



Climate Action

Take urgent action to combat climate change and its impacts.



Sediakan Payung Sebelum Hujan

SDG 13, which urges urgent action to combat climate change and its impacts, is captured in the classical Malay peribahasa “*Sediakan payung sebelum hujan*” (prepare an umbrella before it rains). This proverb highlights the importance of foresight and preparedness—essential principles in addressing climate risks.

At UM, this ethos is reflected in proactive initiatives such as strategies for a carbon-neutral and net zero campus, local climate education, cooperative planning with government agencies for disaster preparedness, and climate action through NGO partnerships in environmental education. By acting early and deliberately, UM not only reduces its environmental impact but also cultivates a generation equipped to respond responsibly and knowledgeably to the global climate crisis.

UM Net Zero Blueprint 2030

In 2024, Universiti Malaya marked a strategic milestone with the drafting of the UM Net Zero Blueprint 2030, which lays the foundation for a carbon-neutral campus aspirations by 2030—and ultimately net zero by 2050. As of early 2025, this blueprint remains in draft form but has already been endorsed in principle by the Universiti Management Committee (JKPU) on 11 December 2024, reflecting strong institutional support.

This key development emerged from the UM Net Zero Campus Strategic Workshop, held on 14–15 August 2024. Hosted by the UM Eco Campus initiative under the Sustainable Development Centre (UMSDC), the workshop brought together experts and taskforce members from both within UM and external partners. Together, they revised the prior Eco-Campus Blueprint (2016) and developed a robust strategic framework tailored for UM's path toward net zero.

Grounded in the vision of the Universiti Malaya Master Plan 2050 and informed by the SDSN's Net Zero on Campus guide—adapted specifically to UM's context—the blueprint outlines a comprehensive approach spanning six core sectors: Energy, Mobility, Facilities, Waste Minimisation & Recycling, Value Chain, and Beyond Campus Operations. These are further structured into 17 thematic focus areas, supported by 57 actionable plans to ensure systematic, measurable progress.

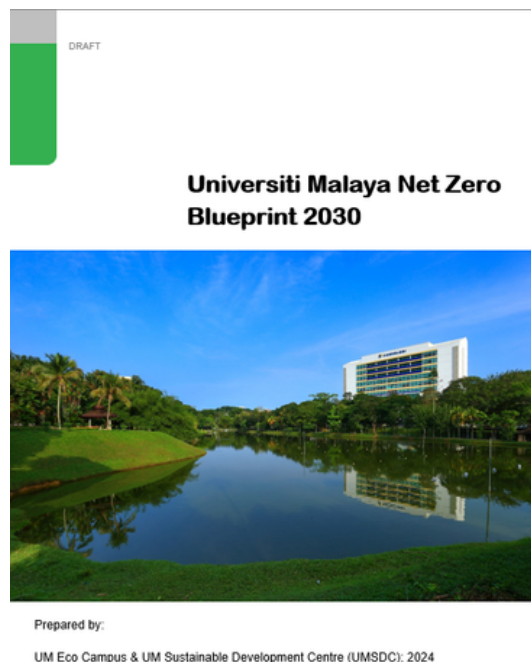
Special recognition goes to Ts. Dr. Muhammad Azzam bin Ismail, Director of UM Eco Campus for the year 2024, for leading the blueprint's formation. The initiative also benefitted from contributions by Prof. Dr. Yahaya Ahmad, Associate Vice-Chancellor (Corporate Strategy), Associate Prof. Dr. Zeeda Fatimah Mohamad, Director of UMSDC, and representatives from numerous faculties, departments, and external collaborators such as the Sustainable Energy Development Authority (SEDA) Malaysia.



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Above: UM Net Zero Blueprint 2030 document

Left: Two-day workshop with UM experts from various sectors to prepare the document

Local Climate Education for Awareness, Action, and Resilience at UM

In 2024, Universiti Malaya (UM) continued to deliver diverse local education programmes and campaigns to raise awareness on climate change risks, impacts, mitigation, adaptation, impact reduction, and early warning. Through initiatives such as the Planetary Health Symposium, Reflections from COP28 and Looking Forwards COP29, and the launch of the Sustainability in Action e-book, UM engaged students and the wider community in discussions on global warming, greenhouse gas reporting, carbon neutrality, and resilience strategies. These events highlighted both scientific knowledge and practical solutions to address climate challenges.

Complementing these initiatives, the Institute of Ocean and Earth Sciences (IOES) HICoE Seminar, the Power of Language and Climate Crisis Communication Forum, and the Nanomaterials for Climate Mitigation Seminar provided targeted platforms for knowledge exchange on climate adaptation and mitigation.

Meanwhile, creative approaches such as Storytelling for Impact on Climate Change and the Climate Courage Workshop addressed eco-anxiety, promoted community resilience, and introduced hands-on practices like water monitoring and composting.

UM also advanced climate preparedness through applied training, including a fire drill simulation at the Universiti Malaya Medical Centre, strengthening early warning, response capacity, and inter-agency coordination. Beyond events, continuous teaching of the Bite-Size Climate Action module under the Students Holistic Empowerment (SHE) course ensured that students received structured education on greenhouse gas emissions, sustainability practices, and climate risks. Together, these efforts demonstrate UM's commitment to fostering informed, resilient communities through sustained climate education and action.



