

Science Diplomacy



India's Global Digest of Multidisciplinary Science

Inside:

- Perspectives
- MoUs
- News
- Announcements
- Publications
- Call for Proposals
- Forthcoming Events

**Voices of Young Climate
Activists of India**



Cover image: Athira M. Nair/ NIPGR

Voices of Young Climate Activists of India

Climate change is one of the most pressing issues in the present times. It is affecting weather across the world in extremes such as heat waves, intense droughts, floods, and tropical cyclones. No country, developed or developing, has been left untouched by its devastating consequences. In 2021, the Intergovernmental Panel on Climate Change (IPCC) report reiterated the need for strong, rapid, and sustained actions to mitigate climate changes. Recently, the annual United Nations Climate Change Conference (COP26), was the 26th edition held at Glasgow, Scotland, United Kingdom from 31 October to 13 November 2021. Here, the need of converting climate 'promises to action' was underlined.

In this context, to bring together young climate change activists, United Nations in India launched a climate campaign, 'We The Change'. Its main objective is to identify and exhibit the innovative and sustainable climate solutions initiated by young Indians to tackle climate change. The movement provides a platform for young climate leaders to initiate a dialogue with the country's policy-makers, amplifying solutions, inspiring collective action, and working with the government to ensure a green and sustainable future of India.

This cover article features three Young Climate Champions of 2021's #WeTheChange campaign in India. The article captures their journeys and experiences while coming out with innovative solutions to curb climate change. They bring hope and inspire others to take action for a cleaner and healthier world.

Sneha Shahi

PhD Student

Ashoka Trust for Research in Ecology and Environment (ATREE), Bangalore, Karnataka

E-mail: sneha123shahi@gmail.com



The actions stem from empathy towards nature's biodiversity. Balancing science and actions should be strived for. In the initial stages of the Plastic Tide Turners Campaign, the team focussed on identifying issues and perceptions with waste segregation and reducing single-use plastics from everyday life. However, during fieldwork, the group caught the visuals of a stream suffocated with overflowing solid waste and untreated sewage. They were overwhelmed by sighting a crocodile in this polluted stream. The project was then curated to be more inclusive of water quality, stream flooding, and biodiversity, for which scientific analysis and hands-on public engagement were taken up. The essays and proposals brought the Champion title in 2019, and the team continued working on water-waste issues. While Sneha was steering the Tide Turners, her team came across an urban stream facing extreme anthropogenic stress.

The *Bhukhi* stream (local name) had been inundated and clogged with plastics and solid waste. The stream flowing through the Maharaja Sayajirao University of Baroda campus pours down into the *Vishwamitri* River at some distance. The river is known for its crocodiles and turtles.

The impact seen in the first phase of the campaign continued to bear fruit as the team was able to work out a plan to clean up this small stream and the surrounding area under Sneha's leadership. Anthropogenic stress on the *Bhukhi* stream was due to improper urban planning, bank encroachment and release of large quantities of untreated domestic sewage in the kaans. Urban stream management requires community outreach and sensitization towards these degrading ecosystems. Streambank management employs restoring, protecting banks; excavating channels against scour, and erosion by using vegetative plantings, soil bioengineering, and structural systems. These methods can be used alone or in combination to manage streams on a sustainable basis.

The team monitored the quality, organized clean-ups, and conducted health surveys along the stream for residential societies and in informal settlements, as they are the ones to first-hand experience flooding due to clogged up conditions of the stream. The information regarding the importance of the *Bhukhi* stream and other such channels was broadcasted through social media platforms and newspapers in different languages to engage more people and help them interact better with researchers and not feel left out of decision-making for restoration proposals.

The team was amazed to find the support of local women, mainly homemakers, who wanted to learn about the water bodies near their homes, what causes their flooding, pollution and its impact on their health. They wanted to be a part of the solution. They are important stakeholders for the conservation process who often get sidelined during decision-making. Empowering them can help bring change and better outcomes in communities.

With collective actions, now the stream is cleaner and the biodiversity slowly restored. The chance of fair participation makes communities feel acknowledged, and case studies show that inclusion increases the sense of responsibility and makes them more aware, concerned citizens. River action plans and policies have been in place for a long time, yet we need to change our methods to approach these problems. Our ideas and innovations need to be at par with the ever-changing climate as older techniques might not be the best fit to address issues in the present scenario.

