation for many more decades of research, innovation, and community initiatives toward decarbonisation.

We hope that this roadmap will not only inform you of our past achievements and future aspirations but inspire you, dear reader, to join us as we move upward and forwards into a sustainable future. It is an invitation to take part in a greener future, where opportunities to prosper are abundant for all, regardless of creed and circumstance. It is our hope for the future of UNIMAS, made resilient to the impacts of climate change.





# Foreword



**Professor Dr. Wan Hashim  
bin Wan Ibrahim**

*Chairman of the UNIMAS Low Carbon  
Campus Roadmap Steering Committee*

Sincere gratitude and appreciation are extended to the members of the steering committee, the working committee, the researchers, and those involved in the planning and execution of this road map. The successful implementation of this road map was crucial for demonstrating our commitment to achieving a low-carbon campus.

A low-carbon campus roadmap is a strategic plan designed to encourage all UNIMAS students, faculty, and staff to reduce their carbon footprint. Through the implementation of the strategic actions outlined in this UNIMAS Low Carbon Roadmap 2030, it will substantially reduce the amount of greenhouse gases, particularly carbon dioxide, that its operations emit. Among these activities are energy consumption, transportation, and waste management. The objective of a road map for a low-carbon campus, which is aligned with Sustainable Development Goal 13, is to identify areas that emit significant amounts of carbon dioxide and to find approaches to reduce these emissions.

A roadmap for a low-carbon campus involves establishing goals and implementing measures that will reduce greenhouse gas emissions. These objectives and actions include increasing the use of renewable energy sources like solar power, implementing energy efficiency measures in buildings, promoting sustainable transportation options like bicycling and public transportation, and reducing waste. To ensure that everyone is involved in the process of reducing the university's carbon footprint, the roadmap also prioritises engagement with faculty, staff, students, and other stakeholders. The ultimate objective of a roadmap for a low-carbon campus is to assist UNIMAS in becoming more sustainable and contributing to efforts against climate change. It is essential to recognise that the success of the Low-Carbon Campus Roadmap 2030 relies on the participation of all UNIMAS communities from all departments and at all levels.





# Foreword



**Professor Ts. Dr. Shanti  
Faridah binti Salleh**

*Chairwoman of the UNIMAS Low Carbon  
Campus Roadmap Working Committee*

When questioned about the unusually warm British summer in 2012, Sir David Attenborough did not hesitate to highlight climate change. "There is no question that climate change is happening; the only arguable point is what part humans are playing in it," he said. "I would be absolutely astounded if population growth and industrialisation and all the stuff we are pumping into the atmosphere hadn't changed the climatic balance. Of course it has. There is no valid argument for denial." For Attenborough, whose life revolved around sharing the wonder of nature with the world, it was clear that uncontrolled human activity was the main driver of climate change. More than ten years later, his concern has only been echoed and amplified by people of all ages, sectors, and disciplines, including us at UNIMAS.

The UNIMAS Low Carbon Campus Roadmap 2030 is our response to the global climate change challenge. Creating this roadmap has given us the opportunity to identify our strengths and areas of improvement as well as bolster our relationships with the public sector, industry, and local communities. As we engaged our stakeholders in a thorough consultation process, we witnessed first-hand the aspirations of our campus community – from staff to students – for a greener, more sustainable UNIMAS. Indeed, the previous initiatives of our staff and students have already greatly contributed to global climate change adaptation and mitigation efforts. The UNIMAS Low Carbon Campus roadmap seeks to expand the work of our campus climate trailblazers by presenting a united front on climate change in the form of an institution-wide strategy.

In the process of producing this roadmap, it has become apparent to us that collaboration is the only way to meaningfully address climate change. That is why collaborative action is one of the main driving forces of our roadmap. We have witnessed that when working together, our expertise and efforts become more than the sum of their individual parts. To deliver the ambitious goal of becoming a low-carbon campus, we strive to create an environment that fosters synergy among members of the campus community, government agencies, industry partners and the general public.

My hope is that as you peruse this roadmap, you will be encouraged to take part in our campus' climate initiatives; that this roadmap will serve as a spark for creative, goal-oriented discourse that is necessary in achieving our decarbonisation goals. If any ideas, questions, or recollections are generated, I hope that you are emboldened to share it with us. We wholeheartedly invite partners and collaborators for any one of our initiatives, or even for potential new projects related to climate change adaptation and mitigation. While we are proud of the roadmap thus far, we know that climate change is a complex and ever-evolving issue, and it needs the minds of many – including yours – to come together to chart the best path towards UNIMAS carbon neutrality.





# Steering Committee



Professor Dr. Wan Hashim  
bin Wan Ibrahim  
**Chairman**



Professor Ts. Dr Shanti  
Faridah Salleh  
**Member & Chair of  
Working Committee**



Professor Dr Lo May Chiun  
**Member**



Puan Noraziah Binti Abdul  
Wahab  
**Member**



Professor Gs. Dr. Tarmiji Bin  
Masron  
**Member**



Ts. Humphrey Rayang Ak  
Nelson Janang  
**Member**



Professor Ts. Ar. Dr Julaihi  
bin Wahid  
**Member**



Professor Ir. Dr Siti Noor  
Linda Binti Taib  
**Member**



Professor Ar. Nurakmal  
Abdullah @ Goh Tuo Ho  
**Member**

# Working Committee



INSTITUTE OF  
SUSTAINABLE &  
RENEWABLE ENERGY



UNIMAS CORPORATE



UNIMAS INNOVATION

**UNIMAS Development Office**  
**Registrar's Office**  
**HEPA**

# Implementation Committee

**Faculties**  
**Institutes**  
**Centres**





# UNIMAS Low Carbon Campus Roadmap Overview



Vision

To become a low carbon campus that embodies sustainable growth.