IAS's Planetary Health Symposium

Co-organised by the Institute for Advanced Studies (IAS) and the course GQH0055 Healthy Planet, Healthy Life, the Planetary Health Symposium was held as a two-day event in January 2024 to promote awareness and action on climate issues. Activities during the symposium included Save the Ocean, Global Warming, Draw the Earth in Your Mind, Swap Bestie's Item, and Cross Carbon.

The Greenhouse Gas Reporting Workshop, held on 9 January 2024, featured Ts. Raja Shazrin Shah Raja Ehsan Shah, Director of Galaxy Tech Solutions (KL) Sdn Bhd. During the two-hour session, participants were introduced to the fundamentals of greenhouse gas (GHG) reporting and examined its relevance for universities, particularly in the context of sustainability goals and climate action. The Carbon Neutrality Webinar: The Role of Universities Towards Carbon Neutrality Acceleration, held on 16 January 2024, featured Dr. Fong Chng Saun. Over the course of one hour, participants explored the fundamentals of carbon neutrality and discussed the pivotal role universities can play in accelerating progress towards this goal. The session provided valuable insights into strategies and initiatives that could unlock pathways to a more sustainable future.

Below: Webinar, seminar, and booth posters for the Planetary Health Symposium 2024



Hosted by
UM Living Lab Project
LL2022CN003 and GQH0055
Healthy Planet Healthy Life

INSTITUT PENGAJIAN TERMAJU
Institute for Advanced Studies

UNIVERSITI
MALAYA

Dr Fong Chng Saun
Senior lecturer

**CARBON NEUTRALITY
WEBINAR**

The Role of University Towards
Carbon Neutrality Acceleration

LIVE WEBINAR

Microsoft Teams

Tuesday
16th January, 2024

Start At
12:00noon - 1:00pm

<https://shorturl.at/eBT46>

JOIN US



INSTITUT PENGAJIAN TERMAJU
Institute for Advanced Studies

UNIVERSITI
MALAYA

**GREENHOUSE GAS
EMISSION REPORTING
WORKSHOP**

09 January 2024

10 am - 12 pm

Auditorium, Institute
for Advanced Studies

Scan it for registration!

<https://shorturl.at/svyC7>

Only 30 seats available!

Hosted by:
UM Living Lab Project LL2022CN003 &
GQH0055 Healthy Planet Healthy Life

Ts Raja Shazrin Shah Raja Ehsan Shah,
Director of Galaxy Tech Solutions (KL) Sdn Bhd.

Ts Raja Shazrin Shah, a Chemical Engineer and seasoned sustainability consultant, brings over 18 years of expertise in ESG and GHG-related fields. His career, spanning technical and C-suite roles, has cultivated knowledge in the multidisciplinary facets of sustainability. He has published extensively in 12 peer-reviewed journals and collaborates with governmental, private, and international agencies. Actively engaged in professional working groups, Raja Shazrin plays a vital role in shaping frameworks for sustainability analytics.



Make
**SIGNIFICANT
CHANGES**
with **MINIMAL
EFFORT**

INSTITUT PENGAJIAN TERMAJU
Institute for Advanced Studies

UNIVERSITI
MALAYA

BOOTH OPENING

Date: 8 Jan 2024 (10AM-2.30PM)
9 Jan 2024 (10AM-4PM)

Venue: Institute advanced studies (IAS)

Activities:

- Save the Ocean
- Global Warming
- Draw the Earth in your mind

Registration:
<https://forms.gle/s8Eu7LfAB1asyoPs6>

SCAN IT

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JAN

For any inquiries,
feel free to contact

- 016-996 5687
(Stephanie)
- 011-2432 6092
(Jingyi)

Reflections from COP28 and Looking Forwards COP29

This panel discussion, Hybrid Panel Discussion: Reflections from COP28 and Looking Forwards COP29, was held on 1 July 2024 to commemorate UM's first-ever delegation to a UNFCCC COP meeting. Four UM academicians attended the COP28 meeting in Dubai in 2023 as Party Overflow under the Malaysian Delegation, where each had a speaking role at various COP events. In this panel discussion, members and friends of the UM delegation engaged in a candid conversation about the journey to COP28, their lived experiences, key takeaways, and next steps. The UM Climate Change Advisory Committee consisted of UM academics—Associate Prof. Dr. Helena Muhamad Varkkey, Associate Prof. Dr. Sheeba Nettukandy Chenoli, Professor Ir. Dr. Shaliza Ibrahim, and Associate Prof. Dr. Jillian Ooi Lean Sim—who worked on various aspects of climate change. The committee advised the university leadership on the university's research priorities in climate change and facilitated UM's involvement in climate change governance at the international level.



Above: Event poster for the Reflections from COP28 and Looking Forward to COP29 panel discussion

Sustainability in Action: Universiti Malaya's Climate Change and Resilience Research

The e-book Sustainability in Action: Universiti Malaya's Climate Change and Resilience Research, compiled by the UM Climate Change Advisory Committee, was launched during the Hybrid Panel Discussion: Reflections from COP28 and Looking Forwards COP29 on 1 July 2024. The publication underscores the university's commitment to addressing one of the most pressing challenges of our time and showcases pioneering climate change and resilience projects at Universiti Malaya.

Structured into five chapters—(1) Physical Sciences, (2) Mitigation, (3) Vulnerability, Impacts, and Adaptation, (4) Early Warning, and (5) GHG Inventory—the e-book highlights the transformative impact of UM's research in these fields. It offers a valuable reference for those passionate about environmental sustainability and seeking inspiration for innovative solutions to global challenges.

The e-book highlights UM's climate initiatives and key academics, showcasing the university's commitment to a sustainable future.