An appropriately framed ecological action plan is required to ensure longevity and enhanced environmental health of the stream. The Department of Environmental Sciences at the MS University backed the students in this endeavour. The campaign received support from over 300 volunteers from across the science faculty and gathered around 700 kgs of plastic from this patch of about 800 meters. The group segregated 300 kgs of this plastic to give it for recycling. The remaining plastic was handed over to the local municipal administration to dispose of. The result was an increase in the sighting of crocodiles and flap shell turtles in the patch. The team continued to visit the area to keep a tab, and the crocodiles



Bhukhi Stream before and after restoration



were indeed back due to less solid waste. During 2020-2021, the group cleaned up a patch under university jurisdiction, increased awareness about freshwater bodies and maintained the ecologically restored stream.

There are only a few policies in place to achieve conservation goals that too are riddled with loopholes to cater to capitalism and often fail to deliver on environmental objectives due to the lack of inclusion of indigenous people and women. Today, we see a lot of sustainable production advertised in the market, but is there a policy that could regulate and keep tabs on these hollow promises? Young grassroots conservationists are speaking up on behalf of the planet, but unfortunately, the platforms provided to them are insufficient, lack meaningful representation and completely ignore what they have to offer in terms of solutions. In about 20 years, the people in these high-walled buildings and offices will be gone, and we will have a world where people will wage wars for even the most basic necessities such as water. Sadly, this has already begun in most corners of the world.

The lives of younger generations are at stake, and their empathy towards biodiversity and humanity is what makes them role models to lead the change. Giving young people platforms and not paying heed to what they have to say is not the way climate change issues will be resolved. Young voices, innovations and ideas all these matters. Institutional and government support to leaders of change which create impact through public awareness and on-ground activities, need to be funded, supported and promoted. We must admire how so many grassroots level conservationists are using social media and other platforms accessible to them to voice their opinions and get their ideas out in the world. We wish to help them reach larger platforms and gain access to tools to build their capacity and start working on issues, be it in their town or outside. Environmental education is essential, and there should not be a bias in the ability to do conservation depending on the academic background of a person. Conservation is about empathy and passion, and this is what drives ideas. Actions, be it local or global, need to be acknowledged and supported to create a better, safer future.

Akhilesh Anilkumar

Director, Co-Founder

Bring Back Green Foundation, Trivandrum, Kerala

E-mail: akhilesh@bringbackgreen.com



The noises made by the young climate advocates across the world over the past few years have shown everyone that one of the biggest crises of the century is climate change.

I began my journey into being an environmental conservation activist from a small cleanup drive held near the beautiful hills of Munnar, Kerala, after the deadly Kerala Floods in 2018. An NGO and the Forest Department assembled a team of approximately 100 volunteers, including me, to combat the issue of plastic on the forest road. Most of the plastic came from landslides that occurred during the floods. Our task was to clean a stretch of 40+km by noon that day. Two things happened that day that led me to become highly engaged in environmental conservation.

One was the surprisingly large amount of single-use plastic straws that I collected that day. It led me to start a statewide campaign to curb single-use plastic straws called 'Swap The Straw'. The second incident gave me tremendous motivation and faith in the system. I was cleaning a stretch of land a bit away from the road when something unexpected happened. While the cleanup was in progress, a resort inauguration was happening near the area I was posted. A man came with a sack full of plastic waste from the venue and dumped it on the roadside. I was astonished by his audacity of dumping waste while the cleanup drive was on. I immediately approached the forest department officers and narrated the incident. To my surprise, they accompanied me and penalised the resort. The resort owner, who happened to be a politician well versed in waste management, was made to recollect the waste and dispose of it sustainably. This event gave me enormous motivation and showed how one person can bring about positive change.

The 'Swap The Straw', a 3-month state-level campaign founded by me, was conducted in association with a local NGO from Trivandrum, Kerala (Helping Hands Organisation). The campaign engaged with various stakeholders such as consumers, shopkeepers and hotel associations, government agencies, local clubs, etc. The campaign brought awareness about the dangers of single-use plastic straws to around 15,000 people across the state and raised a petition with 12,000+ signatures to ban single-use plastic straws, which was submitted directly to the Chief Minister of Kerala. The campaign made a huge impact, and several multiple shops and institutions in the area shifted to sustainable alternatives like steel, paper and bamboo straws. This one initiative helped immensely in reducing thousands of plastic straws daily usage.