Goals

Environmentally responsible organisation

Ready for the green economy

Active citizens for climate change

6 Strategic Pillars

Energy efficiency

GHG inventory

Circular economy & waste management

Capacity & capability building

Sustainable innovative solutions

Low carbon mobility

22 Strategies

7

3

4

2

4

2

Key Enablers

Good governance & framework

Financial sustainability

Raised awareness & outreach

Low carbon research & discovery

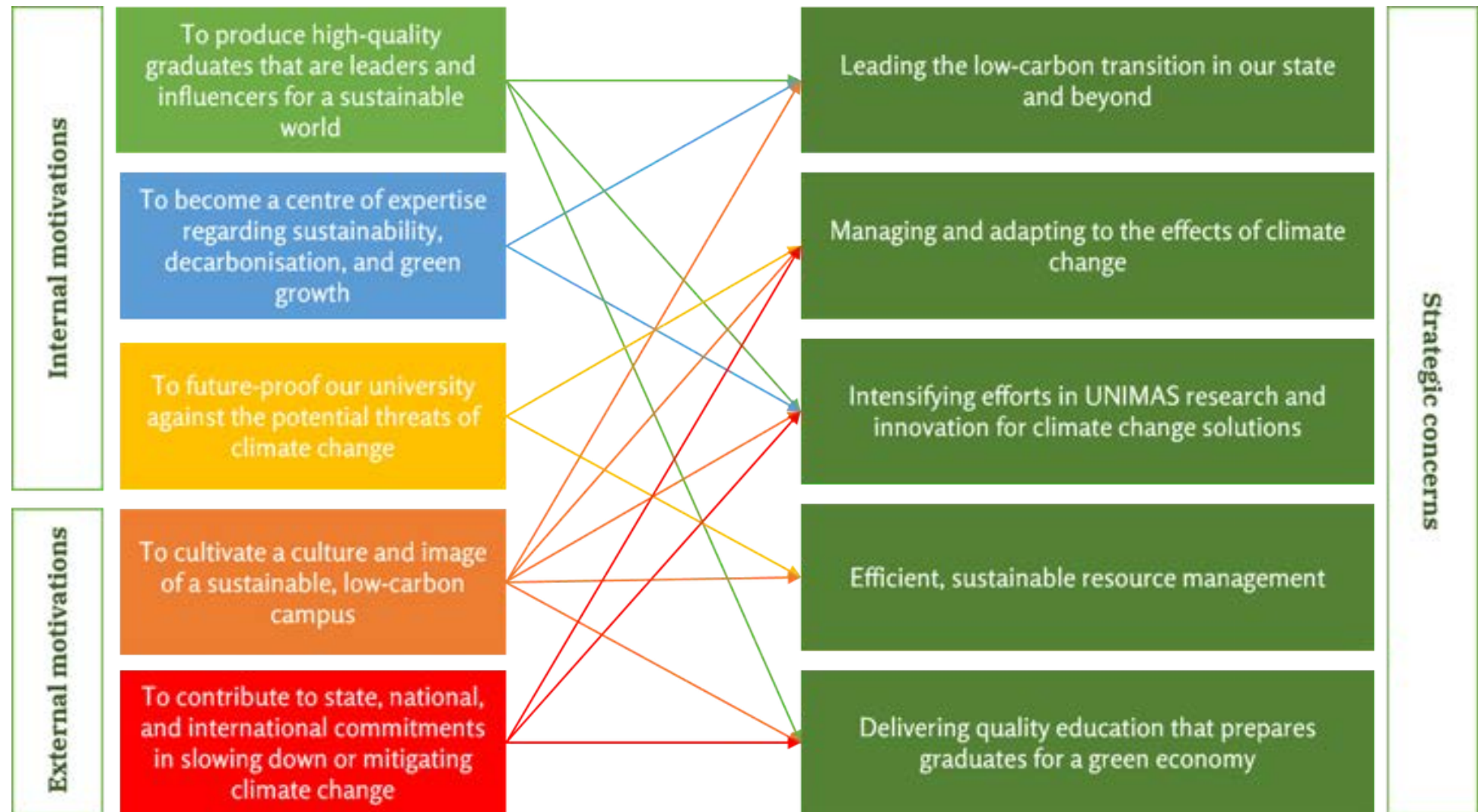
Values

Exemplary | Collegiality | Integrity | Tenacity | Equity

# Our Motivations and Concerns <sup>1</sup>



We see a clear connection between our motivations – internal and external – and the strategic concerns in formulating this roadmap.







# UNIMAS Vision

*A Leading Global University for a Sustainable Future*

Having recognised the contemporary threat of climate change and unsustainable growth, we revised our vision to reflect our new commitments to sustainability values, research, and education. To us, there is no growth but green growth – we want to enhance our university’s productivity while ensuring that our natural heritage is preserved for future generations to come.

# UNIMAS Mission

*To enhance the social and economic impacts on the global community through the pursuit of excellence in teaching, research, and strategic engagement*

We believe that climate change and environmental degradation are the greatest challenges facing our society and economy today. Hence, we are constantly orienting our teaching, research, and strategic engagement to foster creativity and innovation for a sustainable world.



# Our Values



Five values form the core of who we are - exemplary, collegiality, integrity, tenacity, and equity. In everything we do, these values motivate us to strive for excellence. Our transition to a low carbon campus is no exception. As we work towards a greener future, these values guide our efforts:



**Exemplary.** As a local university, we need to model a low-carbon lifestyle to the communities that surround us. We believe in walking the talk of reducing greenhouse gas emissions, so that others may follow suit.



**Tenacity.** Climate change will affect many aspects of our campus operations. We want to build resilience into the systems and infrastructure that are the bedrock of our university, ensuring that our role as community influencers and innovators lasts through the generations.



**Collegiality.** We know that we cannot transition to a low-carbon campus with the efforts of a few people. We know that it is an effort involving the whole campus community, bringing together their various talents, skills, and expertise to contribute to reducing greenhouse gas emissions across the university.



**Equity.** We believe that everyone in our university deserves a safe environment that offers fair opportunities to all. Under the threat of climate change, this will no longer be possible. Hence, we aim to contribute to global carbon emission reduction targets, we will ensure the welfare of our present and future community members.



**Integrity.** We want to be sure that we are constantly improving in our efforts to combat climate change. We want to commit to clear and achievable goals that can be measured, so that we can plan next steps towards an even lower carbon campus.



A photograph of a bird, possibly a shrike, perched on a thin, green, leafy branch. The bird has a black cap, a white breast, and a brownish-orange body. The background is a clear, light blue sky. The text 'Our Region' is overlaid on the right side of the image.

## Our Region

Our thriving campus community, comprised of more than 20000 students and 2000 staff, is located on the island of Borneo, a region characterised by its myriad of cultures and mega-biodiversity. As a landmass with seven distinct ecoregions, ranging from lowland to montane forests and peat to freshwater swamps, it is no surprise that the wonder of our island sparked Alfred Russel Wallace's highly influential Sarawak Law paper, a defining article in the history of evolutionary theory. Much like Wallace, our university's research and innovation are inspired by Borneo, our home and heritage.



# Our Alignments



# Our Alignments

## *Sustainable Development Goals*

Our low-carbon targets are informed by the Sustainable Development Goals (SDG) – particularly SDG 7, 11, 12, 13, 15 and 17. We aim to leave a positive mark on our local communities and the global stage by scaling these goals to suit our campus' vision, mission, and low-carbon targets.

**7** AFFORDABLE AND  
CLEAN ENERGY



We will take every opportunity to adopt affordable and clean energy to power our campus' daily operations.

**11** SUSTAINABLE CITIES  
AND COMMUNITIES



We will build a campus community that is resilient and ready for the multidimensional effects of climate change.

**12** RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



We will inculcate responsible consumption and production habits among our staff and students. We will also model these sustainability values to local communities and our industry partners.

**13** CLIMATE  
ACTION



We will be known as a campus that welcomes and encourages climate action. We strive to be a platform where members of our campus community and beyond can come together to create and innovate new sustainable solutions.

**15** LIFE  
ON LAND



As a university situated in one of the most biodiverse regions on earth, we will make every effort to conserve life both on- and off-campus. We will continue to make positive contributions to our natural surroundings through our research and projects.

**17** PARTNERSHIPS  
FOR THE GOALS



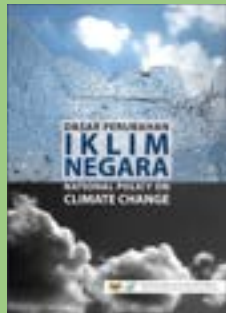
When undertaking the strategies outlined in this roadmap, we will actively seek out fruitful partnerships for the goals. We will extend an invitation for collaboration and synergy to all members of our campus and local community, as well as the private & public sectors.

# Our National Alignments



## *National Alignments*

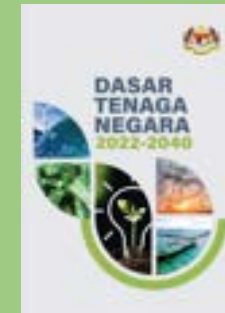
The Malaysian government has always been ambitious when it comes to decarbonising our nation. Malaysia submitted an updated Nationally Determined Contribution in 2021, targeting a 45% carbon intensity reduction, and expanding their inventory to include carbon dioxide, methane, and nitrous oxide - hydrofluorocarbons, perfluorocarbon, sulphur hexafluoride, and nitrogen trifluoride. We also look to support the following climate change-adjacent policies and frameworks:



National Policy  
on Climate  
Change



Dasar Pengurusan  
Sisa Pepejal Negara  
2016



Dasar Tenaga  
Negara 2022 - 2040



Environmental  
Sustainability in  
Malaysia 2020 - 2030



Low Carbon City  
Framework



National Low Carbon  
Cities Masterplan



# Our Alignments



## *State Alignments*

We believe that our low-carbon campus transition will support Sarawak's targets for green economy initiatives and capacity building - as outlined in Sarawak's **Post Covid-19 Development Strategy 2030** - especially in the environmental services sector.



### Green economy initiatives

We aim to support the Sarawak's Government's plan in developing a GHG inventory for all economic sectors and cities by starting with our own campus in Kota Samarahan. As a result of this roadmap, we will contribute comprehensive digitalised data relating to our carbon emissions.

### Capacity building

Engaging our students in sustainability initiatives and inculcating carbon and climate awareness will prepare them for Sarawak's new economy focused on green growth. We will produce graduates and experts that are ready to assist Sarawak's transition to a service economy, particularly in the environmental services sector.



We also want to contribute to Sarawak's **Climate Change Centre** through the exchange of knowledge and expertise gained through the implementation of this roadmap. In addition, our university's aspirations for a low carbon campus is aligned to Sarawak's **Digital Economy Blueprint** and the **Kuching Smart City Masterplan**.



