

MALAYSIA

SUMMARY REPORT

Navigating
Malaysia's
Science and
Technology
Diplomacy
Ecosystem





Country Focused Workshop Series 2025

“Navigating Malaysia’s Science & Technology Diplomacy Ecosystem”

Author

Elaine (Yi Ling) Yeap
Infineon Technologies AG

Editors

Réka Tózsza
Asia-Europe Foundation

Linnéa Regnell
Asia-Europe Foundation

Published by

Asia-Europe Foundation (ASEF)
www.asef.org

Note

The information presented in this Summary Report is based on the webinars of the Country Focused Workshop Series on Malaysia for the Asia-Europe Science and Technology Diplomacy Initiative for Young Professionals. The views and information presented in the Summary Report are based on what was shared by the speakers in the webinars as part of the series, and do not necessarily reflect the official position of the Asia-Europe Foundation (ASEF) or its partners for the project. The author bears full responsibility for the content and contextualisation of information and any potential inaccuracies in the webinar series.



INTERNATIONAL INSTITUTE OF
SCIENCE DIPLOMACY
& SUSTAINABILITY



List of Abbreviations

CBDR	Common but Differentiated Responsibilities
ASM	Academy of Science Malaysia
AAM	Advanced Air Mobility
AMIC	Aerospace Malaysia Innovation Centre
CBD	Convention on Biological Diversity
CBDR	Common but Differentiated Responsibilities
CERN	European Organisation for Nuclear Research
COSTI	ASEAN Committee on Science, Technology and Innovation
CTI	Coral Triangle Initiative
CREATE	Campus for Research Excellence and Technological Enterprise
DSTIN	National Science, Technology, and Innovation Policy 2021–2030
EUDR	EU Deforestation Regulation
ESG	Environmental, Social, and Governance
FAO	Food and Agriculture Organisation
FRIM	Forest Research Institute Malaysia
G77	Group of 77
IAEA	International Atomic Energy Agency
IDFR	Institute of Diplomacy and Foreign Relations
ISIS	Institute of Strategic and International Studies Malaysia
IISDS	International Institute for Science Diplomacy and Sustainability
IIUM	International Islamic University Malaysia
IPCC	Intergovernmental Panel on Climate Change
MIGHT	Malaysian Industry Government Group for High Technology
MYSIP	Malaysia-Spain Innovating Program
MySTIE	Malaysian Science, Technology, Innovation, and Economy
MARDI	Malaysian Agricultural Research Institute
MNCs	Multinational Corporations

PPSTI	Policy Partnership on Science, Technology and Innovation
R&D	Research & Development
SEA-EU NET	Southeast Asia-European Union Network
SESAME	Synchrotron-light for Experimental Science and Applications in the Middle East
SKA	Square Kilometre Array
SMEs	Small and Medium Enterprises
STEM	Science, Technology, Engineering, and Mathematics
S&T	Science and Technology
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UPM	<i>Universiti Putra Malaysia</i>
USM	<i>Universiti Sains Malaysia</i>

Country Focused Workshop Series on 'Navigating Science & Technology Diplomacy Ecosystems'

Introduction

The [Asia-Europe Foundation \(ASEF\)](#) launched the [Asia-Europe Science & Technology Diplomacy Initiative for Young Professionals](#) in 2024 to serve as a platform for dialogue, knowledge sharing, and collaboration among young academics, diplomats, and professionals involved in the international science, technology and innovation sectors in Asia and Europe – using Science and Technology Diplomacy as a tool to come together to address global challenges.

In 2024, young leaders from 40+ countries contributed to the research titled [Asia-Europe Science & Technology Diplomacy Report](#), which mapped Science and Technology Diplomacy strategies and actions in the two regions.

Based on the report, this [Country Focused Workshop](#) series titled “Navigating Science and Technology Diplomacy Ecosystems” in 2025 highlighted four (4) selected Asian countries’ diverse Science and Technology Diplomacy approaches, their objectives, and how international partners can engage and collaborate with them.

Each country was introduced in a three (3) session-long workshop series as follows:

Session 1: The role of **Government Strategy and Actions** in the science and technology diplomacy ecosystem;

Session 2: The role of **Academia and Research Institutions** in the science and technology diplomacy ecosystem and how to work with them; and

Session 3: The role of **Businesses** in the science and technology diplomacy ecosystem and how to work with them.

This report is a summary of the three webinars conducted as part of the Country Focused Workshop Series on 'Navigating Malaysia's Science and Technology Diplomacy Ecosystem' which took place between 15-29 April 2025 and organised in partnership with the [International Institute for Science Diplomacy and Sustainability at UCSI University, Malaysia](#) and the [Malaysian Industry-Government Group for High Technology \(MIGHT\)](#).

<u>Section</u>	<u>Page</u>
The Role of Government Strategy and Actions	Page 5
The Role of Academia and Research Institutions	Page 13
The Role of Businesses	Page 21
Conclusions	Page 27

Navigating **Malaysia's** Science and Technology Diplomacy Ecosystem

1. The Role of Government Strategy and Actions

Overview

The first session of the Country-Focused Workshop Series (Malaysia), titled 'The Role of Government Strategy and Actions in Malaysia's Science and Technology (S&T) Diplomacy Ecosystem,' was held on 15 April 2025. ASEF's Linnéa Regnell (Project Executive, Education Department) and Réka Tóza (Director, Education Department) opened the session by highlighting Malaysia's science diplomacy policies and Association of Southeast Asian Nations (ASEAN) 2025 chair role. Additionally, ASEF's Science & Technology (S&T) Diplomacy report, titled 'Mapping Science and Technology Diplomacy in the Two Regions' that was published on 11 April 2025, noted Malaysia's regional leadership and strategic potential in global partnerships.

The session started with 10-minutes of welcome remarks by Mr. Amizal Fadzli Rajali, Governor for Malaysia, Asia-Europe Foundation (ASEF) and Undersecretary, OIC & Regional Cooperation Division, Ministry of Foreign Affairs, Malaysia, who set the stage by outlining Malaysia's S&T diplomacy priorities, emphasising the regional partnerships and global sustainability agendas.

This was followed by a 30-minutes keynote presentation from **Prof. Zakri Abdul Hamid**, Founding Director, Institute for Science Diplomacy and Sustainability, IISDS UCSI, Malaysia, who delved into Malaysia's policy frameworks, including the National Policy on Science, Technology & Innovation (NPSTI), and illustrated their real-world impact through case studies on vaccine diplomacy and green technology. His insights underscored innovation and sustainability as pillars of Malaysia's S&T diplomatic strategy.

The session transitioned to a panel discussion featuring experts from diverse sectors:

- **Dr. Gary Theseira**, Director and Council Member, Climate Governance Malaysia
- **Dr. Nadzri Yahaya**, Director, Minconsult Sdn. Bhd. and former Deputy Secretary-General at the Ministry of Natural Resources and Environment (NRE), Malaysia
- **Prof. Dato' Dr. Nor Aieni Mokhtar**, Chairman of the Board for UMTJaya Holdings Sdn Bhd and former Vice-Chancellor of Universiti Malaysia Terengganu (UMT)
- **Prof. Dr. Siti Hafsyah Idris**, Deputy Dean of Research & Industrial Linkages and Associate Professor of Universiti Teknologi Mara (UITM)

Together, they explored actionable strategies to harmonise Malaysia's domestic Research & Development (R&D) strengths with global challenges, such as climate resilience and digital transformation. The dialogue culminated in a shared vision for Malaysia to emerge as a collaborative leader in S&T diplomacy, leveraging cross-sectoral partnerships to drive equitable, innovation-led growth.