We were also able to bring down sustainable straw manufacturers to the state and introduce them to shopkeepers and other stakeholders. The campaign established sustainable alternatives as a customer comfort experiment in one of the largest IT Parks in India, Technopark, Kerala, for a day. The team also worked with a municipality and introduced a single-use plastic ban in the region.

Seeing the success and impact of my first campaign, I decided to start an NGO which focuses on crucial environmental conservation areas and work with both youth and government stakeholders. The Bring Back Green Foundation was established in 2019. It works in various areas such as waste management, climate

education, climate activism, environmental research, public policy advocacy, sustainable menstruation, coastal erosion, etc. In 2020, we conducted the first International Conference on Climate Education and further organised a National and State Level conference on climate education. We also organised various physical and virtual conferences, events and webinars with renowned experts. Our organisation has submitted many studies and reports to several Ministers of respective departments on important environmental conservation issues. Some of our key reports/studies are Curriculum on Climate Education for Schools (2019); Ecological Impact of EIA Draft Notification 2020 on 10 sites in India;



Objections and Suggestions on EIA Draft Notification 2020 Implementation; Post-COVID Sustainability of Agriculture, Manufacturing and Service Sectors of Kerala (2020); Study on Coastal Erosion: Causes and Impact on Indigenous Communities (2020); [Updated Draft] Climate Education Curriculum for Educational Institutions (2021); Suggestions during the Implementation of Blue Economy in Kerala Coasts (2021). Our organisation has also published a book, 'Coastal Erosion and Indigenous Community of South West Coast of India' and has a documentary series on coastal erosion, 'Theeram'.

Our NGO works with various government agencies and is involved in public policy advocacy. Climate change is a huge issue that needs intervention and support from various public institutions and government agencies. We aim to identify critical environmental affairs, suggest practical solutions at the grassroots level and deliberate with the stakeholders in the government institutions to take necessary action. It is a general perception that government institutions do not listen to young activists seriously. However, what we experienced is entirely different. If our suggestions/ objections are valid, our voices are heard. We only need to communicate our concerns to the competent authorities sensibly.

Likewise, government institutions should also be more receptive to the suggestions/objections they receive. They should introduce more tools of engagement for the public, especially with youth.

A plausible strategy to increase youth participation in decision-making for the environmental cause could be through implementing decentralised climate parliaments across each Panchayat. It can be run with the help of local Self-Governing Institutions and the Ministry of Environment. The youth across each Panchayat shall raise issues closest to them concerning the environment and environmental degradation in their area. They may suggest specific ideas/ proposals for policy implementation and governmental intervention. Through such channels, the youth may be involved in various governmental processes and made capable of resolving local issues with a localised and decentralised approach.

Now is the time for action. The youth should be more involved in the decision-making processes and framing solutions across the world. If each individual focuss on creating solutions for their local problems and work in sync with the government agencies of their area, we could see a huge positive change and great hope for the future.

Garvita Gulhati

Founder, Why Waste?

Ashoka Young Changemaker, UN Youth Climate Leader

E-mail: garvita@whywaste.io



Garvita, India's Water Girl, started her journey as a changemaker at the tender age of 13. In 2015, deeply impacted by the water crisis faced by India, she founded 'Why Waste?' with an intent to change people's mindsets towards water by building simple solutions to solve the global water crisis. Today it is India's largest youth-led organisation working towards water conservation.