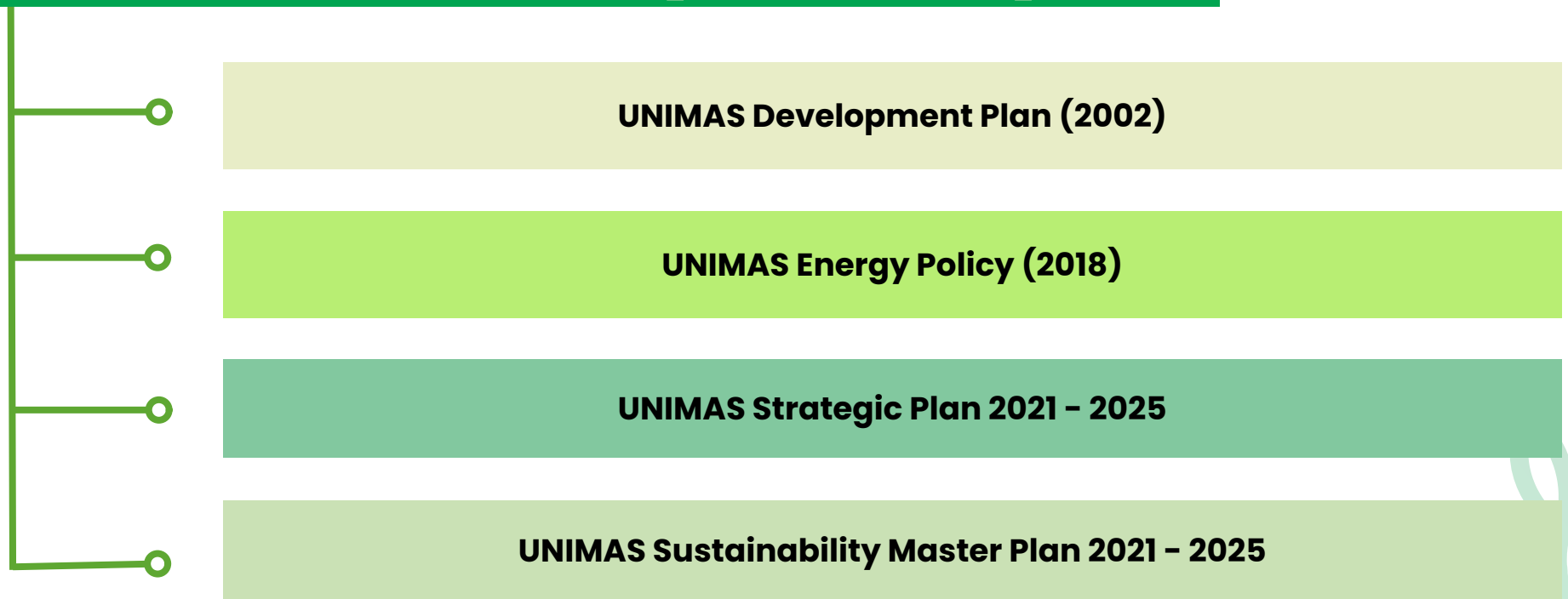


# Our Alignments

## *UNIMAS Alignments*

In our journey towards low carbon, we also aim to uphold the existing commitments made by the university towards sustainability and green growth. We are incorporating the following plans and policies:

### UNIMAS Low Carbon Campus Roadmap 2030







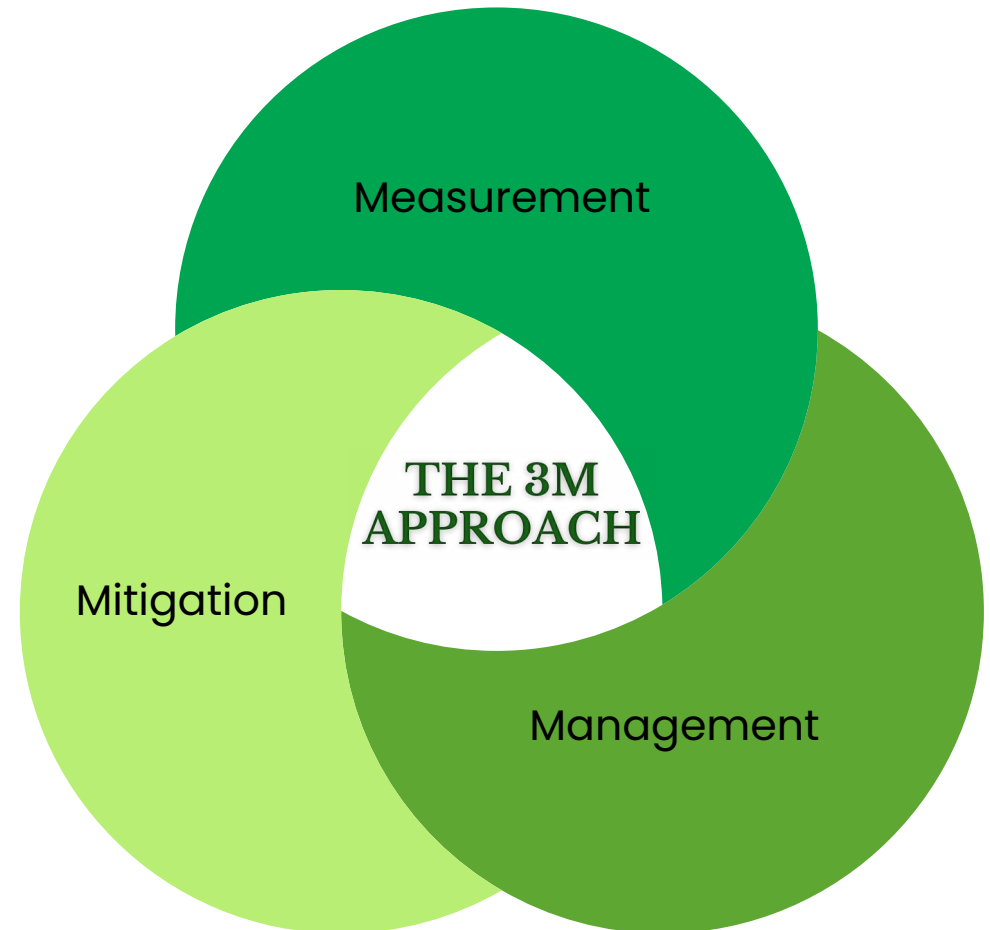
# 3M Approach

# 3M Approach



*When developing our key initiatives, we kept in mind the 3M approach. The 3M approach consists of three (3) key actions:*

- **Measurement** – Measuring GHG emissions allows us to establish a baseline and continuously monitor our carbon footprint, enabling us to tailor our management and mitigation approach to suit our emission targets.
- **Management** – To ensure the success of our low carbon transition, we need to manage our policies, targets, and planning to reflect the best implementation strategy.
- **Mitigation** – We are taking substantial actions and steps to reduce our greenhouse gas emissions through initiatives that target every dimension of our campus' operations.