Above: Cover page of the Sustainability in Action e-book

Air-Ocean-Land Interactions in a Changing Climate

The IOES HICoE Seminar 2024, held on 25 July 2024, featured a range of engaging sessions, including a forum, keynote speech, and oral and poster presentations. The seminar's theme, "Air-Ocean-Land Interaction in a Changing Climate", underscored the critical role of air-sea and air-land interactions as mechanisms driving changes in the atmosphere-ocean-biosphere system. The event provided a platform for researchers and postgraduate students from the Institute of Ocean and Earth Sciences (IOES) to present their research findings, share insights, and exchange the latest knowledge on Air-Ocean-Land Interaction in a Changing Climate and marine science more broadly. The keynote speech was delivered by Prof. Dr. Jin-Yi Yu from the University of California, Irvine, on "The Changing El Niño in the 21st Century". A forum on "Impact and Adaptation to Climate Change: A Malaysian Context" was moderated by Emeritus Professor Dato' Dr Azizan Abu Samah.

Right: A glimpse of the forum at the IOES HICoE Seminar 2024



The Power of Language, Urgency and Effective Communication in Addressing the Climate Crisis

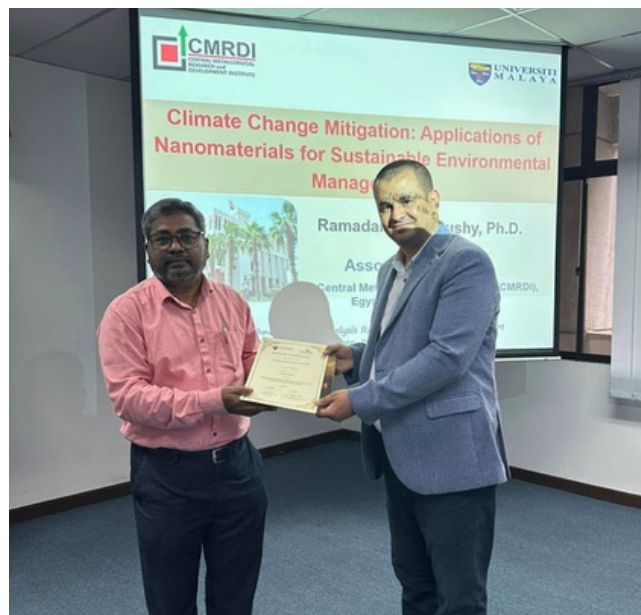
An online forum organised by UM on 12 September 2024, in conjunction with the National Climate Governance Summit 2024 (NCGS 2024) hosted by Climate Governance Malaysia (CGM) and partners, featured a panel discussion titled *The Power of Language, Urgency, and Effective Communication in Addressing the Climate Crisis*. The discussion highlighted how language and narratives shape public perception, policy responses, and societal behaviours needed to tackle climate change and build resilience. From UM, the session was moderated by Professor Dr. Surinderpal Kaul, Dean of the Faculty of Languages and Linguistics, with opening remarks by Professor Ir. Dr. Abdul Aziz Abdul Raman, Acting Registrar of the university.

Right: Event poster



Climate Change Mitigation: Applications of Nanomaterials for Sustainable Environmental Management

The Nanotechnology & Catalysis Research Centre (NANOCAT) organised a seminar on *Climate Change Mitigation: Applications of Nanomaterials for Sustainable Environmental Management*, delivered by Associate Professor Ramadan A. Geioushy from the Central Metallurgical R&D Institute (CMRDI), Egypt, on 8 October 2024. The talk explored the use of advanced nanomaterials in catalysis to recycle CO₂ into sustainable fuels and valuable chemicals, offering clean solutions to pressing energy and environmental challenges.



Above: Climate change mitigation talk on the application of nanomaterials, organised by NANOCAT

Storytelling for Impact on Climate Change

On 24 October 2024, the Universiti Malaya Sustainable Development Centre (UMSDC), in collaboration with the Department of Science and Technology Studies (STS) and the Department of Media and Communication Studies, and with support from the U.S. Embassy in Malaysia, organised the *Storytelling for Impact on Climate Change* event. The programme brought together aspiring filmmakers, academics, and climate enthusiasts to explore how art and storytelling can fuel environmental activism. The keynote speaker, Emmy Award-winning journalist and filmmaker Julia Hoppock, drew on her more than 15 years of experience in journalism, documentary production, and nonprofit work to demonstrate how storytelling can inspire change, raise awareness, and drive action on pressing global issues. The event examined the powerful intersection of art, narrative, and climate advocacy, encouraging participants to harness their creative skills in support of climate action.

Below: Talk on using storytelling to address climate change



Climate Courage Workshop

In collaboration with the Sunway Centre for Planetary Health, the Institute of Advanced Studies (IAS), and the Universiti Malaya Sustainable Development Centre (UMSDC), the Climate Courage Workshop was held on 11 November 2024. The programme commenced with welcoming addresses by Associate Professor Dr. Zeeda Fatimah Mohamad, Director of UMSDC, and Professor Dr. Ramesh Subramaniam, Dean of the Institute of Advanced Studies, followed by an overview presented by Dr. Fong Chng Saun.