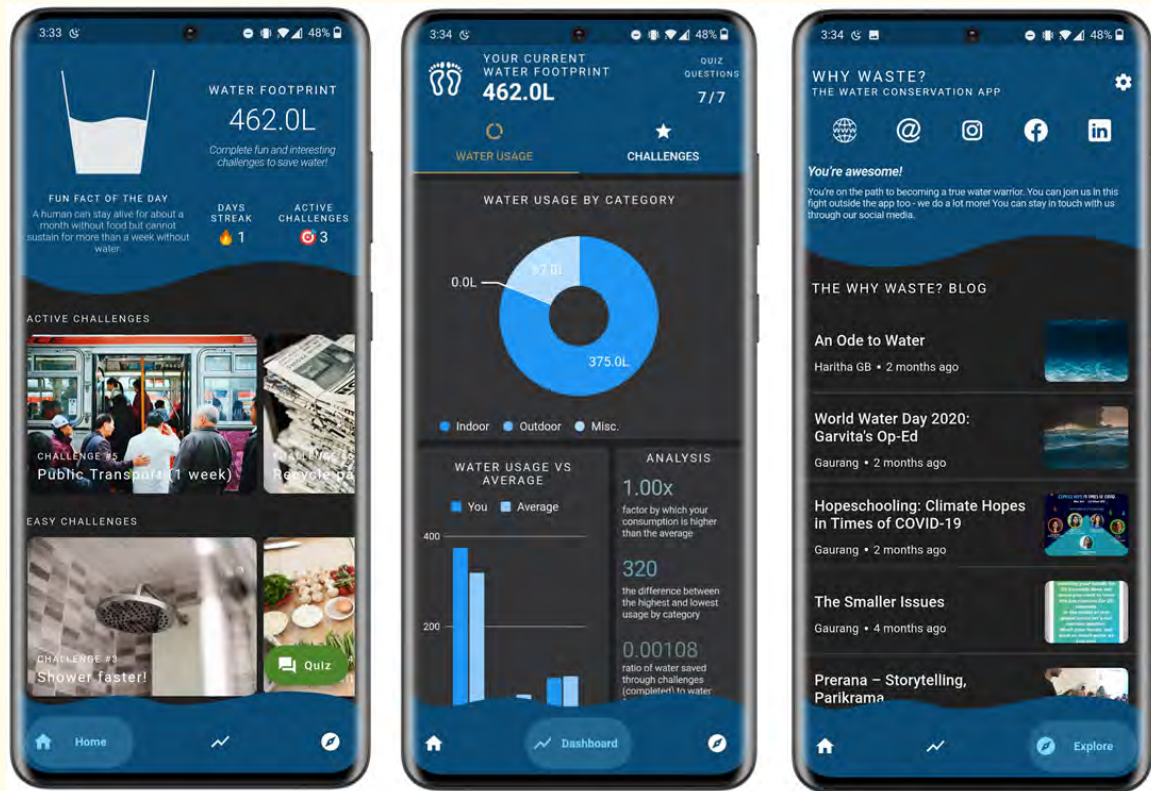
Why Waste? began working with restaurants, by helping them prevent wastage of water that is left behind in glasses through their viral #GlassHalfFull movement in addition to conducting workshops. Their work has reached over 5 lakh restaurants, 6 million people and prevented over 10 million litres of water from being wasted. Lately, the team published "The Sustainability Stories", a for the youth, by the youth collection of 13 new-age fables that talk about environmental issues and inspire children to be the change. The team published the books in partnership with Pratham, India's largest non-profit publisher. They are now bringing these to life on video with UNICEF. In 2020, the 'Why Waste?' app was launched that helps every individual to calculate their water footprint and helps them save at least 100 litres of water every day through a gamified approach. In partnership with CNN, Why Waste? is building this movement to encourage more people to calculate their water footprint and become part of the change through their national campaign "Mission Paani".



Here, she talks about her initiative and how it aims to bring a change.

My Initiative: Why Waste?

I believe that the climate crisis cannot be resolved without a strong focus on water. Taking on such a challenge always requires strong community support. "Why Waste?" was my way of realizing this community. We are currently India's largest youth-led movement working towards water conservation! Our goal is to help each individual understand the importance of water resources and join hands with us in protecting and conserving this natural resource. We build simple solutions to empower every person to be a part of the change.



Reaching the Masses

To reach a large part of the new digital India, social media provides the best option in terms of access and reach. It is also imperative to reach out to local communities that may not have digital accessibility yet. To motivate the public, we need to cultivate a deep empathy for the climate change crisis. It is important to remember that climate change is not an individual problem but a worldwide problem that is affecting all communities.

To realize that we all need to be a part of the change to achieve collective resilience when it comes to solving the climate crisis is key. I truly believe that empowering every individual to be a part of the solution by making them understand their importance would become our collective superpower! This is what we aim towards achieving through all of our initiatives - The Sustainability Stories, the Why Waste? app and the #GlassHalfFull movement.