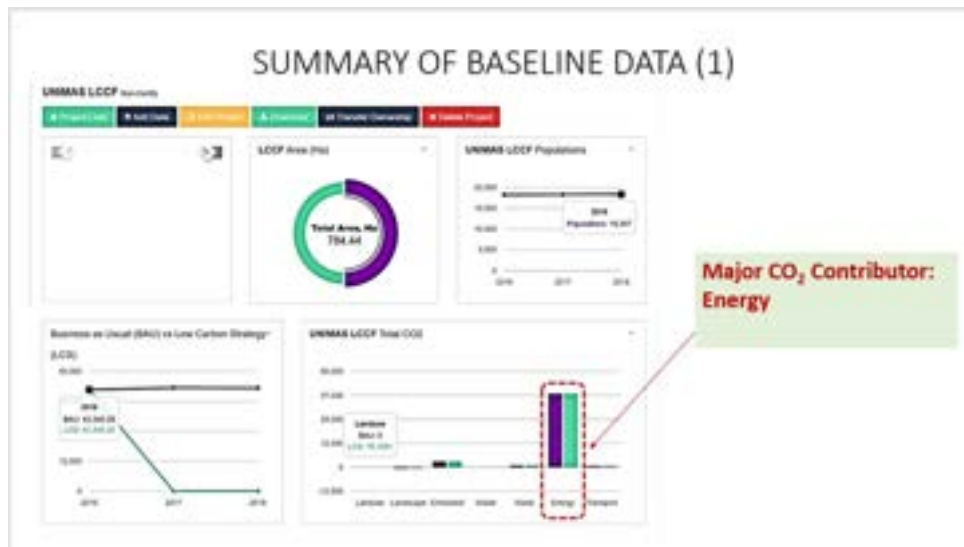


# Calculating Our Climate Impact

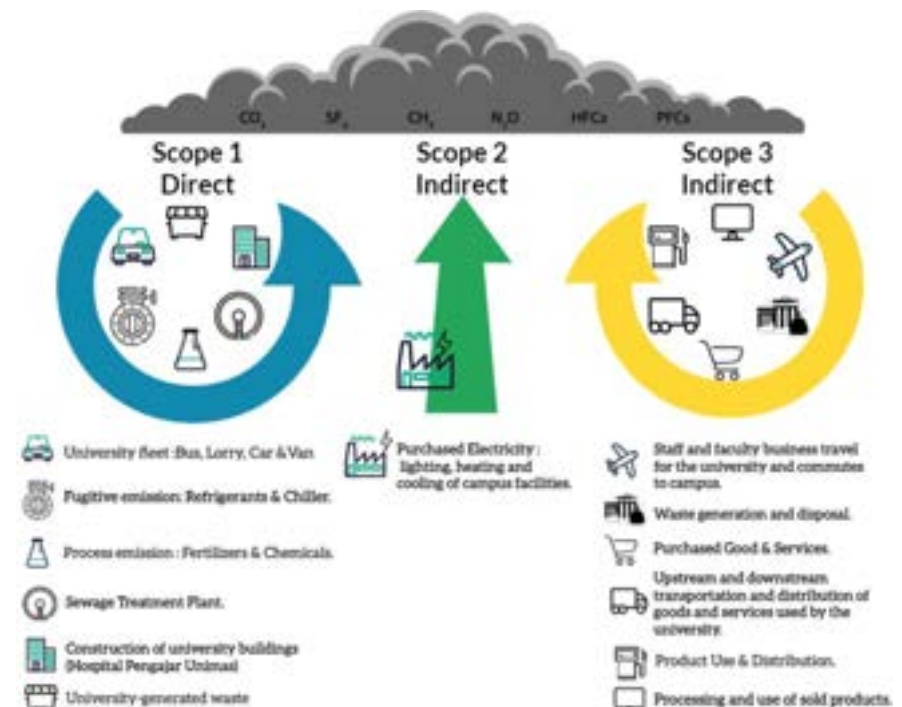
# Calculating Our Climate Impact



Our campus is a hub of activity – academic and otherwise. When inventorying our GHG emissions, we categorise our campus’ emissions following the three (3) scopes defined by the GHG Protocol, the leading international greenhouse gas emissions standards and frameworks provider. We have previously undertaken an inventory of our carbon emissions in 2018, resulting in the baseline data utilised in this roadmap. This inventory of emissions allowed us to pinpoint our strengths and areas of improvement when developing our low carbon campus roadmap.



Carbon emissions baseline data summarised in 2018, based on 2016 emissions.



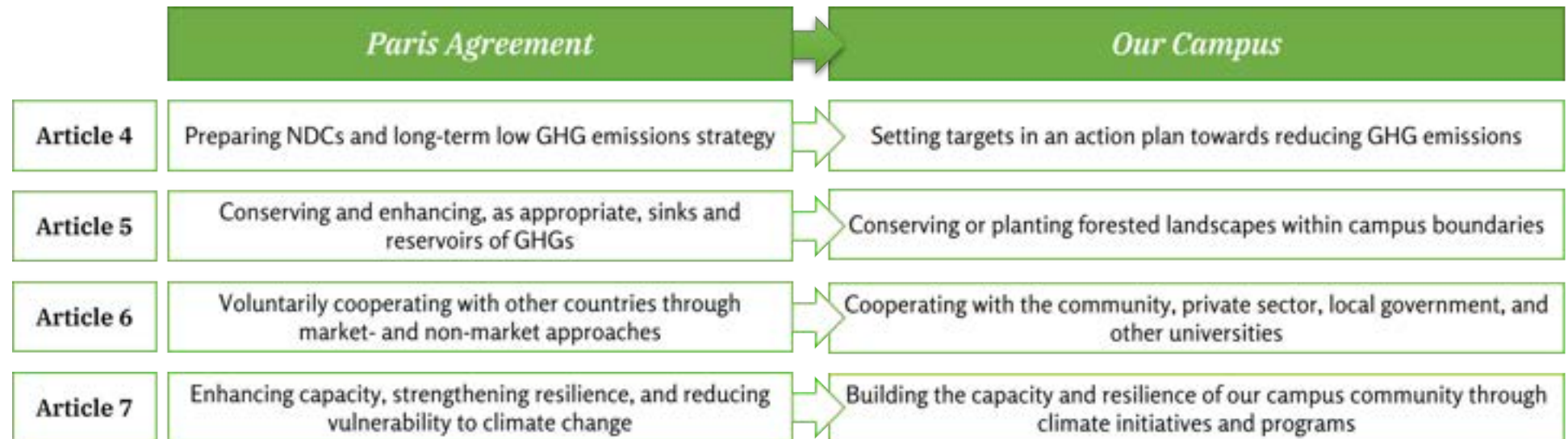


# Localising The Paris Agreement To Our Campus Community



# Localising The Paris Agreement To Our Campus Community

Localising the Paris Agreement is a process that involves defining, implementing, and monitoring GHG emission reduction strategies on the smaller, local scale, allowing sub-national entities – like a university – to advance progress in the Nationally Determined Contributions (NDCs). Universities have always been the beating hearts of social and economic transformation, and the transition to a carbon-neutral society and economy is no different. Though the Paris Agreement was written by and for national governments, we acknowledge the fact that universities need to be proactive in contributing to the national government’s commitments.





Localising Malaysia’s commitments in the Paris Agreement involves a two-way approach, where national goals and policies are adapted to suit the unique circumstances, challenges, and priorities of our campus community. In addition, localising our country’s climate goals and commitments involves weaving sustainability principles and practices into the very fabric of our daily campus operations and activities. Looking at the Paris Agreement, we highlight eight ways to achieve localisation of the Agreement to our campus community.



# Our Journey So Far

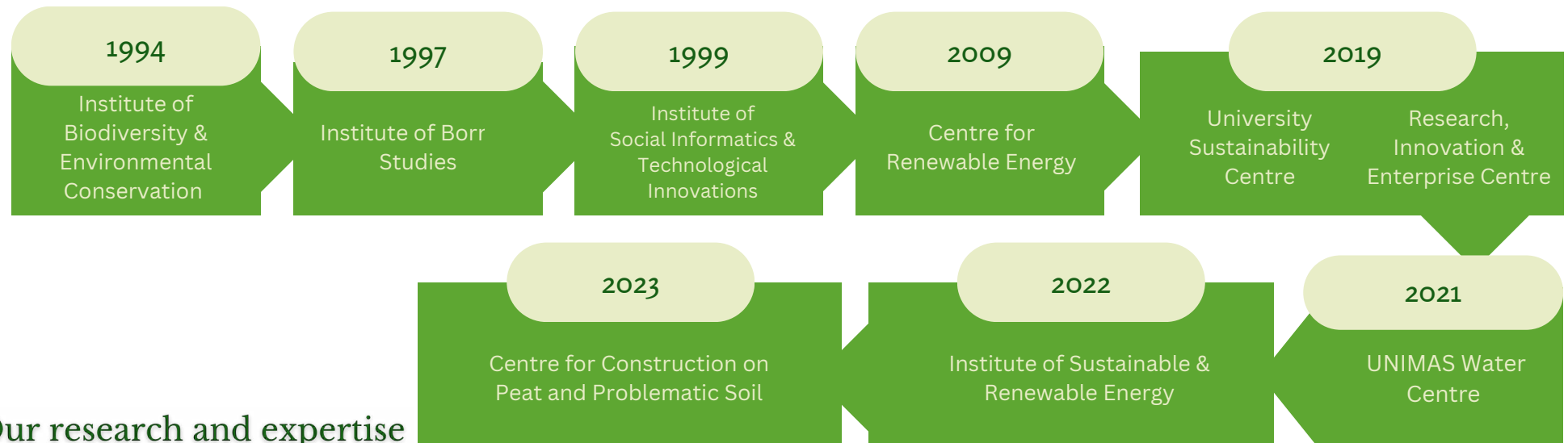


# Our Journey So Far

Our roadmap emerged from the collective efforts, experiences, and expertise of our campus community members. Collectively, we are able to rise to the challenge of a low carbon campus transition. Though uncertainty is part and parcel of any transformation, we are confident that our campus community is equipped to respond to the dynamic nature of a carbon neutral transition.