1.1 Overview of Malaysia's role in Science & Technology (S&T) Diplomacy

Malaysia has emerged as a proactive leader in S&T diplomacy, building on a legacy of international collaboration exemplified by its centuries-old diplomatic ties with China. Diplomatic relations between Malaysia and China have a rich history dating back to the 14th and 15th centuries, during the China-Melaka relations. The Sultanate of Malaysia would send delegations to China to pay homage to the emperor, with a type of golden flower known as "*Bunga Emas*". Chinese Admiral and Diplomat, Admiral Zheng He, also played a significant role in fostering these relations through his expeditions to Southeast Asia. Today, diplomatic efforts continue to thrive, with President Xi Jinping recently visiting Malaysia in response to Prime Minister Anwar's earlier visit to China. This exchange highlights the ongoing efforts to strengthen bilateral relations and cooperation between the two nations. Today, this long history helps Malaysia to work together globally on modern S&T projects, sharing ideas and goals for growth and development. For example, Malaysia partners with multilateral organisations, such as ASEAN, United Nations (UN) platforms, targeted scientific consortia, and bilateral partnerships with various countries.

Malaysia has positioned itself as a proactive leader in S&T diplomacy, particularly within ASEAN and global sustainability forums. The country's [National Science, Technology, and Innovation Policy \(DSTIN 2021–2030\)](#) serves as its cornerstone, emphasising innovation in green technology, digital transformation, and advanced manufacturing. As the ASEAN Chair in 2025, Malaysia is driving initiatives like the "ASEAN Technology Startup Ignite," which aims to unify regional startup ecosystems through collaboration and investment. Historically, Malaysia has advocated for the Global South's interests in multilateral agreements, such as the 1992 Earth Summit, where it championed principles like Common but Differentiated Responsibilities (CBDR) to balance developmental equity with environmental accountability. **These efforts highlight Malaysia's dual focus on domestic technological advancement and international advocacy for equitable resource distribution.**

In alignment with the American Association for the Advancement of Science (AAAS) Science Diplomacy Framework in 2010, Malaysia's integration of science and global relations is exemplified through three frameworks: Science in Diplomacy (applying science to ease international tensions), Diplomacy for Science (advancing research via global cooperation), and Science for Diplomacy (using science to foster alliances and goodwill), as detailed in Table.

Table 1. Three dimensions of science diplomacy in Malaysia		
Science in diplomacy	Using science to improve international relations	For example, Malaysia utilises science in diplomacy to ease regional tensions, exemplified by its leadership in the science-driven Coral Triangle Initiative (CTI) for shared marine conservation and participation in ASEAN haze mitigation efforts.
Diplomacy for science	Promoting international cooperation to support scientific projects	Through diplomacy for science, it actively fosters regional scientific cooperation,

		notably via ASEAN platforms like ASEAN Committee on Science, Technology and Innovation (COSTI) and the ASEAN Centre for Biodiversity (ACB), and ASEAN Technology Startup Ignite.
Science for diplomacy	Using science as soft power to achieve diplomatic goals and build goodwill	Malaysia employs science for diplomacy as soft power, consistently championing Global South equity and principles like Common but Differentiated Responsibilities (CBDR) in UN forums (Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC)) and the Group of 77 (G77)+China, building goodwill and positioning itself as a credible mediator.

Malaysia complements these international engagements with a strong domestic foundation, adopting a “whole-of-society” approach that brings together government, academia, industry, civil society and youth. This model supports coordinated action on issues such as climate change, biodiversity protection, and technological innovation. Initiatives that blend grassroots participation with regional corporate, such as community-led haze mitigation efforts and ASEAN innovation programmes, demonstrating how Malaysia links local expertise with broader global goals. Through these combined efforts, Malaysia positions itself as a constructive bridge between developed and developing countries, contributing scientific expertise, championing equity, and fostering collaborative solutions in regional and international diplomacy.

1.2 Opportunities for Malaysia in S&T Diplomacy

Malaysia's strategic location, biodiversity, and youth talent offer significant opportunities. The country's marine ecosystems, part of the CTI, provide a foundation for sustainable tourism and biotech innovation. During the session, Prof. Nor Aieni emphasised the potential of ocean-based carbon sequestration and seaweed farming to drive both ecological and economic gains. Youth engagement is another untapped resource; programmes like the UN Ocean Decade's "Early Career Ocean Professionals" aim to mobilise young leaders in science literacy and policy advocacy. Additionally, partnerships with the European Union (EU), such as Horizon Europe projects in precision agriculture and renewable energy, could position Malaysia as a hub for green tech innovation in Southeast Asia. By leveraging these assets, Malaysia can transition from a regional player to a global influencer in S&T diplomacy.

Table 2. Malaysia's S&T Diplomacy Priorities (2023–2030)		
Priority Areas (non-exhaustive)	Objectives	Examples/Initiatives
Climate Resilience	Mitigate climate risks, enhance adaptation strategies	ASEAN Technology Startup Ignite, National Adaptation Plan
Blue Economy	Promote sustainable marine resource use	Coral Triangle Initiative (CTI), marine biotechnology R&D
Digital Innovation	Foster tech startups and digital infrastructure	KL20 Summit (startup ecosystem), <i>MyDigital Nasional</i> blueprint
Global Equity	Advocate for fair resource distribution in global agreements	Opposition to EU deforestation regulations, CBDR advocacy
Youth Engagement	Empower youth in S&T through education and innovation	UN Ocean Decade's Early Career Ocean Professionals, university-industry partnerships

"Science diplomacy bridges nations, cultures, and ideas, fostering collaboration on global challenges while promoting peace, equity, and sustainability."

Mr Amizal Fadzli Rajali

1.3 Challenges in Malaysia's S&T Diplomacy

Malaysia's S&T diplomacy faces several systemic challenges. A critical issue is the lack of institutional capacity, particularly in training negotiators who combine technical expertise with diplomatic acumen. Dr. Nadzri, a former government official, noted that many negotiators "learn on the job," leading to fragmented institutional memory. Governance fragmentation further complicates efforts, as overlapping federal and state laws, coupled with weak coordination between ministries, academia, and industries, hinder cohesive policy implementation. Equity gaps in global partnerships also persist, exemplified by the EU's deforestation regulations, which disproportionately affect Malaysian palm oil exports without addressing historical imbalances in environmental responsibility. These challenges underscore the need for structural reforms to strengthen Malaysia's diplomatic and scientific infrastructure.

In addition, Prof. Dr. Siti Hafsyah highlighted systemic challenges faced by Malaysia and many nations, addressing intertwined national and global issues like environmental degradation and infrastructure gaps. Key points highlighted were fragmented regulations, insufficient infrastructure, governance inconsistencies, and systemic reliance on unsustainable practices as critical barriers. The discussion advocated for holistic strategies, emphasising multi-dimensional solutions integrating policy reform, technological innovation, and community-driven change. As she also noted, 'Laws alone won't stop plastic waste', where success demands bridging policy, technology, and community engagement.

"Malaysia's negotiators often lack institutional memory. We need long-term experts, not rotating officials, to master complex treaties like the Paris Agreement."

Dr. Nazri Yahaya

1.4 Next Steps for Malaysia's Global S&T Leadership

To address these gaps, Malaysia requires targeted support in three areas.

First, capacity-building programmes are essential to train negotiators and policymakers in science diplomacy. Dr. Nadzri emphasised the needs to bridge gaps between policymakers ("soft sciences") and scientists ("hard sciences") and advocated for sustained capacity-building to institutionalise expertise, preventing knowledge loss from frequent bureaucratic transfers. For example, he stressed that there is need to offer specialised courses or master's programs to cultivate long-term expertise that aligns Malaysia's knowledge base with international best practices, enabling mutual learning with global partners.

