Taking on Diplomacy Role as a Scientist: A Personal Reflection and What Next?

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I have always had a broad interest in various areas from when I was little. I remember spending time in the school library reading books on all sorts of topics, from astronomy to geography, arts, history, architecture, and of course science. I also remember my fascination with geographical maps and the hours spent studying the different topology and land types depicted in the now-forgotten printed material called the atlas, from the mountains, oceans, deserts, grasslands, and coastal areas. Naturally, I could not help but marvel at the different shapes of the national borders. Some borderlines run along rivers, some run parallel to the latitudinal lines, some are delineated by mountain ranges, and some are just arbitrary or unusually straight lines with no way of deciphering the reasons why the borders were set in such a pattern.

Little did I know that these human-made invisible lines are so significant in this modern world. Some borders have been agreed upon by the countries it separate, but there are still many that are being disputed, going back to hundreds of years in history. Countries created by these borders interact differently with one another. Many have friendly interactions with seamless boundaries passing healthy trade of goods. However, some cross-border exchanges are unfriendly because of the differences in history, ideologies, border disputes, bringing nothing but endless suffering to its citizens. Nowadays, the crises created by the very existence of these borders have grown so significant, transcending continental divides, triggering a domino effect on the world's economy and politics. We are at the brink of major humanitarian crises of our generation. Lately, another crisis loomed on the horizon: climate change. Mitigating this crisis requires different countries to come together and agree on the actionable solutions that can put a stop to and reverse this path of destruction. Only effective international diplomacy can resolve these unprecedented problems. How countries deal with one another is just one of the topics that I like to follow as part of my pastimes.

My interest in international relations and diplomacy grew further while completing my Bachelor's degree in chemistry and pursuing graduate degrees in biological sciences. Getting mastery in science kept my hands full, but the times spent studying locally and abroad has made me realize the power of science to bring people together. Science - just like music and sports - is a universal language that can be used to converse with people of different nationalities who speak diverse languages. Though the scientific terminologies can vary in distinct languages, the concepts, theories, principles remain the same once you have passed the language barrier. Just like what Dr Zafra Lerman quoted in her article in Science Diplomacy while writing about the Malta Conferences, "We have only one nationality here in the Malta Conference—and that's science". [1]

Most scientists practice science for the greater good of humankind, transcending boundaries. But there is ample historical evidence indicating that science can prove to be a weapon of mass destruction if in the wrong hands. Such regrettable episodes in our colourful history made ethics an important overarching element governing scientific pursuits. But yet again, humans cannot run away from differences. Some of us may consider these ethical practices as a hindrance. These differences should be subjected to healthy and respectful debates in the scientific community, just like what Socrates proposed in his namesake method.

As a faculty member at a research-intensive university in Malaysia, I continued to engage with colleagues from different areas of specializations and countries. While honing my skills and research track record in my field of specialization (environmental biochemistry and microbiology), I discovered that "soft" science is equally important as "hard" science in bringing prosperity to society. Elements such as science communication, governance, advocacy, policy and diplomacy are critical in creating the bridge between the scientists, society and the policymakers to benefit from the "hard" science. I got involved in the Young Scientists Network of the Academy of Sciences Malaysia (YSN-ASM) to offer my assistance in shaping the country's national scientific landscape. I engaged with the outreach activities to communicate the values of science to the public. I am also contributing to activities targeting students of disadvantaged backgrounds; to connect them to resources they probably do not have access to, despite their keen interests and the potential to excel in science.

The tiny contributions that I have made through YSN-ASM and the other scientific societies, such as the American Chemical Society Malaysia Chapter (which I am now chairing), give me the sense of fulfilment that I need as a scientist. This is something that I could not achieve just by locking myself up in the laboratory. Don't get me wrong; the laboratory is still my go-to comfort zone! In addition to fulfilling my role as the "scientist in the society", I also aspire to make our voices heard by the policymakers and the politicians, both at the local and national levels. Rightly informed policymakers can lead to robust science and technology policies and action plans that are needed to pave the way for national development, guided by science & technology and sustainability.

My first exposure to science diplomacy was when I was selected to participate in the American Association for the Advancement of Science (AAAS) and The World Academy of Sciences (TWAS) Course on Science Diplomacy way back in 2018 in Trieste, Italy. I have always admired the work carried out by TWAS in developing countries and for the South-South cooperation, so I thought this was an excellent opportunity for me to be a part of TWAS activities. The Course was truly an eye-opener for me. I would never have thought that science can also play a pivotal role in international policymaking, which overlaps with the work carried out by the diplomats, hence the term "science diplomacy". I realized that science diplomacy as a concept already has a strong root in developed countries, where scientists and diplomats work together to solve transboundary issues and draft their foreign policies. This concept, however, is still relatively new in developing countries but has very low buy-ins. Thus, TWAS, in partnership with AAAS and the national science academies, embarked on the mammoth task to train science diplomacy players from developing countries.