A session by the Sunway Centre for Planetary Health explored the concept of climate anxiety and its impacts on individuals. In the afternoon, Dr. Nor Aishah Abdullah, leader of UM Water Warriors, delivered a briefing on the group's initiatives, after which the Water Warriors team presented the history and restoration efforts of Universiti Malaya's Tasik Varsiti. Participants then engaged in physical, chemical, and biological monitoring of the water quality in Tasik Varsiti and a nearby stream adjacent to the Samali Treehouse. The Universiti Malaya Zero Waste Centre (UM ZWC) conducted a hands-on composting demonstration, providing guidance on tools, materials, and techniques for home composting. Each participant received a bag of compost from UM ZWC for use in home gardening.

The Climate Courage Workshop supported mental health and climate action initiatives under the Planetary Health Roadmap and Action Plan. It addressed eco-anxiety—psychological distress resulting from environmental change—by providing a supportive space for participants to process their emotional responses while building resilience through community support and self-reflection. The event also promoted sustainable practices, aligning with the roadmap's objective of integrating individual well-being with planetary health.



Right: Climate anxiety workshop, water conservation session, and composting demonstration during the Climate Courage workshop

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The programme featured elevator pitches, live demonstrations, and discussions on scaling these solutions for global climate adaptation and mitigation. Associate Prof. Dr. Zeeda Fatimah Mohamad (UMSDC) moderated the session, with speakers Professor Ir. Dr. Shaliza Ibrahim and Professor Dr. Jeyraj Selvaraj (UMPEDAC), reflecting UM's leadership in advancing sustainable climate technologies.



Climate Change, Health & Ethics

PUBLIC EVENT

CLIMATE CHANGE, HEALTH & ETHICS

 **22 November 2024,
3.00p.m. - 5.00p.m.**

**Auditorium Tun Suffian, Faculty of Law,
Universiti Malaya (UM)**

Panel of Speakers



Ms Katherine Littler,
Co-Head, Health Ethics and
Governance Unit,
World Health Organization,
Switzerland



Professor Tony Capon,
Director, Monash Sustainable
Development Institute,
Monash University, Australia



**Associate Professor Amelia
Turagabeci,**
Acting Dean College of
Medicine, Nursing and
Health Sciences,
Fiji National University



Dr Yasna Palmeiro Silva,
Research Fellow, The Lancet
Countdown on Health and
Climate Change, UK



**Associate Professor
Caesar Attire,**
University of Oxford and
University of Ghana



Professor Tin Tin Su
Director, Southeast Asia Community
Observatory (SEACO)
Professor of Global Public Health
School of Medicine and Health Sciences
Monash University Malaysia

**"Explore how climate change is impacting health and the ethical issues we
face in addressing these challenges. This event features global and regional
experts sharing insights on climate-related health policies and solutions for
Southeast Asia."**

Join us for engaging talks, a panel discussion, and an open Q&A to be part of
this crucial conversation for a healthier, more sustainable future.

ADMISSION IS FREE OF CHARGE!

Fire Drill Simulation Strengthens Disaster Preparedness and Climate Resilience

On 4 December 2024, Universiti Malaya Medical Centre (UMMC) conducted an Internal Disaster Simulation Exercise (Fire Drill) at the Women and Children's Health Complex. Organised by the PPUM Disaster Management Committee, the exercise involved collaboration with multiple agencies, including the Fire and Rescue Department of Malaysia (Balai Pantai), the Royal Malaysia Police (Balai Pantai), Pantai Hospital Kuala Lumpur, UM Specialist Centre (UMSC), and the PPUM Emergency Response Team (ERT). The objectives were to enhance building evacuation procedures during emergencies, familiarise participants with real-time emergency scenarios and rescue measures, and strengthen inter-agency coordination. Key activities included fire suppression drills, building evacuation, emergency communication, patient transfer, and the testing of fire safety systems. More than 200 staff members, patients, and members of the public participated, with Dr Mohammad Salleh Bin Yahya, Deputy Clinical Director (Medical), serving as Incident Commander.

The exercise served as both an adaptation measure and an impact reduction strategy by improving institutional preparedness and community resilience in the face of disasters. It strengthened early warning and response capacity through practical training in emergency communication, evacuation, and rescue procedures. Recognising that climate change increases the likelihood of extreme weather events and related hazards, such as fires from heatwaves or electrical faults caused by storms, the drill formed part of a broader disaster risk reduction education programme aimed at enhancing climate resilience.



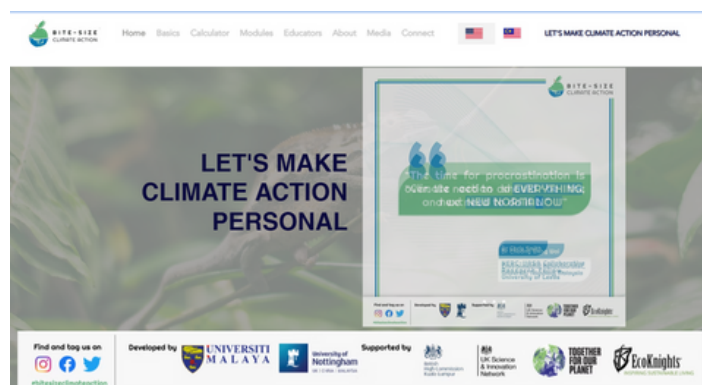
Right: Scenes from PPUM's disaster simulation exercise

Bite-Size Climate Action as Part of SHE: Student Empowerment for Climate Preparedness

The Bite-Size Climate Action module is embedded within the Students Holistic Empowerment (SHE) programme at Universiti Malaya as course GQA0022, offered under the cluster Global Issues and Community Sustainability. Continuously taught in 2024 to UM students, the course provides both conceptual knowledge and practical approaches for understanding the connections between climate change, sustainability, and everyday life. Through a structured learning experience, students explore greenhouse gas emissions in key sectors such as energy, transport, food, forests, and waste, while also developing habits and projects that reflect their personal and collective responsibilities toward sustainability.