Second, increased funding for R&D and blended financing models (e.g., public-private partnerships) could scale projects like climate-resilient infrastructure in vulnerable regions such as the Mekong Delta, as mentioned by Dr. Gary. He also emphasised that Malaysia's negotiators often lack institutional memory. Overall, Malaysia needs long-term experts, not rotating officials, to master complex treaties like the Paris Agreement. To fight EU deforestation regulations, Malaysia must prove sustainable palm oil practices with data, not just rhetoric and engage in transparent data-sharing with international regulators to strengthen trust and collaboration.

Third, equitable international partnerships, particularly with the EU, are critical for technology transfer. Prof. Nor Aieni cited opportunities in marine tech collaboration, such as satellite mapping and sustainable aquaculture, to bolster Malaysia's blue economy. These steps would enhance Malaysia's ability to innovate while advocating for fair global policies. The blue economy isn't just about resources, it's about empowering coastal communities through science, technology, and equitable partnerships. ASEAN-EU collaboration in marine tech, like satellite mapping and sustainable aquaculture, can turn ocean challenges into opportunities and allow Malaysia and partner countries to co-develop shared solutions.

The workshop highlighted poverty's intersection with environmental and economic policies in Malaysia, noting that while oil palm cultivation drastically reduced poverty (from 47% post-independence to under 10% today), it incurred ecological costs like deforestation. Prof. Nor Aieni emphasised the blue economy's potential to uplift coastal communities through sustainable marine tech and entrepreneurship, while Prof. Dr. Siti Hafsyah stressed the need for inclusive circular economy policies to protect informal waste pickers, whose livelihoods depend on plastic recycling. Key takeaways underscored the necessity of balancing growth with sustainability, integrating marginalised groups into green transitions, and fostering partnerships that help Malaysia and neighbouring countries learn from each other's development-environment trade-offs.

Looking ahead, Malaysia aims to institutionalise S&T diplomacy through ASEAN-centric frameworks and global advocacy. During its 2025 ASEAN Chairmanship, the country made its commitments to climate resilience, digital transformation, and startup ecosystems, aligning with ASEAN's broader economic goals. The Asia-Europe Foundation (ASEF)'s Science and Technology Diplomacy Report, titled 'Mapping Science & Technology Diplomacy Strategies and Actions in the Two Regions', which maps strategies across 41 countries across Asia and Europe, further guides Malaysia's bilateral and multilateral engagements by enabling comparison and mutual lesson-sharing across regions. By fostering regional cohesion and advocating for equitable global policies, Malaysia seeks to cement its role as a bridge between Asia and Europe and strengthen cross-regional learning in tackling shared challenges such as climate change and plastic pollution.

Table 3. Roadmap of Malaysia's Science Diplomacy (2025 – 2030)		
2024	2025 (ASEAN Chairmanship)	2030
• Propose an ASEAN Centre for Science Diplomacy • Establish negotiator training programs	• Host ASEAN Startup Summit • Synergise regional plastic waste treaty	• Attract higher private sector R&D funding • Position as ASEAN's tech hub

1.5 Summary

Malaysia's S&T diplomacy journey hinges on addressing institutional weaknesses, securing sustainable funding, and nurturing equitable partnerships. The country's ASEAN leadership and rich biodiversity provide a platform to advance innovation while advocating for Global South interests. By investing in capacity-building, youth empowerment, and cross-border collaboration, Malaysia can transform its diplomatic and scientific landscape, ensuring it remains a key player in shaping a sustainable and technologically inclusive future.

In overall, the workshop highlighted Malaysia's role in advancing science diplomacy, emphasising bridging gaps between scientific and policy communities, blended financing for climate resilience, and integrating traditional knowledge with tech transfer for marginalised communities. Key recommendations included institutionalising negotiation training, ASEAN collaboration via "Science Diplomacy Accelerators," and researcher exchanges that build shared expertise across the region.

In terms of opportunities for collaboration, Malaysia's 2025 ASEAN Chairmanship became a pivotal platform for joint action, particularly in climate resilience, digital transformation, and startup ecosystem development through initiatives like the ASEAN Technology Startup Ignite. The country's strategic location as a gateway to Southeast Asia, coupled with its biodiverse marine ecosystems, offers avenues for sustainable tourism, marine biotech innovation, and cross-border conservation partnerships that promote regional knowledge-sharing.

Additionally, Malaysia's focus on youth talent and green tech aligns with ASEAN's economic integration goals, inviting governments to harmonise policies, businesses to co-invest in smart infrastructure, academia to drive R&D for sustainability, and NGOs to amplify grassroots engagement. These priorities position Malaysia as a dynamic partner for regional and global stakeholders and as a hub for shared learning and co-development of S&T solutions.

Table 4. Strategic Review for Session 1: Internal and External Dynamics	
Strengths	Challenges
• Biodiversity-rich ecosystems • Strategic ASEAN leadership • Strong academic R&D output	• Fragmented governance • Low institutional memory • Dependency on commodity exports
Opportunities	Threats
• Funding partnerships • Youth-driven innovation trainings and programs / researcher exchanges • ASEAN collaboration programs (e.g.: Science Diplomacy Accelerator) • Blue economy growth	• Climate-induced economic shocks • Global policy inequity (e.g.: EU Deforestation Regulation (EUDR))

1. The Role of Academia and Research Institutions

Overview

The second session of the Country-Focused Workshop Series (Malaysia) was held on 22 April 2025, delving deeper into collaborative strategies for advancing Malaysia’s Science and Technology (S&T) diplomacy within academia.

The session began with a 30-minute keynote presentation by **Prof. Mohamad Osman**, Deputy Director of the International Institute of Science Diplomacy and Sustainability (IISDS), who explored frameworks for aligning national innovation agendas with global diplomatic priorities. Then, the session was followed by a dynamic panel discussion featuring multidisciplinary insights from:

- **Prof Khatijah Yusoff**, Senior Fellow and Council member of the Academy of Sciences Malaysia (ASM), Vice-President of the Islamic World Academy of Sciences (IAS) and Vice-President of The World Academy of Sciences (TWAS)
- **Prof Abhi Veerakumarasivam**, Provost of Sunway University and a molecular geneticist in genetics, bioethics, and science communication
- **Prof. Dr Mohd Kushairi Mohd Rajuddin**, Senior Associate at the Malaysia Industry-Government Group for High Technology (MIGHT) and an Adjunct Professor at the UCSI University’s International Institute for Science Diplomacy & Sustainability (UCSI-IISDS)
- **Prof Surinderpal Kaur Chanan Singh**, Professor and the Dean of the Faculty of Languages and Linguistics at the Universiti Malaya, Malaysia.

Overall, the session fostered dialogue on leveraging Malaysia’s academic and industrial strengths to solidify its role as a bridgebuilder in global S&T ecosystems.

2.1 Overview of the Role of Academia in S&T Diplomacy in Malaysia

Malaysia’s academia serves as a critical bridge between scientific research and policymaking, translating complex findings into actionable strategies for national and global challenges. Institutions like universities and research centres generate evidence-based knowledge, advocate for its integration into policy, and foster international collaborations. Table 6 below shows the key contributions of Malaysia’s research institutions in Science Diplomacy.