Connecting the Dots

Each local community possesses different factors contributing to the overall situation of sustainability practices. Whether it entails logistical or economical difficulties, there might be several issues that prevent the populace of the region from being sustainable. To have a healthy and balanced community, we need to be sustainable and mindful of climate change. I have always believed that small changes add up to a huge impact and that by effectuating a change in every community, we can see large-scale growth in climate change solutions.

The concerned authorities must implement financial incentives to solve community problems. The young generation has a high

number of critical thinkers. They can make a difference by incorporating just a single principle into their work: look for innovative solutions with a positive impact. It is pertinent to motivate young thinkers to solve community problems. Introducing policies that incentivise the problem-solving approach can shift the paradigm. We need to be the changemaker in our capacity and bring about a lasting change in any cause we are passionate about. A policy change can set the ball rolling for this to happen on a larger scale.

Environmental Education

One of the biggest global environmental issues is perhaps the lack of environmental education. Among the most and least underprivileged communities, there is a huge gap in the understanding regarding the larger issues of the world. Even today, climate issues are expressed in a complex manner, making them difficult to understand for anyone. There is a need to make the climate dialogue more comprehensible and appealing.

“Life on Earth can recover from a drastic climate shift by evolving into new species and creating new ecosystems. Humans cannot...We need transformational change operating on processes and behaviour at all levels: individuals, communities, businesses, institutions, and governments. We must redefine our way of life and consumption.” - derived from Climate Change 2021: The Physical Science Basis, Part II (Leaked Edition).

Climate Change can be resolved by changing the mindset of people, making them aware and conscious about their habits. Simple habit changes can bring remarkable transformation to the entire value chain. People can learn to own the solutions and solve various pressing issues within their communities. But none of this would be possible until we can empower and educate individuals about their current impact on the planet.

Policies driven in this direction would be a key to propelling us to achieve all the change we hope to bring about!

Educate, Engage, Empower

Reduce, Reuse, and Recycle aggressively. The latter two still consume energy to produce and re-form. Cutting energy demand by using less of it is a highly effective step. We must pressurize the policymakers to make renewable energy and sustainable resources affordable so that the general public can choose those options in daily life. Similarly, being aware of what you eat, where it comes from, thinking about how you travel, having a greater interest in all these things can impact energy and resource consumption. A simple example could be the *Why Waste?* app, where you can calculate your Water Footprint, i.e., your impact, and in turn make simple habit changes to save at least 100 liters of water every day. Impact through empowering individual action!

Secondly, we need to empower individuals in the remotest regions to mitigate issues in their communities. For example, providing small loans to a village household to build their wells to gain access to water instead of women having to walk miles to obtain it can greatly empower these households to own the change and become water resilient.

Further engagement from newer financial institutions like Fintech companies and neo-banks can be pivotal in introducing financial products and capabilities that can solve climate issues at the most grassroots levels; also mobilizing contributions from people like us, and not just wealthy philanthropists.

On certain occasions, it is being referred to as 'knowledge diplomacy'. It points towards "the use of diplomatic skills and tools in advocating for global scientific knowledge: the translation of science into societal impact".³ Science diplomacy though apolitical, attempts threefold objectives of scientific, socio-economic and political actions.

Though science diplomacy has gained significant attention in the Global North, it is yet to achieve momentum in the Global South. Science diplomacy is still a lesser-known concept among developing countries. Slow penetration of science diplomacy in the Global South has been attributed to lack of awareness among the scientists & diplomats and understanding its benefits. Science diplomacy efforts are largely missing in South Asia. During a brainstorming session on science diplomacy in South Asia, the author recalls a dialogue with an eminent educationist, who said that geopolitics overpowers and the countries in this region do not see each other eye to eye, making it difficult for science diplomacy to progress in the region.

SDGs and Role of STI

Sustainable Development Goals (SDGs) are crucial global challenges for sustainable development, with targets for transforming society to eradicate poverty and address the other critical issues of food security, health, education, and gender equality, among others. Environmental, economic and social growth is considered its main pillars. The SDG17- 'Partnership for the Goals'- exclusively aims to implement 16 SDGs and offer a unique opportunity for global and regional partnerships towards sustainable development.