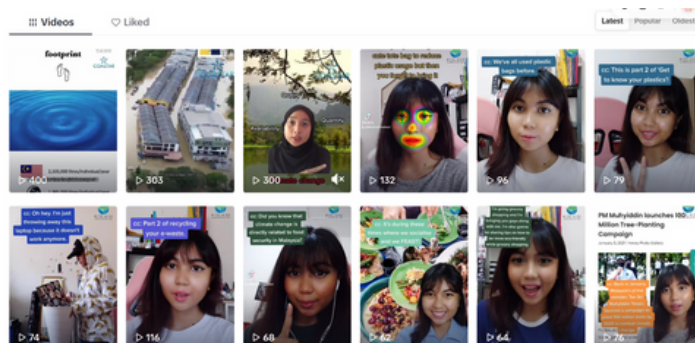
Aligned with the objectives of Bite-Size Climate Action, the course emphasises accessible, small-scale actions that can be replicated and multiplied across communities. Students are encouraged to not only adopt sustainable practices themselves but also engage peers, families, and local networks in dialogue and behavioural change. In this way, the module goes beyond classroom learning to act as a bridge between academic study and practical climate action.

The SHE course directly contributes to climate education by equipping students with knowledge on the risks, impacts, and mitigation strategies of climate change. By focusing on practical topics such as energy, transport, food, forests, and waste, it helps students understand both the challenges and the everyday actions that can reduce their carbon footprint. As the course is continuously delivered in 2024, it functions as an ongoing local education programme that raises awareness of climate risks, adaptation measures, and early warning preparedness. This ensures that climate awareness is embedded in the student community and extended into broader society through their engagement.



Above: Screenshot of the Bite Size Climate Action module website page

Below: Bite-size climate videos on social media



Strengthening Cooperative Planning and Government Support for Climate Disaster Preparedness

In 2024, Universiti Malaya (UM) continued to contribute to cooperative planning for climate change disasters and to supporting government agencies with science-based strategies and early warning systems. Through the UM Climate Change Advisory Committee, the university supported national climate policy discussions, while initiatives such as the RESPIRE 2 Early Warning System for Asthma explored innovative health-focused disaster alerts. Collaboration with agencies like MetMalaysia was strengthened through the UM Bachok Marine Research Station, where ongoing atmospheric monitoring informs policy and planning.

UM also facilitated multi-stakeholder dialogues on air quality, haze resilience, and climate preparedness, creating platforms where the government, researchers, and communities could exchange perspectives. Beyond national borders, the PANACEA project in Sabah demonstrated how participatory, nature-based solutions can integrate scientific expertise with local knowledge to support coastal adaptation efforts. Taken together, these initiatives show UM's role in linking research, governance, and community engagement to help improve Malaysia's capacity to anticipate, respond to, and recover from climate-related risks.

UM Strengthens Role in National Climate Advisory Efforts

In 2024, Universiti Malaya (UM) continues to play an active role in shaping Malaysia's response to climate change through the UM Climate Change Advisory Committee under the Ministry of Natural Resources and Environmental Sustainability (NRES). UM contributes expertise through the Technology and Innovation Cluster, chaired at the national level by YBhg. Tan Sri Zakri Abdul Hamid. The UM Climate Change Advisory Committee is co-chaired by Associate Prof. Dr. Helena Binti Muhamad Varkkey and Associate Prof. Dr. Sheeba Nettukandy Chenoli. The committee brings together experts from across UM to support the development of effective climate policies, share research insights, and strengthen Malaysia's preparedness for climate challenges. In 2024, the Committee facilitated the participation of UM academics and students in UNFCCC COP29, held in Baku, Azerbaijan, ensuring that the voices of Malaysian researchers and youth are represented in global climate discussions.



Above: Co-chairs and members of the UM Climate Change Advisory Committee, as featured in the *Sustainability in Action* e-book

Integrating Planetary Health into National Climate Preparedness and Policy

The support for the National Planetary Health Action Plan (NPHAP) highlights Universiti Malaya's contribution to strengthening Malaysia's policy response to the interconnected challenges of climate change and health. Spearheaded by the UM Sustainable Development Centre (UMSDC), the UM Civilizational Dialogue Center, and individual researchers, the initiative showcases how academic expertise can be mobilized for federal-level planning. Notably, Dr. Fong Chng Saun served as a module writer for the Translational Leadership Sustainability Module, designed to cultivate decision-makers who can integrate planetary health principles into governance and long-term planning.

A key feature of this initiative is its close collaboration with the Ministry of Science, Technology, and Innovation (MOSTI), working through Akademi Sains Malaysia (ASM). By embedding climate-health risk indicators into the framework of the NPHAP, the effort ensures that Malaysia's leadership is equipped with practical tools to anticipate and address risks such as worsening haze events, extreme weather, and potential displacement of affected communities. The focus on leadership development ensures that federal agencies are not only informed by scientific research but also supported in applying it to future-oriented policy decisions.

In its 2024 policy development stage, the work feeds directly into Malaysia's national strategy for planetary health. Rather than functioning as a technical warning system, this contribution strengthens the government's capacity at a structural level—by embedding sustainability, health, and climate resilience into the country's governance frameworks. The collaboration demonstrates how universities can bridge science and policy to enhance Malaysia's preparedness for complex climate-related challenges while ensuring communities remain safeguarded through informed, cooperative planning.