Table 5. Roles of Malaysia’s research institutions in science diplomacy	
Key Roles	Empirical Examples
1. Facilitating international scientific collaboration	• International example: As a CERN (European Organisation for Nuclear Research) member – A model of science diplomacy, CERN unites scientists from over 100 countries, fostering cooperation beyond political tensions

	• Regional example: COSTI – promotes joint R&D among Southeast Asian nations, addressing regional issues like disaster resilience and infectious diseases • Examples of national initiatives and bilateral collaborations: ◦ Malaysia's participation in the Square Kilometre Array (SKA) – strengthens global astronomy research while positioning Malaysia as a key player in big science projects ◦ Universiti Malaya's partnership with Japan on tsunami research – enhances bilateral ties while improving disaster preparedness ◦ Malaysian Agricultural Research Institute's (MARDI) collaboration with Food and Agriculture Organisation (FAO) – supports sustainable agriculture in developing nations, elevating Malaysia's diplomatic influence
2. Advancing science-based policy and diplomacy	• International example: Intergovernmental Panel on Climate Change (IPCC) – scientist worldwide contribute data that shapes UN climate agreements (eg: Paris Accord) • Regional example: APEC's Policy Partnership on Science, Technology and Innovation (PPSTI) – guides regional tech policies, balancing economic growth with sustainability • National example: Institute of Strategic and International Studies (Institute of Strategic and International Studies Malaysia (ISIS Malaysia)) – integrates science into foreign policy dialogues, such as maritime security in the South China Sea
3. Building capacity and knowledge exchange	• International example: Fulbright Scholar Program – facilitates U.S.-Malaysia academic exchanges, strengthening long-term bilateral ties • Regional Example: EU-Southeast Asia collaboration (SEA-EU NET) – enhances research mobility between ASEAN and Europe • National Example: ◦ <i>Universiti Sains Malaysia</i> (USM)'s "Global Science Diplomacy" course – prepares students for international science-policy careers ◦ <i>Majlis Amanah Rakyat</i> (MARA)'s technical training for Global South scientists – positions Malaysia as a leader in developmental science diplomacy
4. Promoting science for peace and conflict resolution	• International example: Synchrotron-light for Experimental Science in the Middle East (SESAME) – unites scientists from Israel, Palestine, and Iran • Regional example: Mekong River Commission's joint research – mitigates water conflicts between Thailand, Vietnam and Cambodia • National Example: ◦ <i>Universiti Putra Malaysia</i> (UPM)'s work on transboundary haze – collaborates with Indonesia and Singapore to address forest fires ◦ Malaysian Nuclear Agency's International Atomic Energy Agency (IAEA) partnerships – promotes peaceful nuclear energy use in Southeast Asia

5. Enhancing national reputation and soft power	• International example: Singapore's CREATE (Campus for Research Excellence and Technological Enterprise) – attracts global talent, boosting its innovation diplomacy • Regional example: Thailand's Chulalongkorn University as a ASEAN health research leader – strengthens its regional influence • National example: ◦ International Islamic University Malaysia (IIUM)'s halal science centre – sets global standards, enhancing Malaysia's Islamic science diplomacy ◦ Forest Research Institute Malaysia (FRIM) – recognised worldwide for tropical biodiversity conservation
--	--

For example, Malaysian scientists contribute to global initiatives like the IPCC, providing data that informs agreements such as the Paris Accord. The Academy of Sciences Malaysia (ASM) also plays a pivotal role by advising the government on STEM education, biodiversity, and green energy through “Foresight” studies and policy consultations. In addition, the [10-10 Malaysian Science, Technology, Innovation, and Economy \(MySTIE\)](#) framework align scientific research with national economic goals.

Additionally, Malaysian scientists like Prof. Zakri have played pivotal roles in global forums, including UN biodiversity and climate negotiations, cementing the country's role in shaping international environmental governance. Furthermore, programmes like the Global South Science Diplomacy Initiative by UCSI's International Institute for Science Diplomacy and Sustainability (IISDS) train negotiators to blend scientific expertise with diplomatic skills, ensuring science informs Malaysia's regional and global engagements.

In overall, global S&T diplomacy initiatives are increasingly bolstering Malaysia's S&T capabilities and capacities, positioning the country to leverage international collaboration for strategic advancements. However, Malaysia must transition from capability to credibility by strategically coordinating its institutional assets to maximise impact in global science diplomacy. Bridging structural gaps and leveraging academia's multidisciplinary role are vital for Malaysia to transform its scientific potential into diplomatic influence.

"Malaysia's higher education system is well-poised to lead regional science diplomacy. We have the people, academia, and research capacity to make this happen"

Prof Mohamad OSMAN

2.2 Challenges of Academia and Policymakers in S&T Diplomacy

Collaboration faces hurdles due to misaligned priorities, bureaucratic delays, and communication gaps. Prof. Abhi highlighted about the systemic disconnect between academia and diplomatic institutions. While academia prioritises long-term knowledge production and peer validation, diplomacy demands timely, policy-relevant insights aligned with national interests. This temporal

mismatch is worsened by bureaucratic inertia, weak science translation capacities, and fragmented research funding.

Malaysia's key challenge is constrained R&D investment. For example, Malaysia's R&D expenditure (~1.4% of GDP) lags regional peers like Singapore (~3.4%) and South Korea (~4.9%). High turnover in diplomatic roles also disrupts institutional memory, as noted by Dr. Nadzri in the first workshop on 15 April 2025, who highlighted the difficulty of retaining negotiators with both technical and policy expertise. Geopolitical tensions, such as U.S.-China restrictions on AI and biotechnology collaborations, further limit cross-border research opportunities.

Figure 1. Malaysia's research metrics against major Asian and ASEAN countries

Malaysia's Research Metrics Against Major Asian and ASEAN Countries

Research & Innovation: Malaysia vs. Asia (2022-2023 Data)

Metric	Malaysia	Singapore	S. Korea	Japan	China	Thailand	Vietnam	Indonesia
R&D Spending (% GDP)	1.44%	3.41%	4.93%	3.26%	2.4%	1.33%	0.53%	0.28%
Researchers (per million)	2,500	7,000	8,000	5,300	1,800	1,400	900	500
Scientific Publications	55,000	48,000	120,000	150,000	950,000	30,000	18,000	12,000
Citations per Paper	6.5	12.1	10.2	9.8	8.3	6.1	5.9	4.7
Patents Filed (WIPO)	2,500	15,000	220,000	290,000	1.6M	1,800	1,200	800
Top-200 Universities	3 (UM, UKM, USM)	2 (NUS, NTU)	2 (SNU, KAIST)	2 (Tokyo, Kyoto)	2 (Tsinghua, Peking)			
Global Innovation Index (Rank)	36	5	10	13	12	43	46	61

Data sources: UNESCO, WIPO, QS Rankings, Scopus, GII 2023.

Key Points:

- ASEAN Leader: Malaysia ranks 1 in ASEAN for universities & innovation (after Singapore).
- R&D Gap: Spends less than half of Singapore/Korea/Japan on R&D.
- Quantity ≠ Quality: Publishes more than ASEAN peers but with lower citation impact.
- Patent Deficit: Stronger than ASEAN but dwarfed by East Asia.

Nevertheless, Malaysia's contributions to science diplomacy are evident in its research leadership and policy integration. **Ranked second in ASEAN for research output and innovation (after Singapore), the country excels in fields like tropical infectious diseases and renewable energy.** Domestically, platforms like the Malaysia Open Science Alliance promote transparency and policy-relevant research, while internationally, Malaysia has influenced frameworks such as the Paris Agreement and Sustainable Development Goals (SDGs). For example, Malaysia influenced the Paris Agreement framework by spearheading developing nations' advocacy for the CBDR principle during negotiations, thereby securing differentiated obligations that mandate stronger action and support from developed countries while ensuring flexibility and assistance for developing economies. The country also hosts high-level dialogues, including United Nations Educational, Scientific and Cultural Organisation's (UNESCO) Global Ministerial Dialogue on Science Diplomacy, and partners with entities like the EU on climate governance and the UK on the Newton-Ungku Omar Fund for joint research projects.