## Our Institutions

Several university-based organisations are already directly addressing our university's sustainability and decarbonisation concerns. They will continue to support the implementation of our low carbon roadmap through their research and other initiatives.



## Our research and expertise

As a leading local university, UNIMAS has always played a crucial role in driving forward research related to decarbonisation and the environment in the region. Our reputation as experts in sustainability are the result of our research activities, resulting in scientific discoveries, innovations, and novel applications.



### Eco-campus

Our campus is designed to be a pedestrianised and accessible campus. It was also designed to be in harmony with the natural ecosystem of the site, as well as to be a part of an integrated sustainable energy system. Sustainability, with an aim of having a minimal impact on the surrounding environment, has been part of this campus' DNA since its inception.

### Bicycle lanes

We designated approximately 4.2 km of bicycle lanes within our campus, making cycling a safer and more convenient mode of transport for members of our campus community.

### The CUBE

The CUBE is a 2574 m<sup>2</sup> space housing 199 lecturers, with its own photovoltaic system and a rainwater harvesting system to reduce water consumption.

### Takasago-UNIMAS Forest

A joint collaboration between UNIMAS, Takasago Thermal Engineering Co., Ltd and Japan-Malaysia Association, this educational forest was planted with over 20000 trees from different species.

### UNEP Little Book of Green Nudges

UNIMAS was selected as a pilot campus for the "The Little Book of Green Nudges" initiative organized by the United Nation Environment Program (UNEP).

### Impact in Society Awards

A team led by UNIMAS lecturer, Dr Then Yi Lung, won the Impact in Society Awards for Sustainability and Climate Change. Their Alternative Lighting Project created clean, sustainable energy for rural Sarawakian communities.

### GRI & ESG reporting

Publishing a GRI-based ESG report to establish transparency and accountability over UNIMAS' environmental, social, and governance aspects.



# Our Past Achievements

### e-barrio

Sustainable social development through information and connection technologies in the remote communities of Sarawak.

### Student Pavilion

The Student Pavilion, our campus's premier hub of activity, was designed according to green building principles, with features such as rainwater harvesting.

### Real Living Lab

The Real Living Lab was established to showcase the biodiversity in Sarawak through research and eco-tourism activities.

### ASEAN Energy Award

In recognition of a micro-hydro project that helped power agricultural food processing activities by the rural community of Kg. Assum to generate a sustainable income.

### Electric scooters

Our university, in collaboration with Asia-Pacific's largest micromobility operator Beam, provided electric scooters as a first- and last-mile transport solution for our campus community.

### THE Ranking

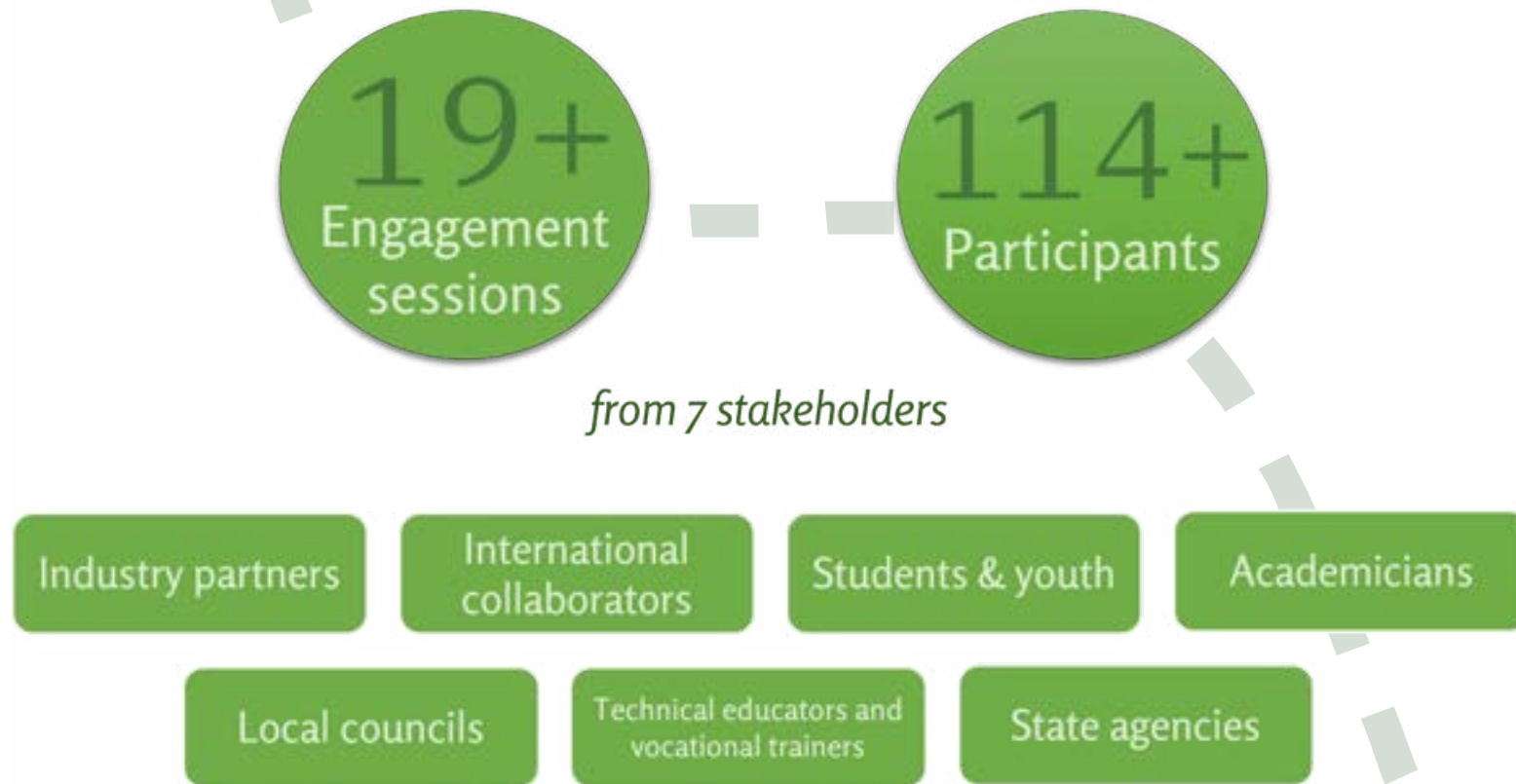
Achieved a THE Impact Ranking for Climate Action, Responsible Consumption and Production, and Affordable and Clean Energy of 401 - 600th place, above 70% of ranked universities.



# Our Engagement Process



Engaging our stakeholders is crucial during the development of our roadmap. We have provided opportunities for our campus and surrounding community members to participate in its creation so that the roadmap targets and priorities are in line with their aspirations. Our engagement sessions are wide-ranging, as our university is far-reaching in its impact throughout the region.





### *ISuRE Carbon Neutral Townhall*

Aimed to gain inputs and feedbacks from various stakeholders, as well as create collaboration opportunities with various industries in the effort to achieve a carbon neutral campus.

### *Smart & Sustainable City Hackathon*

Running a 72-hour hackathon to generate ideas that help overcome challenges within the state regarding sustainability.

### *Brainstorming workshop on Carbon Neutral Campus Framework*

Engaging our public stakeholders on defining a carbon neutral campus framework.

### *Action Plan for UNIMAS Low Carbon Campus Roadmap 2030 Workshop*

Productive group discussions were held, which resulted in the inception of the strategic pillars and strategies.

## **Our Process in Producing The ULCC Roadmap**

### *Engagement session with University Deans & Directors*

Engaging our deans and directors for their input on the UNIMAS Low Carbon Campus Roadmap, taking into consideration their concerns and priorities.

### *Engagement session with UNIMAS students*

Engaging our students for their input on the UNIMAS Low Carbon Campus Roadmap, taking into consideration their concerns and priorities.