Above: Group photos following the discussion on the National Planetary Health Action Plan (NPHAP) between UM, MOSTI, and ASM



Multi-Stakeholder Policy Dialogue for Air Quality, Haze Resilience, and Climate Preparedness

On 30–31 May 2024, Universiti Malaya, through the Interdisciplinary Policy Prioritization for Tackling Air Pollution (IPPTA) Research Team, convened a policy-focused workshop at CCEC, Nexus Bangsar South. The event, co-chaired and facilitated by Dr. Fong Chng Saun as Group 4 Moderator, brought together key government stakeholders, including the Ministry of Health (MOH), the Department of Environment (DoE), the Malaysian Meteorological Department (MetMalaysia), and the All Party Parliamentary Group Malaysia on SDG (APPGM-SDG). Civil society and community voices were also strongly represented, with participation from Greenpeace, the Kuala Lumpur Residents Action for Sustainable Development, and local leaders from haze-affected communities such as Johan Setia.

The workshop's central goals were to identify gaps in Malaysia's air quality policies, co-develop solutions to enhance resilience against haze and pollution-related health risks, and generate actionable recommendations for national climate-health strategies. By engaging government agencies alongside NGOs and communities, the process created a space for dialogue that bridged scientific research, policymaking, and lived experience.

The outcomes included policy mapping and priority-setting, where both government and community perspectives were integrated into planning processes. Importantly, the recommendations developed during the workshop have a direct pathway to informing government actions on air quality management, early warning mechanisms, and public communication strategies. This reflects how universities can act as convenors of cooperative planning platforms for climate-linked disasters such as haze, while simultaneously strengthening government capacity to anticipate and respond to environmental risks.

Through this initiative, Universiti Malaya played a catalytic role in connecting academic expertise with government priorities and grassroots perspectives, ensuring that Malaysia's strategies for climate and health resilience are grounded in both science and inclusivity.

Below: Photos from the air quality policies discussion



UM and MET Malaysia Strengthen Collaboration on Climate and Atmospheric Research

A Memorandum of Understanding (MoU) was signed between the Government of Malaysia, represented by the Malaysian Meteorological Department (MET Malaysia), and Universiti Malaya (UM) to strengthen collaboration in climatology, air quality modelling, and atmospheric science. The MoU also covers the maintenance of acid deposition and reactive gas monitoring equipment at the Global Atmospheric Watch (GAW) Station, located at UM's Bachok Marine Research Station (IOES), Kelantan. The objective of this MoU is to foster joint research and scientific studies in climatology, air quality modelling, and atmospheric science, while ensuring the proper upkeep of equipment for acid deposition and reactive gas measurements at the GAW IOES-UM Bachok Station.

Through this collaboration, MET Malaysia and IOES-UM will support the government's climate change agenda by providing critical data on acid deposition and reactive gases, which are closely linked to global warming. The MoU signing ceremony between MET Malaysia and UM's Institute of Ocean and Earth Sciences (IOES) was held on 29 May 2024 at the Exhibition Hall, Research Management and Innovation Complex (KPPI), Universiti Malaya.



Above and below: Scenes from the MoU signing between MET Malaysia and UM



Strengthening Early Warning and Government Collaboration for Climate-Related Health Risks in Malaysia

RESPIRE 2: Early Warning System for Asthma via Air Quality Forecasting is a collaborative research project titled “Developing and evaluating a mobile phone-based early alert system using high-resolution air quality forecasts to improve asthma control in Malaysia.” Led by Universiti Malaya in collaboration with the University of Edinburgh under the RESPIRE Programme, the study is ongoing in 2024–2025. Key collaborators include Cambridge Environmental Research Consultants (CERC), Malaysian Meteorological Department (MetMalaysia), and the Department of Environment (DoE).

The project aims to co-develop a mobile-based early warning system using high-resolution pollution data, such as PM_{2.5} and NO₂, to deliver personalised alerts to asthma patients. Beyond improving individual health outcomes, the system is designed to integrate into Malaysia’s broader public health and disaster early warning ecosystem, particularly during haze episodes that pose widespread health risks. By engaging directly with MetMalaysia and the DoE, the initiative exemplifies cooperative planning between academic institutions, government agencies, and international partners to address climate-related disasters through science-based tools.

Expected outcomes include enhanced preparedness for air pollution-related health threats, greater resilience during haze events, and strengthened predictive capacity via sustained national partnerships. The project also provides research evidence, technical expertise, and practical applications to support local and national agencies, contributing scalable tools for early warning and risk communication. Through these efforts, RESPIRE 2 strengthens Malaysia’s capacity to respond to air pollution and climate challenges, ensuring vulnerable groups, such as asthma patients, are better protected.



Above: Information on the RESPIRE 2 research project, co-directed by Honorary Professor Dr. Khoo Ee Ming from UM's Faculty of Medicine

PANACEA: Participatory Approaches for Nature-based Solutions for Climate Adaptation and Mitigation, and Empowering Southeast Asian Coastal Communities

The PANACEA project is an international collaboration between universities in the Philippines, Indonesia, Malaysia, and the United Kingdom. Its goal is to co-create innovative nature-based adaptation and mitigation strategies through a participatory approach that empowers communities and integrates indigenous knowledge with scientific expertise to support coastal livelihoods and enhance resilience.