2.3 Policy, Funding and Collaborative Framework

Structured platforms like think tanks, technical committees, and multistakeholder networks align research with policy needs. The ASM leverages its 10-10 MySTIE Framework to map emerging technologies (e.g., AI, biotechnology) to economic sectors, guiding national strategies. The Newton-Ungku Omar Fund, a UK-Malaysia partnership, jointly financed by the UK government (via the UK Department for Business, Energy and Industrial Strategy) and the Malaysian government (via the Ministry of Science, Technology and Innovation, MOSTI), funds joint projects on sustainable cities and public health, blending academic research with diplomatic goals. Regionally, the CTI unites six Asia-Pacific nations, including Malaysia, Indonesia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste, through task forces that combine marine science with policy, addressing illegal fishing and coral conservation.

Table 6. Key international collaborations involving Malaysia		
Initiative	Objective	Outcome
CERN Associate Membership	Access particle physics data	Enhanced research capabilities in frontier science through collaborations involving universities such as UPM and USM, enabling Malaysian researchers to contribute to global knowledge in areas like particle physics and advanced materials research
Newton-Ungku Omar Fund	UK-Malaysia R&D partnerships	Joint projects in health, energy, and urban development. These collaborations built technical capacity for Malaysian institutions and created long-term research partnerships with UK universities
Coral Triangle Initiative (CTI)	Regional marine conservation	Policy frameworks for sustainable fisheries across 6 Asia-Pacific nations. For example, UMS hosted CTI technical workshops, sharing Malaysian models for mangrove conservation and reef resilience with Pacific Island nations

Global collaborations amplify Malaysia's scientific influence and attract funding. Participation in EU Horizon 2020 enables universities like *Universiti Putra Malaysia* (UPM) to work on renewable energy and precision agriculture. In addition, organisations such as ASM and Malaysian Industry Government Group for High Technology (MIGHT), integrate academia, industry, and policymakers to design tech-driven urban solutions. These partnerships position Malaysia as a regional hub for innovation and diplomacy.

Beyond these initiatives, Malaysia is also addressing ethical AI frontiers, and as also highlighted by Prof. Surinderpal Kaur, ethical AI governance requires interdisciplinary efforts. This is where *Universiti Malaya* (UM) plays an important role in training linguists and social scientists to address algorithmic bias, ensuring inclusivity for marginalised communities and preservation of the Southeast Asian languages in the AI systems. In addition, the proposed curriculum for Science Diplomacy education, advocated by IISDS, aims to institutionalise regional collaboration during Malaysia's 2025 ASEAN chairmanship. Therefore, science diplomacy collaborations between academia and government-led

initiatives are essential, not only to ensure capacity building but also to maximize their diplomatic and scientific impact.

Looking ahead, Malaysia plans to expand its science diplomacy efforts through ASEAN-centric initiatives and technological innovation. The government also seeks to institutionalise science diplomacy by training diplomats through programs like IISDS's Science Diplomacy for the Global South and advocating for science attachés in embassies. Partnerships with the Global South, particularly in Africa and Asia, will prioritise climate resilience and health equity, while public engagement campaigns, such as the Science Media Centre Malaysia (ASM initiative), aim to combat misinformation and foster scientific literacy. This shows that academia can partner directly on practical and solution-oriented projects addressing these critical global challenges, leveraging Malaysia's regional positioning.

Embedding science diplomacy in education, enhancing public engagement, and empowering youth are key. Sunway University's Jeffrey Sachs Centre on Sustainable Development trains students in SDG-driven policy, while UM's Medical Humanities Initiative bridges health research with public communication to counter misinformation. Youth programs like the UN Ocean Decade's Early Career Ocean Professionals engage young leaders in marine conservation. Prof. Abhi emphasised the need for "diplomats who think like scientists and scientists who understand diplomacy," advocating for curricula that blend ethics, policy, and innovation. This vision creates a compelling mandate for more academia collaborations, blending ethics, policy, and innovation, shaping globally engaged scholars and practitioners.

In short, Malaysia demonstrates established leadership in various STEM governance and conservation, alongside a strategic focus on ASEAN-centric collaboration. These partnerships align directly with urgent global priorities such as SDGs, climate action, health equity, and science literacy, offering academia a chance to engage in impactful, regionally anchored research and capacity building with a committed partner. The table below further details these actionable areas for cooperation:

Table 7. Opportunities for External Academic Partners and Research Institutions to Collaborate with Malaysia in S&T Diplomacy		
Opportunity Areas	Description / Examples	Potential External Partners
Climate Governance & Data Sharing	Contributions to global climate frameworks (e.g., IPCC, Paris Agreement) through data sharing and policy input	Climate-focused multilateral organisations, regional climate alliances
STEM Education Development	Developing STEM education, biodiversity, and green energy through foresight studies and research Aligning R&D (e.g., AI, biotechnology) with national economic goals via frameworks such as MySTIE initiative	International educational bodies, ASEAN policy networks, Development banks, Industries, Multilateral economic organisations

Advanced Physics Research	Collaboration in particle physics through associate membership with global research organisations	International physics consortia, member states of research initiatives
Marine Biodiversity Conservation	Regional leadership in marine ecosystem preservation (e.g., Coral Triangle Initiative)	Regional environmental alliances, global conservation NGOs, marine research networks
Sustainable Urban Development	Joint R&D projects on smart cities, public health, and green infrastructure	Bilateral development agencies, multilateral urban development platforms
Renewable Energy & Agri-Tech	Collaborations on renewable energy systems and precision agriculture	Industries, agricultural research consortia
Ethical AI Governance	Addressing AI bias and ethical challenges in Southeast Asian contexts through interdisciplinary research Combating misinformation and fostering scientific literacy through media and outreach campaigns	Global AI ethics organisations, regional tech governance forums, academic networks, international science communication networks, public education initiatives
Global Health Equity	Partnerships on vaccine distribution, pandemic preparedness, and health system strengthening	Global health organisation, multilateral vaccine alliances
Science Diplomacy Capacity Building	Training programs for negotiators and diplomats to integrate science into policy and diplomacy	Global alliances, regional diplomatic networks, international training institutions

“The biggest challenge is differing priorities: academics focus on long-term knowledge generation, while diplomats seek quick wins. Bridging this gap requires mutual understanding and safe spaces for dialogue.”

Prof Khatijah Yusoff

2.4 Summary

Session 2 highlighted that Malaysia's academia and research institutions are pivotal in advancing science diplomacy, but impact is constrained by low R&D funding, coordination gaps, and a timing mismatch between research and policy needs. Malaysia's 2025 ASEAN chairmanship was a timely window to push ethical AI, climate resilience, and stronger science advisory roles, through regional platforms. The session stressed building trust and faster science-to-policy translation, so science remains core to diplomacy and development.

Overall, S&T diplomacy needs political commitment, practical training, and scaled partnerships (e.g.: International Institute for Science Diplomacy and Sustainability-Institute of Diplomacy and Foreign Relations (IISDS-IDFR)). Making S&T a core foreign-policy tool will help Malaysia use soft power to address transboundary issues such as climate change and plastic waste and deliver regional public goods.

In short, Malaysia's regional leadership and track record in fields like tropical infectious disease control and renewable energy create clear entry points for joint R&D and policy-aligned collaboration via existing EU/UK and UNESCO-linked frameworks. Future collaboration could focus on Malaysia's plans to institutionalise science diplomacy, through training programmes like IISDS's Science Diplomacy for the Global South and embedding science attachés in embassies, while prioritising climate resilience, health equity, and ASEAN-centric innovation.