### *Engagement session with non-academic staff*

Engaging our non-academic staff for their input on the UNIMAS Low Carbon Campus Roadmap, taking into consideration their concerns and priorities.



# Overcoming Potential Challenges



# Overcoming Potential Challenges

## Potential challenges

leadership or high-level buy-in  
complex institutional structure and management  
an institutional culture that is rooted in business-as-usual

lack of bottom-up buy-in  
need of climate champions  
branding & credibility

difficulty in scaling solutions  
ease in obtaining financing  
lack of funding sources

need of dynamic approach to skills & expertise  
technology transfer  
research facilities

## Our enablers

### Good governance & framework

Our framework is this roadmap document, and it delineates our goals, motivations, and ownership of the initiatives that need to be taken under the five focus areas to achieve decarbonisation. Our robust organisational structure, helmed by visionary leadership, facilitates the systems that ensure the success of our low carbon roadmap. Our good governance inspires action, welcomes innovation, and encourages accountability.

### Awareness and Outreach

As a community-driven university, we have always played a central role in connecting academia to industry, the public sector, and community at large. Our promotion and outreach can facilitate new and productive collaborations with other interested parties such as private businesses and other universities, in addition to garnering strong support from our campus community. We are leveraging our existing 135 (and expanding) regional and global network worldwide to promote and build a network for collaboration towards the low carbon campus effort.

### Financial sustainability

As a public higher education institution, we have access to multiple sources of funding. UNIMAS has embarked on ESG and sustainability reporting as part of our financial sustainability.

### Low carbon research and discovery

As a leading university in our region, we are leveraging our intellectual capital in low-carbon technologies. Our experts and students are involved in a multitude of research projects, across a range of disciplines, which will offer insight and solutions to the decarbonisation challenge.



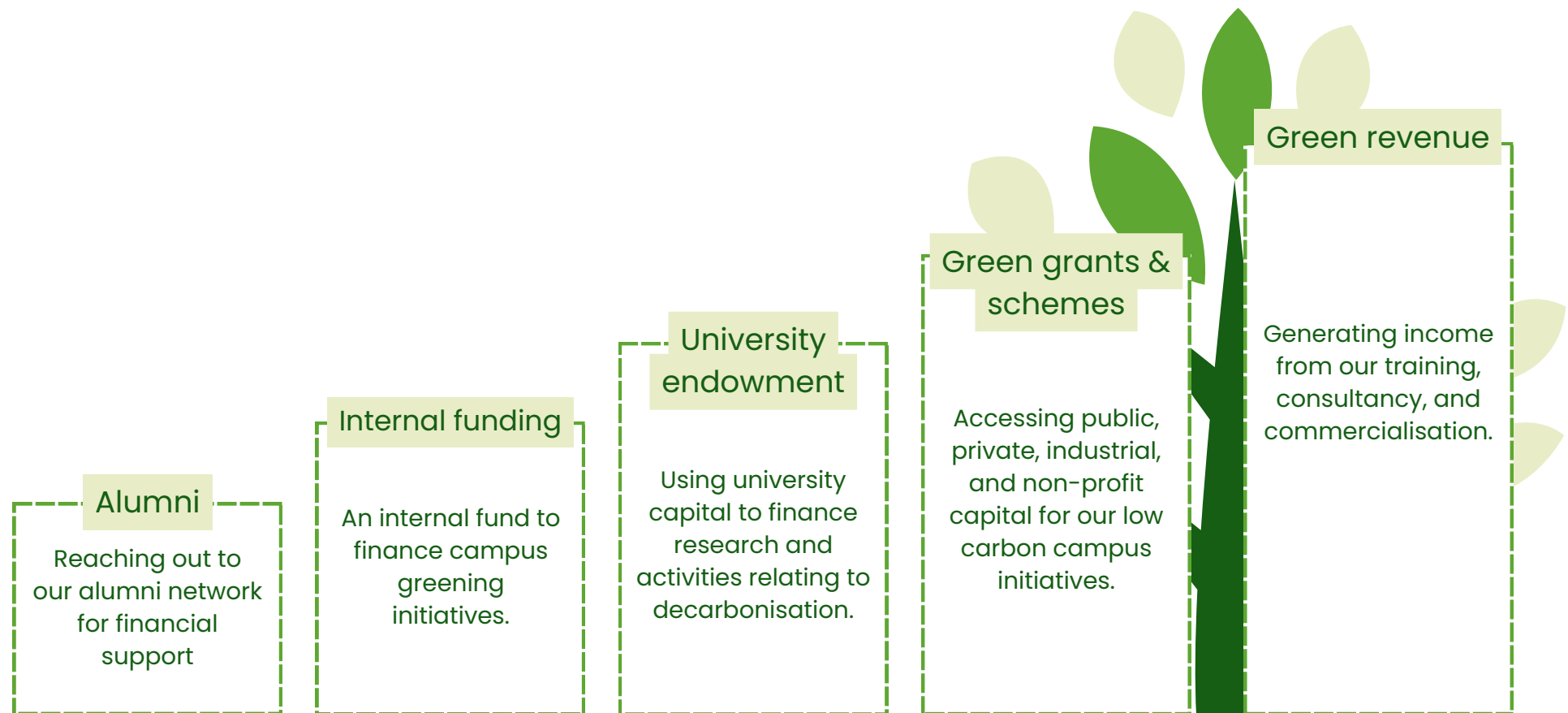
UNIMAS Low Carbon Campus Roadmap  
Completion



# Our Financial Sustainability

# Our Financial Sustainability

We are ready to funnel financial resources to fund a new, low-carbon future. Though the upfront costs may be high, we acknowledge that the resulting benefits far outweigh them. While internal sources of funding ensures the success of our roadmap, we are also looking to forge financial partnerships with public, private, industrial, and non-profit organisations.







# Benefits of A Low Carbon Roadmap



forecasting and  
managing  
energy demand

GRI- and ESG-  
compliant

accelerate  
climate  
adaptation &  
mitigation

branding &  
visibility

circular campus

climate nature-based  
solutions

targets scope 1, 2,  
and 3 emissions

increased staff and  
student engagement

energy security

transferring  
knowledge with  
the community

**Benefits**  
*of A Low Carbon Roadmap*  
A low carbon roadmap provides many opportunities for growth. We look forward to reaping the fruits of our efforts, from financial savings to increased community engagement.