In Malaysia, the project focuses on the Tun Mustapha Park area in Sabah. In December 2024, activities included focus group discussions (FGDs) and Net-Map sessions with stakeholders at multiple levels to co-create planning and implementation strategies for Nature-based Solutions (NbS). These sessions introduced NbS concepts, identified climate-related challenges, and mapped institutional relationships and responsibilities for NbS planning and execution.

Government agencies actively engaged in this process included the Kota Marudu District Office, Pitas Forest Office, Kota Marudu Forest Office, Kota Marudu District Council, and the Malaysia Cooperative Societies Commission (Kota Marudu Branch). The initiative also involved local communities such as Kampung Rosob in Pitas and Kampung Darau in Kota Kinabalu, as well as local businesses like D'Pagung. The project was made possible through close collaboration with community-based NGOs, particularly Darau Wetland Ecotourism (DWET) and Kudat Turtle Conservation Society (KTCS), which played key roles in facilitating access and engagement with local communities.

The Universiti Malaya team, comprising Prof. TPr. Dr. Goh Hong Ching, Dr. Lee Soon Loong, Nur Fatin Nabilah binti Ruslan, Ainul Salsabila binti Affandi, Edelyn Kellie Kuni, and Sofia binti Johari, led the Malaysian component of the project, ensuring that scientific research and local knowledge were effectively integrated. These efforts provided government agencies with critical insights, strengthened partnerships for climate adaptation, and enhanced local capacity for sustainable, community-driven solutions.



Left: PANACEA project kick-off meeting

Below: PANACEA team visit to the Tun Mustapha Park area in Sabah



Climate Action Through NGO Partnerships in Environmental Education

In 2024, Universiti Malaya (UM) strengthened its commitment to climate action by collaborating with a range of NGOs across six initiatives, integrating environmental education with community-driven climate adaptation strategies.

The PANACEA Project worked closely with Darau Wetland Ecotourism (DWET) and the Kudat Turtle Conservation Society (KTCS) to empower coastal communities in Sabah through participatory approaches to nature-based solutions. Similarly, the Student Empowerment in Climate Action (SECA) Programme, co-organised by UM and the Sabah Environmental Trust (SET), and supported in the field by KTCS, engaged secondary school students and teachers in mangrove replanting, workshops, and climate action training.

The Weather Station Educational Hub partnered with the Tropical Rainforest Conservation & Research Centre (TRCRC) to provide hands-on environmental learning at UM's weather station, integrating biodiversity conservation and climate literacy for students and the wider community.

In Kuala Lumpur, the Green Warriors with Rays of Hope initiative collaborated with the Alliance Chin Refugee (ACR) Learning Centre and the Free Tree Society (FTS) to deliver environmental awareness and composting workshops for refugee students, fostering inclusivity and ecological literacy (refer to the SDG 15 report, page 289).

Food-related sustainability projects also highlighted strong NGO partnerships. Students from Universiti Malaya's Centre for Foundation Studies collaborated with The Lost Food Project, rescuing surplus fruits and vegetables for redistribution to vulnerable communities, thereby reducing food waste and emissions. Likewise, the Clean Our Plate Project by AIESEC in UM partnered with Free Tree Society, TTDI Edible Community Garden, Feeding the Needy, and Yayasan Chow Kit, combining youth volunteer training with biodiversity workshops, food planning sessions, and food distribution to address both environmental and social challenges.

Through these collaborations, UM demonstrated the importance of NGO partnerships in advancing environmental education, strengthening climate adaptation, and empowering diverse communities to adopt sustainable practices.



Student Empowerment in Climate Action (SECA) Programme

The Student Empowerment in Climate Action in Sabah (SECA) programme was carried out in two phases, with Phase 1 running from January 2022 to June 2024, followed by Phase 2 from October 2024 to August 2025. Jointly organised by Universiti Malaya (UM) and the Sabah Environmental Trust (SET), and financially supported by Yayasan Sime Darby (YSD), the initiative aims to strengthen the knowledge and capacity of secondary school students as active citizens in addressing climate issues, particularly within coastal rural communities.

On 1 October 2024, the opening ceremony for SECA Phase 2 was held at SMK Tandek, Kota Marudu, with the participation of around 130 students from Kudat, Kota Marudu, and Pitas. The event featured a seminar and hands-on workshop on climate action and the role of mangrove forests as carbon sinks, delivered by Dr. Aldrie Amir Ahmad (UKM) and Dr. Rahimatsah Amat (SET). The programme involved 130 Form 1 and Form 2 students together with 26 teachers from 13 secondary schools across three districts. Activities in 2025 includes online workshops, teacher's workshops, mangrove replanting, and the installation of rainwater harvesting devices.

The programme was led by Prof. Dr. Goh Hong Ching (Universiti Malaya) as project leader, with Dr. Lee Soon Loong serving as postdoctoral researcher. It was further supported by UM experts and facilitators, including Assoc. Prof. Dr. Amy Then Yee-Hui (Institute of Biological Sciences, Faculty of Science) and Dr. Ponmalar A/P Alagappan (Department of Management & Marketing, Faculty of Business and Economics) as expert consultants for SECA Phase 1. Ms. Sofia binti Johari, President of the Kudat Turtle Conservation Society (KTCS), served as field coordinator for both phases. Additional support included Ms. Wan Nur Syazana binti Wan Mohamad Ariffin (project facilitator, Phase 1), Ms. Eva Vivian Justine (field assistant, Phase 1), and Ms. Edelyn Kellie Kuni (field assistant, Phase 2). From SET, a Sabah-based NGO facilitating internal matters with funders and government sectors, the programme was guided by Dr. Rahimatsah Amat (Chief Executive Officer & Founder) and Ms. Noreenawati Nordin (Head of Operation). Their leadership, together with UM's expertise and community engagement, ensured SECA delivered practical, impactful outcomes in building climate awareness and action among Sabah's youth.