It is well-known that Science, Technology and Innovation (STI) has a fundamental role in achieving SDGs. A science-informed analysis of sub-targets can lead to an expansion of the assessment framework for SDGs. The International Science Council has stressed the need for stronger scientific and technological collaborations and exchanges around the other sixteen goals and their sub-targets.⁴ It also highlighted the need for assessment of progress made in STI. Science diplomacy would have a critical role in promoting trans-disciplinary research collaborations required for attaining the interlinked goals and targets.

The United Nations in the current decade has launched '[decade of action](#)', 'decade of innovation', '[decade of ecosystem restoration](#)' along with '[2030 Agenda for sustainable development](#)' previously there. South-South cooperation, a manifestation of solidarity among people & countries of the South for self-reliance, must focus on accomplishing SDGs. South Asian region is facing the most significant challenges for sustainable growth and would be playing a deterministic role in the global achievement of the SDGs targets given its large share in below poverty population. To overcome the challenges of bringing the nations together for implementation of the SDGs, international and national initiatives through training, workshops and documentation on science diplomacy are beginning to take place. The formal UN mechanism viz. Technology Facilitation Mechanism (TFM) supports the implementation and review of SDG activities. It is harnessing STI through the involvement of multi-stakeholders from different science disciplines. The multi-stakeholders STI Forum is expected to play a significant role in creating awareness and developing capacities to formulate STI strategies at the national and sub-national levels, strengthening science diplomacy. The Inter-Agency Task Force for furthering SDGs meets regularly to deliberate on the science-policy interface of the countries. In South Asia, the South Asia Forum on the SDGs (SAFS) is providing an opportunity to bring together multi-stakeholders from governments, academia, the international community, NGOs etc. and could accredit the crucial role of S&T and promote science diplomacy by taking new initiatives.

Current Initiatives: Perspective from India

India has launched several mission programmes for sustainable growth, ensuring that people at the "bottom of the pyramid" get the benefits through the schemes like *Pradhan Mantri Jan Dhan Yojana*, *Pradhan Mantri Sahaj Bijli Har Ghar Yojana* and *Swachh Bharat Abhiyan*. *Pradhan Mantri Jan-Dhan Yojana*, launched in 2014, has led to the opening of millions of new bank accounts. *Pradhan Mantri Sahaj Bijli Har Ghar Yojana* started in September 2017 to provide every household with 100% electrification at the village level. *Swachh Bharat*

Abhiyan is providing basic sanitation facilities to all. A 'Consolidated Foreign Direct Investment Policy' to foster sustainable growth support to micro, small and medium enterprises; 'Make in India' and promotion to Zero Defect, Zero Effect on the environment are some of the actions towards sustainable production and sustainable consumption. The National Skill Development Fund and *Deen Dayal Upadhyaya Gramin Kaushal Yojna* for village youth as well as Self Employment and Talent Utilization (SETU) scheme under NITI Aayog target entrepreneur education and skill development. Atal Mission of Rejuvenation of Urban Transformation and *Deen Dayal Upadhyaya Jyoti Yojana* are expected to ensure 24x7 power in urban areas and electricity to rural households for agriculture. India is leading to promote sustainability and adopting the vision of "Future Earth" to South Asian countries. To give further impetus to Public health care, the *Ayushman Bharat* scheme, also known as the *Pradhan Mantri Jan Arogya Yojana* (PMJAY), began in 2018. Science diplomacy demands proactive initiatives and knowledge about best practices in the partner countries.

During my visit to Sri Lanka in 2017 to explore science diplomacy potential at the behest of the International Council of World Affairs, I came across Programmes of Cooperation (PoCs) started by Sri Lanka to strengthen S&T ties with its neighbouring countries. In 2016, the Ministry of Science Technology and Research, Sri Lanka organized the [STS](#) forum (Science and Technology for Society) for the purpose of use of science, technology and innovations for sustainable development. The Forum has underlined the role of science diplomacy in overcoming the issue of underutilization of bilateral and multilateral S&T cooperation agreements with other developing countries.⁵ A Science Counsellor's Programme is taking shape in Sri Lanka to streamline and better coordinate science diplomacy related activities. Learning from the best practices of each other and taking actions proactively in the areas of strengths should be the goal.