Malaysia's 2025 ASEAN chairmanship was a pivotal moment to institutionalise S&T diplomacy through coordinated action, strategic funding, and inclusive discourse, transforming structural strengths into tangible regional and global influence. Partnering with Malaysian universities and research bodies offers distinct, tangible advantages, such as gaining direct pathways to policy-aligned research impact within fast-growing ASEAN and Global South regions, getting access to flagship initiatives focused on ASEAN climate resilience, and leveraging Malaysia's established networks and priorities.

Table 8. Strategic Review for Session 2: Internal and External Dynamics

Strengths	Challenges
• Strong university network • Strategic global partnerships • Joint research-policy fellowships	• Low R&D funding • Bureaucratic hurdles / lack of intersectoral coordination
Opportunities	Threats
• ASEAN leadership (2025 chairmanship) • Growing focus on ethical AI • Science advisory roles in foreign missions	• Geopolitical tension (e.g.: South China Sea) • Resource constraints

2. The Role of Businesses

Overview

The third session, part of the Country-Focused Workshop Series (Malaysia), gathered experts to explore synergies between government strategy, industry innovation, and sustainability in advancing Malaysia's S&T diplomacy. The session featured a 30-minute keynote address by **Mr Zakwan Zabidi**, Senior Vice President, Malaysian Industry-Government Group for High Technology (MIGHT), who drew on his dual roles as an Adjunct Professor at UCSI University's International Institute of Science Diplomacy and Sustainability and Elite Fellow at *Universiti Malaya* to outline strategies for public-private collaboration in high-tech sectors.

Following the keynote, a panel discussion delved into actionable pathways for S&T diplomacy, featuring insights from:

- **Mr Zakwan Zabidi**, Senior Vice President, Malaysian Industry-Government Group for High Technology (MIGHT): Reinforcing the need for cross-sectoral partnerships to drive Malaysia's global tech competitiveness.
- **Ms Aznie Rahim**, Researcher, Selangor Climate Adaptation Centre; Consultant, World Bank: Highlighting climate resilience and sustainable development as pillars of Malaysia's S&T agenda.
- **Prof Zakri Abdul Hamid**, Founding Director, Institute for Science Diplomacy and Sustainability, UCSI, Malaysia: Emphasising policy coherence and international frameworks to amplify Malaysia's role in global science diplomacy.

The dialogue emphasised on themes such as green technology adoption, equitable innovation ecosystems, and Malaysia's strategic positioning in ASEAN and OIC collaborations.

3.1 Overview of Businesses' Role in Malaysia's S&T Diplomacy Ecosystem

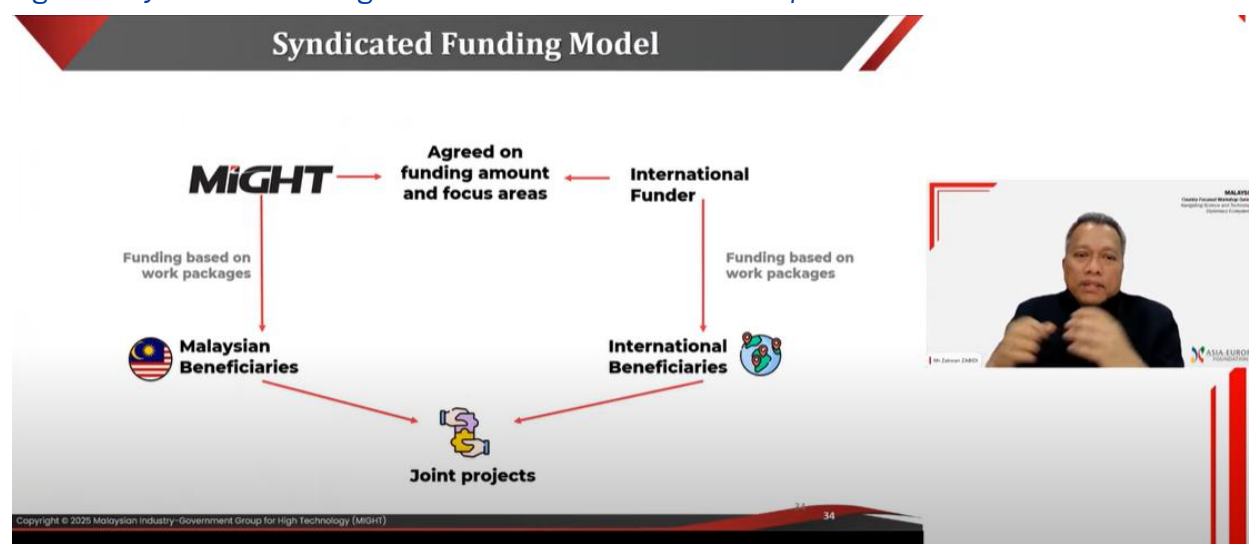
The private sector's collaboration with academia and government requires structured platforms that align incentives, resources, and expertise. For example, MIGHT exemplifies this through its public-private partnership model. For example, MIGHT, as a government-established agency, illustrates effective public-private partnerships by bringing together academia, industry, and policymakers to align research priorities with national strategic goals. Initiatives like the Aerospace Malaysia Innovation Centre (AMIC) involve industry giants (e.g., Rolls-Royce), academia, and government in co-funding R&D projects. These collaborations address industry needs while training talent (e.g., PhDs in aerospace tech). Similarly, joint international funding programmes (e.g., Malaysia-Spain Innovating Program (MYSIP)) syndicate resources between governments and businesses to solve shared challenges like sustainable cities or AI-driven healthcare. For example, Mr. Zakwan highlighted **MIGHT's important role in "match funding" projects, where governments and corporations pool resources for cross-border**

innovation. In addition, Ms. Aznie emphasised co-designing solutions (e.g., smart water tech) to ensure scientific research aligns with business realities and policy frameworks.

Figure 2. International collaboration through various match funding programmes and initiatives

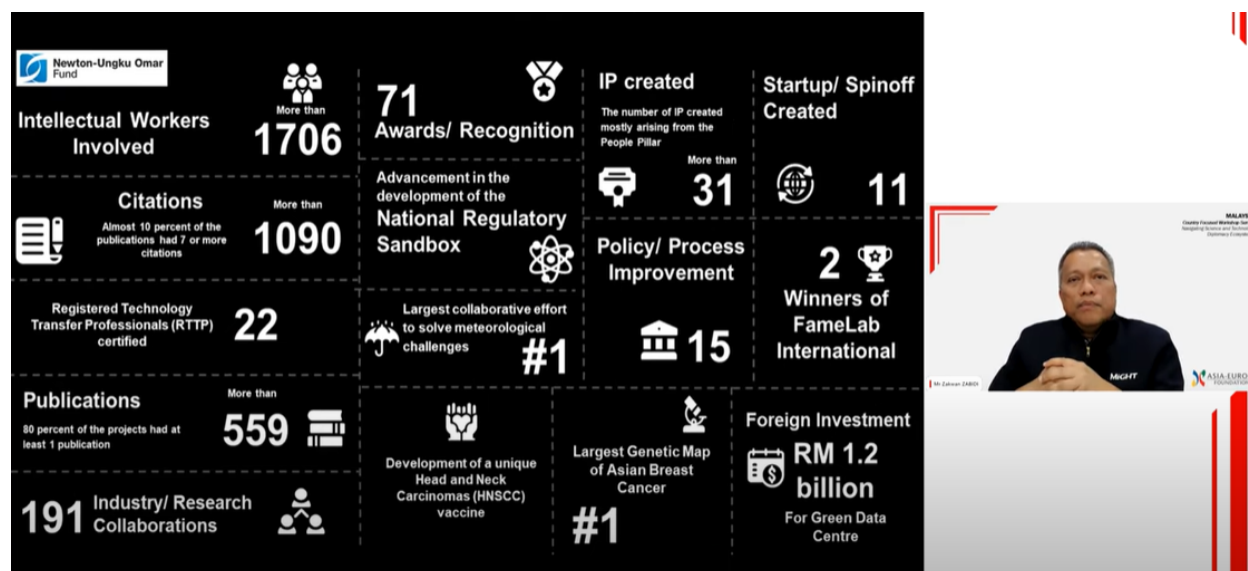


Figure 1. Syndicated Funding Model of International Partnerships



In addition, today, the Newton-Ungku Omar Fund has achieved several notable outcomes, including the development of innovative technologies such as smart nanocrystals and AI-powered mental health detection, creation of sustainable solutions like heat insulation paint and organic waste treatment. Through these programmes and initiatives, Malaysia continues to foster international collaboration between universities, research institutions, and industries, ultimately promoting science diplomacy and addressing global challenges through joint projects and knowledge sharing.