Below: Photos from the opening ceremony of SECA Phase 2 with 130 students in Sabah



Weather Station Educational Hub

The Weather Station Educational Hub was a SULAM initiative organised by Geography students from AIX1005 (Group 4 – Unity in Diversity) under the supervision of Dr. Nik Noor Athirah binti Nik Yusoff. Held on 19 May 2024 at the Department of Geography's Weather Station, Universiti Malaya, the initiative—under the slogan “Together We Explore the Nature”—promoted environmental education and awareness. The project involved 22 participants from various faculties, academic staff, and representatives from the Tropical Rainforest Conservation & Research Centre (TRCRC), a non-governmental organisation focused on rainforest restoration and conservation. Students led the planning, developed proposals, secured funding, and carried out five days of *gotong-royong* to clean and prepare the site.

The programme addressed gaps in exposure to weather, climate, and local plant species, particularly for students from faculties whose curricula did not cover these topics in depth. Participants were introduced to weather station instruments, facilities, and surrounding plant species, while also learning practical steps to address climate change and protect flora.

Students developed four main hub components: Weather Instruments Demonstration Site, Tree Monitoring Education Site, Weather History Classroom, and Weather and Climate Change Classroom. Collaboration with TRCRC enabled fieldwork on native plant species, emphasising ecosystem health.

Serving as an interactive educational platform, the initiative enhanced knowledge in meteorology, biodiversity, and conservation through hands-on learning. The programme engaged the wider community, including school visits such as that by Sekolah Menengah Kebangsaan Sultan Abdul Samad on 23 May 2024, and transformed the weather station into a dynamic learning site for university and school students alike. By combining practical fieldwork, environmental literacy, and community engagement, the hub fostered awareness of climate and ecological challenges while equipping participants with the knowledge to respond responsibly to environmental issues.

Below: UM Geography students at the Weather Station Educational Hub, together with students from SMK Abdul Samad



PASUM Students Join Forces with NGO to Rescue Food

A total of ten students from the Foundation in Social Science programme at Universiti Malaya's Centre for Foundation Studies (PASUM) recently collaborated with the non-governmental organisation (NGO) The Lost Food Project to rescue over 100 kilograms of vegetables and fruits from markets and suppliers across the Klang Valley. Operating from a warehouse in Jalan Chan Sow Lin, Kuala Lumpur, the NGO works with nearly 80 charitable bodies to sort discarded produce from selected suppliers and supermarkets, collecting edible items for distribution to residents of designated People's Housing Project (PPR) locations in Kuala Lumpur. The activity, held on 28 February 2024, not only supported vulnerable communities by improving access to nutritious food but also contributed to climate adaptation by reducing food waste, lowering greenhouse gas emissions from organic matter in landfills, and promoting more sustainable resource use.



Right and below: PASUM students rescuing vegetables and fruits for distribution to PPR housing in Kuala Lumpur



Clean Our Plate Project by AIESEC in Universiti Malaya

The Clean Our Plate project, led by AIESEC in Universiti Malaya, tackles food waste by engaging Malaysian youths, refugee students, and community organisations to promote sustainable practices and environmental stewardship. Under the guidance of AIESEC in UM, Malaysian Youth Volunteers (MYVs) participated in the one-month project where they were first equipped with essential skills and knowledge through structured training sessions. These preparations enabled MYVs to engage actively in both community volunteering and youth-focused education initiatives.

The programme progressed through a series of collaborative activities with local NGOs. On 19 July 2024, the Free Tree Society hosted an educational biodiversity workshop at Taman Tugu Nursery, which introduced MYVs to the importance of biodiversity through a guided jungle walk, followed by practical gardening and composting activities. On 23 July 2024, MYVs worked with the TTDI Edible Community Garden, receiving hands-on training in edible planting techniques designed to enhance food security awareness. Collaboration with Feeding the Needy on 1 August 2024 saw MYVs volunteer in Chow Kit by distributing meals and assisting in a street cleaning initiative, directly supporting the welfare of marginalized communities. Later, on 18 August 2024, the TTDI Edible Community Garden once again engaged MYVs, this time in composting practices using kitchen and yard waste, under the guidance of Mr. Kernail.

Building on this foundation, MYVs channelled their knowledge into a series of interactive workshops for secondary school students at Yayasan Chow Kit held between 15 July and 11 August 2024. These workshops aimed to educate students on the food waste issue, practical methods to utilise food waste effectively, and existing initiatives currently practiced to manage food waste. The sessions covered food planning, composting and gardening, eco-enzyme production, zero waste practices, and pitching skills. The programme concluded with a pitching competition, providing students with the opportunity to present innovative ideas to reduce food waste while applying the knowledge acquired throughout the workshops.

Through this combination of structured training, youth-led education, and NGO-led volunteering activities, AIESEC in UM successfully empowered young leaders and strengthened community engagement. The partnerships with the Free Tree Society, TTDI Edible Community Garden, Feeding the Needy, and Yayasan Chow Kit were central to the project's success, each contributing their unique expertise to amplify impact in addressing food waste and promoting environmental responsibility.

Below: AIESEC in UM, together with Malaysian Youth Volunteers (MYVs), visited an urban farm (left) and held a workshop at a secondary school to raise awareness about food waste (right)