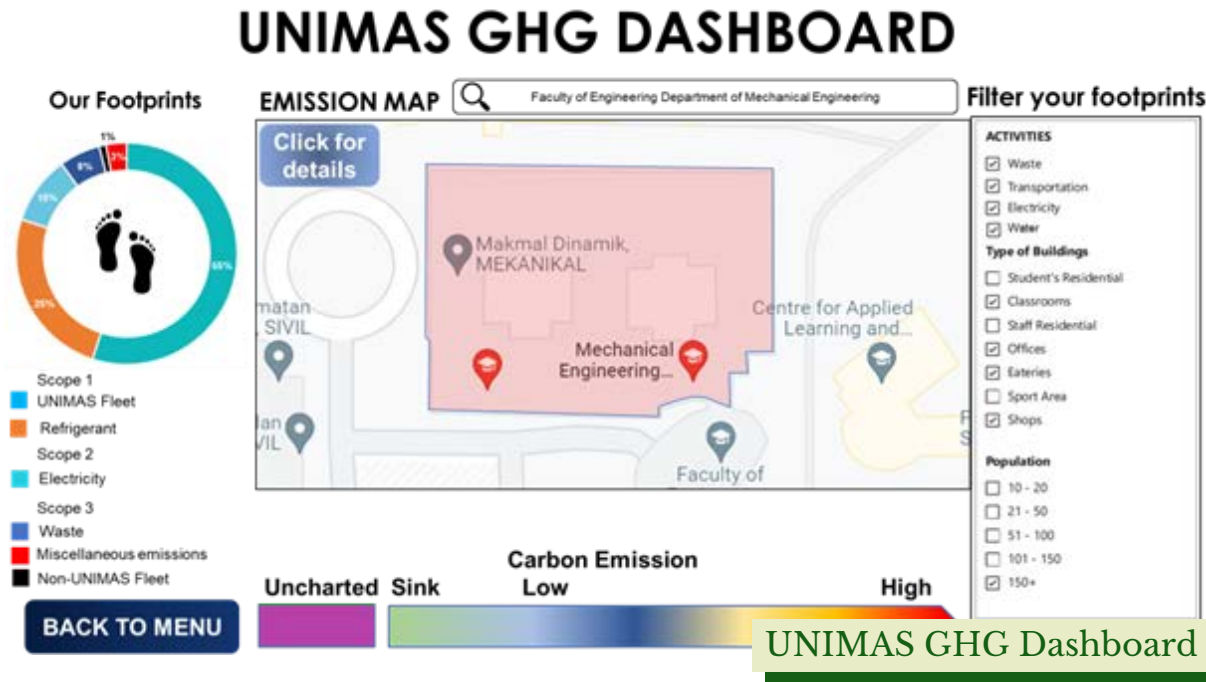
developing staff and  
student skills



# Measuring Performance



# Measuring Performance



UNIMAS GHG Dashboard



UNIMAS 4SEE App

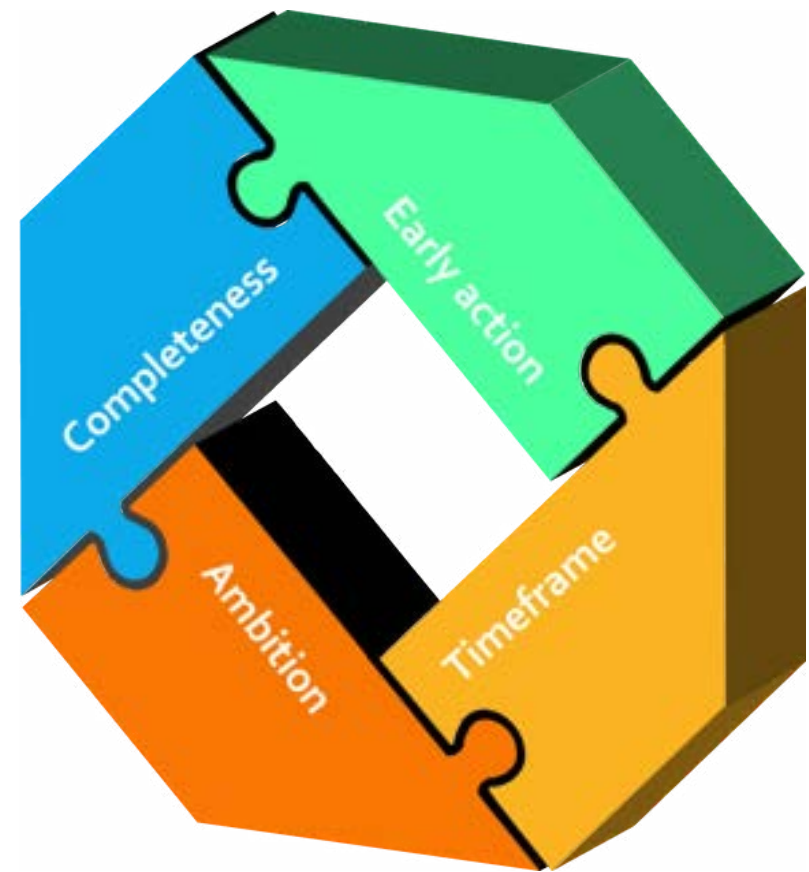
This roadmap ensures that we are on track to achieve low carbon campus status by laying out actionable goals towards decarbonisation. To monitor our performance, we will establish and continuously update a comprehensive greenhouse gases inventory. The inventory is supplemented with our 4SEE mobile application that our campus community will use to measure their personal carbon footprint. Enhanced by records of both campus-wide and personal carbon footprints, this inventory will track consistent improvements in our carbon footprint as we achieve our decarbonisation milestones.

We also seek to dynamically respond to the changing landscape of climate solutions as new knowledge and technologies come to light. Thus, yearly reviews are key to the success of our low carbon campus journey. Yearly reviews allow us to assess our progress, pursue promising avenues, and ensure the effectivity of our roadmap.

# Science-Based Targets

Science-based targets ensure that we are on the right path towards reducing our greenhouse gas emissions, in line with the goals of the Paris Agreement. Though the Science-Based Target Initiative does not validate targets for institutions of higher learning, we have incorporated relevant principles into our decarbonisation roadmap.

- 1 Our targets cover all aspects of our daily operations as a university, with consideration given towards Scope 1, Scope 2, and Scope 3 emissions
- 2 We are setting out short-term goals, in addition to overarching 2030 greenhouse gases reduction target
- 3 Our 2030 timeframe allows for an additional 20 years (to 2050) to achieve carbon neutrality.
- 4 Mitigation targets that take into account the 1.5 degrees Celsius warming limit





# Decarbonisation Success Stories



# Decarbonisation Success Stories

We are following in the footsteps of those who have started their decarbonisation journey ahead of us. Here are some of their success stories, and what we have learned from their journeys.



## Carbon neutral in 2016

UTAS' strategy utilises a holistic approach to the decarbonisation challenge. Sustainability principles and practices are imbued in every aspect of UTAS' operations. They are also active in contributing to climate action measures in their region by exemplifying an institution-wide commitment to reduce environmental impacts, achieve economic efficiency, demonstrate social responsibility, and enhance student experience. In addition, UTAS has formed many connections with their local and federal governments and associated agencies through research activities in agriculture, sustainability and environmental science, as well as climate and ocean science.



## Carbon neutral in 2019

The ambitious and visionary thinking of ASU's Sustainability Leadership Team allowed them to go above and beyond their carbon neutrality target. As the team accelerated the timeline for achieving carbon neutrality, ASU was successful in achieving net zero for their Scope 1 and Scope 2 emissions in 2019, six years earlier than their previously proposed timeline of completion. Their next target is to achieve carbon neutrality for Scope 3 emissions by 2035, of which they have already reduced by 69% since their baseline year of 2007.



## Carbon neutral in 2020

Energy efficiency and renewable energy were the two main thrusts of LSE's decarbonisation strategy. By investing £4.8 million investment since 2015 into energy efficiency measures, they were able to upgrade Building Management Systems, install LED lights and advanced lighting controls, fit solar panels, insulate pipes, and replace boilers and chillers. Moreover, LSE is 100% powered by renewable energy, enabling them to achieve their carbon neutral target.



# Our Low Carbon Campus Roadmap

# Our Low Carbon Campus Roadmap

## Immediate goals 2023 - 2024



GHG inventory & reporting



Revised energy & environment policy



Implementing good governance for digital energy efficiency practices



Green procurement (30%)



Green Café



4SEE Mobile Application & GHG dashboard



Energy performance contract



Hackathon & sustainable design challenge



Awareness & regional outreach (UIGreen Metric)



Green courses in teaching & learning (20%)

## Short-term goals 2024 - 2025



StormPav and green wall installation



Facility management



UNIMAS green experts (20%)



UNIMAS Climate Innovation Accelerator



EMGS 3-star rating

### Key initiatives



Energy efficiency



Circular economy & waste management



Sustainable innovative solutions



Roadmap review



GHG inventory



Capacity & capability building



Low carbon mobility



Application for Penarafan Hijau JKR for 30% of UNIMAS buildings




Ultimate 9R Lab (Circular Campus)






*Long-term goals  
2025 - 2030*

 UNIMAS Integrated Waste Management Centre

 Nature-based solutions

 Digitalising & electrifying UNIMAS transport fleet

 Conserving our campus sinks


 UNIMAS carpool & feeder bus scheme

## Our Targets for 2030

 **30%** energy consumption reduction and increase in renewable energy share from **2022**

 **45%** greenhouse gases reduction from **2022**

 **40%** waste minimisation from **2022**

 **20%** increase in staff and students specialising in sustainability and green technology from **2022**



# 6 Strategic Pillars

# 6 Strategic Pillars



## Energy efficiency

To be energy efficient, our systems and infrastructure need to use less energy while maintaining the same or greater productivity. Energy efficiency is the integral first step to reducing greenhouse gas emissions, as it is often one of the more manageable and cost-effective ways to make an organization more climate-friendly. Thus, we regard increasing energy efficiency as our first strategic pillar.



## Greenhouse gases (GHG) inventory

A greenhouse gas inventory accounts for the sources of emissions an organization makes. We believe a GHG inventory is another crucial step towards our decarbonisation goals, as it allows us to develop a baseline, identify reduction opportunities, and monitor our progress.