Figure 2. Impact of the Newton-Ungku Omar Fund



3.2 Challenges of Businesses in S&T Diplomacy

Businesses encounter regulatory complexity, funding gaps, and talent shortages when navigating science diplomacy. For example, Mr. Zakwan highlighted how cutting-edge technologies like Advanced Air Mobility (AAM) face regulatory inertia in Malaysia, where policies lag behind innovation. Small and Medium Enterprises (SMEs), in particular, struggle to interpret technical scientific data or comply with evolving Environmental, Social, and Governance (ESG) standards due to limited resources. Talent gaps further compound these issues, as declining Science, Technology, Engineering, and Mathematics (STEM) interest threatens R&D scalability. Prof. Zakri mentioned some of Malaysia's past failures in academia-industry-government collaboration, attributing them to institutional egoism and "elite capture" by universities. He underscored the marginalisation of SMEs in science diplomacy and flagged Malaysia's chronically low R&D spending (~1.4% of GDP) as a structural flaw. Rebuilding trust through product-driven dialogues and inclusive models, he argued, is essential to avoid Malaysia becoming a bystander in the US-China-EU tech rivalry.

Additionally, corporate priorities often clash with diplomatic or academic timelines, where businesses seek rapid returns, while scientific research and policy reforms unfold over years. Ms. Aznie stressed the need for "demystified" science communication, as overly technical government reports alienate private-sector stakeholders. She warned against reducing ESG compliance to superficial "box-ticking," advocating instead for SDG-aligned, co-designed initiatives that prioritise tangible outcomes. Transformational partnerships such as pilot projects and co-creation models must replace symbolic MOUs to drive climate resilience and innovation.

"Collaboration must evolve from transactional to transformational. Businesses, researchers, and policymakers must engage early, not just at the endpoint."

Ms Aznie Rahim

The subsequent dialogue then delved into systemic challenges hindering effective private-public collaboration, including the risks of superficial ESG commitments ("greenwashing"), fragmented partnerships, and Malaysia's vulnerable position in global technological competition, particularly in sectors like semiconductor supply chains. The panellists stressed the need for pragmatic reforms, such as institutional redesign to foster equitable and transparent collaboration, and actionable models that align corporate innovation with national diplomatic priorities, for instance, projects focusing on sustainable infrastructure or digital sovereignty.

Table 9. Challenges Faced by Businesses in Science Diplomacy		
Challenge	Description	Mitigation Strategies (Mentioned)
Regulatory Barriers	Emerging tech (e.g., drones) outpaces regulations, causing policies to lag behind innovation	Sandboxing pilots for testing new tech in controlled zones
Funding Gaps	Limited R&D investment (~1.4% of GDP)	Joint funding models (e.g., MIGHT-Tubitak 2.0 Grand Challenge, Newton-Ungku Omar Fund, MYSIP)
Talent Shortages	Declining interest in STEM fields	Government-led STEM education programs
Trust & Alignment	Academia-industry goals mismatch (e.g., irrelevant research)	Co-designing projects with businesses early

3.3 Opportunities of Businesses and Non-State Actors in Science Diplomacy

Policies must prioritise transformational collaboration over transactional partnerships. Ms. Aznie advocated for embedding private-sector participation in national adaptation plans (e.g., climate resilience strategies) and creating agile platforms like the Selangor Climate Adaptation Centre, which translates scientific data into actionable business insights. Prof. Zakri highlighted informal dialogues such as Friends of Sustainable Malaysia, which convene industry leaders, academics, and policymakers to co-develop roadmaps for sustainability. Programs like MIGHT's Venture Tech also nurture startups in high-value sectors by blending government grants with corporate mentorship. Internationally, joint funding models (e.g., Malaysia-UK AI partnerships) align diplomatic goals with corporate innovation, fostering trust through shared risk. However, Prof. Zakri cautioned that top-down frameworks often fail without grassroots engagement, urging incentives for SMEs to adopt ESG practices and participate in science-policy dialogues.

In addition, trust hinges on transparency and shared value creation. **Successful models, like the heat-insulating paint project under the MYSIP, involved stakeholders from ideation to commercialisation, ensuring solutions met real-world housing needs.** Neutral platforms such as the UN Sustainable Development Solutions Network (SDSN) also foster equitable dialogue, allowing businesses to voice challenges while aligning with national agendas. Prof. Zakri emphasised "democratising science"

through accessible formats, like simplified climate risk reports, to engage SMEs. Mr. Zakwan added that regulatory sandboxes (e.g., drone-testing zones) build confidence by allowing businesses to pilot innovations in controlled environments, demonstrating viability to policymakers.

In addition, non-state actors, particularly multinational corporations (MNCs), now drive science diplomacy through financial influence and global networks. Mr. Zakwan noted that tech giants like Microsoft and SpaceX engage directly with governments on AI governance or space policy, often bypassing traditional diplomatic channels. In Malaysia, MIGHT leverages corporate partners (e.g., *Petronas*, *Tenaga Nasional*) to shape national high-tech strategies, blending industrial expertise with public-sector goals. However, Prof. Zakri warned of ethical risks when corporate agendas diverge from national interests, for instance, fossil fuel firms lobbying against climate policies. Despite this, MNCs' R&D investments (e.g., SpaceX \$200B valuation) make them indispensable in solving global challenges. Ms. Aznie stressed the need for accountability frameworks to ensure corporate-driven science diplomacy aligns with sustainability goals, particularly for SMEs navigating ESG pressures.

Table 10. Opportunities for Businesses in S&T Diplomacy		
Opportunity Area	Description / Examples	Potential External Partners
Public-Private R&D Platforms	Structured partnerships (e.g., MIGHT, AMIC) that co-fund R&D in aerospace, AI, and sustainable tech. These platforms align industry needs with academic research.	Governments, multilateral R&D agencies, industry consortia, academic networks
Co-Design with Industry	Collaborative frameworks (e.g., Selangor Climate Adaptation Centre) that translate scientific data into business solutions (e.g., smart water tech).	Industry associations, SMEs, sustainability NGOs, academic think tanks
Talent Development	Government-led programs addressing STEM shortages, upskilling workers, and aligning curricula with industry demands (e.g., aerospace PhDs).	International educational institutions, ASEAN skills councils
Startup Innovation Ecosystems	Venture-building programs (e.g., MIGHT's Venture Tech) that combine grants and corporate mentorship for high-value startups.	Global venture capital networks, startup accelerators, impact investors
Ethical Corporate Engagement	Accountability frameworks that align MNCs' R&D (e.g., AI, space tech) with national sustainability goals and ethical standards.	Industry, ethics boards, ESG-focused investor alliances
SME Capacity Building	Incentivising SMEs to adopt ESG practices and participate in R&D through accessible funding and co-designed projects.	Development agencies (e.g., GIZ), regional SME alliances, industry

Public-Private R&D Platforms	Structured partnerships (e.g., MIGHT, AMIC) that co-fund R&D in aerospace, AI, and sustainable tech. These platforms align industry needs with academic research.	Governments, multilateral R&D agencies, industry consortia, academic networks
---	---	---

3.4 Summary

The workshop highlights the need for transformational collaboration that transcends sectoral silos. Success hinges on addressing funding gaps, simplifying regulatory frameworks, and fostering trust through inclusive platforms. Malaysia’s experience, from MIGHT’s joint ventures to climate adaptation hubs, offers replicable models for integrating businesses into global science diplomacy ecosystems. However, balancing corporate influence with public accountability remains a critical challenge.