Zooming into the Malaysian context, activities in the realm of science diplomacy has been carried out by various ministries and government departments for quite some time, but there has been no formal training and collective voices on this matter. We have icons of science diplomacy, such as Dr Zakri Abdul Hamid, who is a scientist turned Science Advisor and Ambassador. Dr Zakri has had a distinguished career campaigning for biodiversity policies and sustainable development, and I regard him as the pioneer of science diplomacy in Malaysia. We were very honoured to have Dr Zakri as one of the keynote speakers in the inaugural ASM-TWAS-AAAS Regional Workshop on Science Diplomacy in March 2021.[2] The Workshop was planned to be an in-person event in Kuala Lumpur but had to be moved online due to pandemic precautions. The title of this article is itself inspired by the title of Dr Zakri's keynote speech during the Workshop. The path that has been charted by Dr Zakri has been walked on by many other Malaysians, earning us the

recognition as the newly involved country in science diplomacy in the recent S4D4C event report.[3] Among the success stories that can be highlighted is our involvement in Antarctica-related research through the Malaysian Antarctic Research Program (MARP). The Program has been receiving strong support from the Sultan Mizan Antarctic Research Foundation (YPASM), with ongoing collaborative activities between the Malaysian researchers and the foreign institutions that are traditionally more prominent with a longer history in Antarctica. These endeavours are the perfect examples of science diplomacy, where scientists and diplomats work together to allow a country in the tropics like Malaysia, to contribute to the protection and preservation of the pristine continent. For the record, Malaysia acceded to the Antarctic Treaty System (ATS) in 2011 and further ratified the Protocol on Environmental Protection to the Antarctic Treaty (or the Madrid Protocol) in September 2016. I am deeply humbled and honoured to be allowed to be a part of this effort, through the multidisciplinary Antarctic research expedition funded by Universiti Teknologi Malaysia, and supported by MARP and YPASM in 2015.[4]

Our scientists have been recognized as champions in biodiversity and environmental protection advocacy, making it the quintessential element of Malaysian science diplomacy endeavours. Nowadays, similar success stories need to be replicated in other regional, transboundary and international issues as well. The COVID-19 pandemic has further opened up avenues for scientists and diplomats to work closely together, particularly in securing and negotiating vaccines and other medical supplies. This has also culminated in our multi-pronged approach in combating the pandemic, ranging from the bilateral cooperation with China in the fill-and-finish production, to our investment in vaccine research and development through the establishment of the Malaysian Genome and Vaccine Institute (MGVI). All these efforts will become excellent case studies of science diplomacy, with Malaysia at the centre of it all.

At the same time, we are also in continuous negotiation with our neighbours to solve regional issues such as the recurring haze problems and the equitable governance of our marine resources (including maritime disputes). The strategic location and the rich natural resources of this region placed us at the centre of a dispute among the world's superpowers. This region is wonderfully diverse and culturally unique, prompting the need for regional solidarity, stability and prosperity. This can only be achieved through diplomacy, dialogue and cooperation, with science at the centre of policymaking. Scientists in this region have been working together for mutual interests, putting their heart and soul into solving common issues. What is needed now is stronger support from our policymakers, diplomats, and the society at large. Science-based decision-making can bring the economic benefits that the rapidly developing countries in ASEAN need, and at the same time put sustainability and conservation at the core of our development. Platforms such as the Asian Science Diplomat movement, through its Asian Science Diplomats Assembly (SDA), can be one such avenue where the multiple stakeholders can be brought together to "strengthen the integration of science and diplomacy for the benefits of the region's strategic capacities, policy goals, and the development of solutions for societal challenges". I hope that my recent admission into the SDA can add value to the excellent efforts being carried out by the other distinguished Science Diplomats.

It is about time that science diplomacy is empowered and used as the next powerful tool for diplomacy in Malaysia and the developing countries. Quoting our previous Minister for Science, Technology and Innovation, MP Madius Tangau in his article on putting Malaysia on the world map in science diplomacy through our Antarctic program: "when conventional diplomacy disappoints, we still could count on science diplomacy".[5]

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