## Circular economy & waste management

A circular economy emphasises sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products in the production and consumption cycle. In a circular economy, the materials used to manufacture a product are kept within the economy even after the product's use, reducing waste and increasing the productivity of the materials. That is why the implementation of a circular economy best practice is included in our roadmap, as it not only reduces excessive consumption, but has the potential to generate wealth from what was once considered waste.



## Capacity & capability building

Capacity building is one of the main businesses of a university, and it's a business we take extremely seriously. We aim to produce graduates and experts that are ready to help our local communities transition to a green economy. We also want to increase our capacity to implement our decarbonisation goals by providing opportunities for certification and learning in areas related to sustainable development and carbon-neutral growth.



## Sustainable innovative solutions

We want to foster an environment that encourages innovative research and design centred on sustainability. We aim to provide members of our campus and surrounding communities opportunities to participate in creating solutions for crises related to climate change and environmental degradation.



## Low Carbon Mobility

Transport remains one of the biggest contributors to global warming, accounting for nearly 10% of global GHG emissions. Empowering our campus community to take low carbon transport options will reduce our campus' climate impact in this aspect. In addition, we will also introduce carbon neutral alternatives to our transport facilities.



# Aligning SDGs with Our Roadmap



# Aligning SDGs with Our Roadmap

The Sustainable Development Goals are a shared blueprint for peace and prosperity for people and the planet, including UNIMAS. While this low-carbon campus roadmap focuses on six SDGs (enlarged on the SDG wheel), these SDGs are interconnected with fifteen others. Increasing our access to affordable and clean energy, building sustainable cities and communities, encouraging responsible consumption and production, facilitating climate action, and taking care of our life on land will lead to benefits in other SDGs.



# Aligning SDGs with Our Roadmap

In all our strategies, we acknowledge the need for SDG 17: Partnership for the Goals.

Sustainable Development Goal	7	11	12	13	15
<b>STRATEGIC PILLAR 1: Energy efficiency</b>					
Revised energy & environment policy	✓	✓		✓	✓
Energy performance contract	✓				
Facility management	✓	✓			
EMGS 3-star rating	✓				
Application for <i>Penarafan Hijau JKR</i> for 30% of UNIMAS buildings	✓	✓			
Green procurement	✓		✓		
Implementing good governance for digital energy efficiency practices	✓				
<b>STRATEGIC PILLAR 2: GHG inventory</b>					
4SEE Mobile Application & GHG dashboard		✓	✓	✓	
GHG inventory & reporting				✓	
Conserving our campus carbon sinks				✓	✓
<b>STRATEGIC PILLAR 3: Circular economy &amp; waste management</b>					
Green courses in teaching & learning			✓	✓	
Integrated Waste Management Centre		✓	✓		



Green Café					
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Ultimate 9R Lab					
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**STRATEGIC PILLAR 4: Capacity & capability building**

Awareness & regional outreach					
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UNIMAS green experts (20%)					
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**STRATEGIC PILLAR 5: Sustainable innovative solutions**

Hackathon & sustainable design challenge					
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UNIMAS Climate Innovation Accelerator					
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StormPav and green walls installation					
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Nature-based solutions					
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**STRATEGIC PILLAR 6: Low carbon mobility**

UNIMAS carpool & feeder bus scheme					
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Digitalisation and electrification of UNIMAS transport fleet					
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# Glossary



# Glossary

<b>BJKA</b>	Academic Quality Assurance Division
<b>Business-as-usual</b>	A future scenario where there is no significant change in the attitudes, priorities, and goals. It also refers to a scenario where there are no new developments in technology, economics, and policies.
<b>CALM</b>	Centre for Applied Learning and Multimedia
<b>Carbon footprint</b>	The total amount of greenhouse gases that are generated by our activities.
<b>Carbon neutrality</b>	Having a balance between emitting and absorbing the carbon from the atmosphere.
<b>CITDS</b>	Centre for IT Development and Services
<b>Climate impact</b>	The impact of an organisation on global climate, as measured through the organisation's carbon emissions. See <i>carbon footprint</i> .
<b>Decarbonisation</b>	The process of reducing the amount of carbon emitted into the atmosphere.
<b>Digital economy</b>	An economy in which digital computing technologies power economic activities.
<b>Ecoregions</b>	Large regions of land or water containing similar ecosystems.
<b>ESG</b>	Environmental, social, and corporate governance
<b>Green economy</b>	A low carbon economy that is both resource efficient and socially inclusive.
<b>Green growth</b>	Economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies.
<b>Greenhouse gases</b>	Gases that trap heat in Earth's atmosphere, resulting in the greenhouse effect. This effect results in global warming. These gases are the main contributors to global warming: carbon dioxide, methane, nitrous oxide, and water vapour.
<b>GBI</b>	Green Building Index
<b>GRI</b>	Global Reporting Initiative
<b>HEPA</b>	Student and Alumni Affairs

<b>HR</b>	Human Resources Management Division
<b>IBEC</b>	Institute of Biodiversity and Environmental Conservation
<b>IP</b>	Intellectual property
<b>ISuRE</b>	Institute of Sustainable and Renewable Energy
<b>Low carbon</b>	Low levels of greenhouse gas emissions.
<b>Low carbon transition</b>	See <i>decarbonisation</i> .
<b>Nationally Determined Contributions</b>	A climate action plan to cut emissions and adapt to climate impacts, a requirement of the Paris Agreement.
<b>Nature-based solutions</b>	Actions to protect, sustainably manage, or restore natural ecosystems, that address climate change.
<b>PPP</b>	Centre for Student Development
<b>RIEC</b>	Research, Innovation and Enterprise Centre
<b>SQRC</b>	Strategic Planning, Quality and Risk Management Centre
<b>Sustainable Development Goals (SDGs)</b>	A shared blueprint for peace and prosperity for people and the planet, now and into the future. There are 17 SDGs in total.
<b>UHSB</b>	UNIMAS Holdings Sdn Bhd
<b>ULC</b>	UNIMAS Leadership Center
<b>USC</b>	University Sustainability Centre
<b>UWC</b>	UNIMAS Water Center



# **UNIMAS Faculties, Research Institutes and Research centres**

# UNIMAS Faculties

Resource Science and Technology  
Social Sciences and Humanities  
Cognitive Sciences and Human  
Development  
Applied and Creative Arts  
Engineering

Computer Science and Information  
Technology  
Medicine and Health Sciences  
Economics and Business  
Language and Communication  
Built Environment

Centre for Pre-University Studies  
UNIMAS Business School

# UNIMAS Research Institutes

Biodiversity and Environmental  
Conversation  
Health and Community Medicine  
Borneo Studies

Creative Arts and Technology  
Social Informatics and  
Technological Innovations  
Sustainable and Renewable Energy

Tourism and Research  
Innovations

# UNIMAS Research Centres

Malaria Research  
Sago Research  
Financial Technology and  
Innovation

Spatially Integrated Digital  
Humanities  
Social Innovation  
UNIMAS Water Center

Human Resilience and Potential  
Centre  
Data Science  
Centre for Construction on Peat and  
Problematic Soil





# Our Expertise

# Our Expertise



*Professor Ts. Dr Shanti Faridah Salleh*

Environmental sustainability  
Green technology



*Professor Ir. Ts. Dr Al-Khalid bin Hj Othman*

Power systems  
Communication systems



*Dr. Florianna Lendai anak Michael Mulok*

Sustainability indexing  
Sustainable urban environments



*Professor Ar. NurAkmal A. Goh*

Sustainable urban planning  
Urban biodiversity



*Ts. Dr. Yonis M. Yonis Buswig*

Power systems  
Renewable energy



*Dr. Nurliyana binti Abdul Raof*

Biobased Material Development  
Green Materials



*Mr Mohd Farid Atan*

Wastewater treatment  
Renewable energy



*Dr. Nur Tahirah Razali*

Renewable energy  
Green materials



*Ir. Dr. Muhammad Syukri Imran bin Abdullah*

Energy efficiency  
Green building



*Dr. Lidyana binti Roslan*

GHG Emission Management  
Carbon Sequestration  
Technology



*Dr. Marzie Hatef Jalil*

Eco-fashion  
Sustainable textile design



*Professor Dr. Azhaili Bin Baharun*

Renewable energy  
Green building