In overall, Malaysia’s path to science diplomacy leadership revolves around systemic reforms. Institutionalising private sector engagement, overhauling ESG frameworks for impact, and boosting R&D investment are non-negotiable to avoid regional and global irrelevance. As geopolitical tech rivalries escalate, Malaysia must transition from rhetoric to action, embedding inclusive collaboration, talent development, and ethical innovation into its strategic direction. The window for gradualist reforms is closing; the race for scientific soft power demands decisive, equitable action now.

Table 11. Strategic Review for Session 3: Internal and External Dynamics	
Strengths	Challenges
- Established public-private partnerships (e.g., MIGHT) - Strong sectors like aerospace and high-tech exports - International collaborations (e.g., Newton Fund, Spain, Türkiye) - Focus on sustainability (ESG, SDGs)	- Low R&D investment (~1.4% of GDP) - Regulatory bottlenecks for emerging technologies - Talent gaps in STEM fields - Fragmented coordination between stakeholders
Opportunities	Threats
- Expanding ESG frameworks to engage SMEs. - Leveraging water resources for climate resilience. - Regional partnerships (ASEAN-EU science diplomacy). - Democratising science through platforms like adaptation hubs	- Geopolitical tensions (e.g., South China Sea). - Corporate interests overshadowing national goals. - Global competition for tech dominance. - Climate change impacts (e.g., floods, droughts)

Conclusions

Malaysia's S&T diplomacy ecosystem stands at a critical juncture, balancing its aspirations as a regional leader with systemic challenges that demand urgent attention. The government's role, as highlighted in Session 1, underscores its strategic positioning in ASEAN and global forums, advocating for equitable policies while addressing institutional gaps in capacity and governance. Initiatives like the ASEAN Technology Startup Ignite and partnerships under Horizon Europe reflect Malaysia's dual focus on domestic innovation and international collaboration. However, persistent challenges, such as fragmented governance, low R&D investment (~1.4% of GDP), and inequitable global partnerships, call for structural reforms, including blended financing models and specialised training for science diplomats.

Academia, as discussed in Session 2, serves as the backbone of Malaysia's S&T diplomacy, translating research into policy and fostering global networks like the Coral Triangle Initiative (CTI) and Intergovernmental Panel on Climate Change (IPCC). Yet, misaligned priorities between researchers and policymakers, coupled with geopolitical barriers, hinder progress. Strengthening institutional frameworks, such as the proposed ASEAN Center for Science Diplomacy, and prioritising ethical innovation (e.g., addressing AI bias) are vital to bridging these gaps.

The private sector, explored in Session 3, emerges as both a catalyst and a challenge. While platforms like MIGHT and AMIC demonstrate the power of public-private partnerships, businesses grapple with regulatory inertia, talent shortages, and the ethical dilemmas of corporate influence. Success hinges on co-design models (e.g., heat-insulating paint projects) and regulatory sandboxes to pilot innovations like Advanced Air Mobility. However, balancing corporate agendas with public accountability remains a tightrope walk, particularly for SMEs navigating ESG pressures.

Overall, Malaysia presents a dynamic landscape for collaboration in science and technology diplomacy, anchored in its ASEAN leadership, research excellence, and strategic focus on climate resilience, digital transformation, and startup ecosystems. Key opportunities include:

- Joint R&D in tropical infectious diseases, renewable energy, and marine biotech (leveraging the Coral Triangle Initiative).
- ASEAN-centric innovation, particularly during Malaysia's 2025 ASEAN Chairmanship, through initiatives like the ASEAN Technology Startup Ignite.
- Institutional partnerships via platforms such as the Newton-Ungku Omar Fund, UNESCO dialogues, and IISDS's Science Diplomacy training.
- Regulatory sandboxes for emerging technologies (e.g., drones, AAM) and co-designed projects addressing ESG and SME challenges.

Nevertheless, governments, multilateral organisations, industry leaders, and academia can seize this moment to deepen engagement with Malaysia. Priorities include investing in joint funding models (e.g., match-funded R&D) to bridge Malaysia's R&D investment gap, aligning with ASEAN 2025 goals in climate action and digital growth, and supporting science diplomacy training and STEM talent development. Collaborative pilots in regulatory sandboxes (e.g., drone zones, Advanced Air Mobility) can harmonise policy with technological advancement, while platforms like the UN Sustainable

Development Solutions Network (SDSN) can democratise science for SMEs. By leveraging Malaysia's biodiversity, youth talent, and ASEAN networks, partners can co-create solutions for global challenges in health equity, sustainable tourism, and green tech.

Malaysia's 2025 ASEAN Chairmanship offered a strategic opportunity to institutionalise S&T diplomacy, prioritising climate resilience, digital transformation, and youth empowerment. By fostering cross-sectoral trust, democratising science communication, and advocating for equitable global policies, Malaysia can strengthen its role as a critical bridge between the Global South and advanced economies. Nevertheless, the path forward demands sustained investment in capacity-building, inclusive governance, and ethical frameworks to ensure science remains a force for sustainable, inclusive progress. While there are numerous opportunities for partners to collaborate with Malaysia, moving beyond aspirations and transforming the science diplomatic opportunity into tangible outcomes is essential. By working together, partners can leverage Malaysia's strategic position in the region and its commitment to science diplomacy to drive meaningful progress in areas of mutual interest.

APPENDIX A: Tables and Figures

List of Tables

Table	Page
Table 1. Three dimensions of science diplomacy in Malaysia	6
Table 2. Malaysia's S&T Diplomacy Priorities (2023–2030)	8
Table 3. Roadmap of Malaysia's Science Diplomacy (2025 – 2030)	10
Table 4. Strategic Review for Session 1: Internal and External Dynamics	12
Table 5. Roles of Malaysia's research institutions in science diplomacy	13
Table 6. Key international collaborations involving Malaysia	17
Table 7. Opportunities for External Academic Partners and Research Institutions to Collaborate with Malaysia in S&T Diplomacy	18
Table 8. Strategic Review for Session 2: Internal and External Dynamics	20
Table 9. Challenges Faced by Businesses in Science Diplomacy	24
Table 10. Opportunities for Businesses in S&T Diplomacy	25
Table 11. Strategic Review for Session 3: Internal and External Dynamics	26

List of Figures

Table	Page
Figure 1. Malaysia's research metrics against major Asian and ASEAN countries	16
Figure 2. International collaboration through various match funding programs and initiatives	22
Figure 3. Syndicated Funding Model of International Partnerships	22
Figure 4. Impact of the Newton-Ungku Omar Fund	23

ORGANISED BY:



IN PARTNERSHIP WITH:



INTERNATIONAL INSTITUTE OF
SCIENCE DIPLOMACY
& SUSTAINABILITY



EARMARKED FUNDERS:



MINISTRY OF FOREIGN AFFAIRS
OF DENMARK

GENERAL FUNDERS:



Flags represent countries that contributed to ASEF's General Pool for the previous year, as of 01 January 2026