In India, the Ministry of Science & Technology (MST) has the nodal responsibility in the International Science & Technology Cooperation. It is giving a new thrust to science diplomacy. It has introduced India Science and Research Fellowship ([ISRF](#)) to provide opportunities to the mid-career level researchers and scientists from the SAARC countries to undertake advanced research for 3 to 6 months in a reputed university or research institute in India. The Research Information System for Developing Countries ([RIS](#)) in India has envisioned a Forum for Indian Science Diplomacy ([FISD](#)) for fostering effective policy dialogue and holds capacity-building programmes on Science Diplomacy with the participation from developing countries. The premier organization of national R&D Laboratories, the Council of Scientific & Industrial Research (CSIR), has taken the initiative to launch a [quarterly digest](#) of Science Diplomacy.

With the COVID-19 pandemic declared as a public emergency on 11 March 2020, India's Prime Minister extended a helping hand to South Asian countries and held a series of virtual meetings starting on 15 March 2020 to develop joint strategies for the management of the pandemic. A 'COVID-19 Emergency Fund' was created for the SAARC countries. India contributed 10 million USD and used the fund to send drugs, medical supplies and machines to Afghanistan, Bhutan, Bangladesh, Nepal, Maldives, and Sri Lanka. Voluntary contributions amounting to 21.8 million USD fund was made from the member nations. The second video conference of health ministers of SAARC Member States was held on 27 March 2020, and a third e-conference of SAARC trade officials was convened on 8 April 2020. The issues related to measures to be taken to safeguard public health and the impact of COVID-19 lock-down & travel restrictions across the boundaries on intra-regional trade were discussed. It is evident that in matters of global concerns such as public health, citizen participation has become a mandatory requirement for sustainable growth and social development. India earned the title of 'Pharmacy of the World' by extending multi-dimensional vaccine support to more than a hundred countries.

The electricity trade is increasing rapidly for sharing electricity between India and the neighbouring countries. An agreement on Electricity Cooperation and Trade was enacted by India in 2016. The concept of a common South Asia Grid is emerging for energy security and sustainability. Though insurmountable challenges remain in carrying out these objectives, it is a step forward towards clean energy transitions

and for attaining the goal of 'One Sun, One World, One Grid' ([OSOWOG](#)). The project OSOWOG proposed for meeting the targets of the International Solar Alliance has been globally launched jointly with the UK during the 26th meeting of the Conference of Parties (COP26) held in Glasgow during November 2021. In clean energy transitions, science diplomacy has a vital role in building bridges among the countries in South Asia.⁵

Conclusions

Science diplomacy is an International cooperation to lead to a win-win situation for its partners. Achievement of SDGs requires complex STI inputs from partnering countries by leapfrogging over the diplomatic hurdles. The SAFS is providing an opportunity to bring together the multi-stakeholders from governments, academia, the international community, NGOs and others. A relook at Indian initiatives and mission areas along with science diplomacy in pandemic times provides a framework to reinforce science diplomacy. Underpinning political motivation and improving decision-making requires mutual trust, understanding, skills and constant interactions with the use of STI. Learning from the best practices of each other and taking more actions proactively in the areas of strengths for developing a common agreement as 'South Asia Science Diplomacy Plan' should therefore be a priority. It is opined that Science Diplomacy is gathering momentum in developing nations and becoming the fourth pillar in realizing SDGs. Science diplomacy could become a future springboard for meeting the social & technical aspirations of the South Asian countries and for achieving global goals.

References

1. Goel M (2018) Science Diplomacy as a Tool for Development Cooperation in South Asia. *Development Cooperation Review*, 1(3): 9-12.
2. Šime Z (2021) Science Diplomacy in the Context of the EU-India Strategic Partnership: Looking Beyond the European Sandbagging Contest. *Science Diplomacy*, 4(4): 1-4.
3. Van Langenhove L, Burgelman JC (2021) Viewpoint: Science diplomacy needs a refresh to meet contemporary European needs. *Science Business*, 29 March 2021. <https://sciencebusiness.net/viewpoint/viewpoint-sciencediplomacy-needs-refresh-meetcontemporary-european-need>
4. Griggs DJ, Nilsson M, Stevance A, McCollum D (2017) A guide to SDG interactions: from science to implementation. International Council for Science (ICSU), Paris.
5. Goel M (2020) Clean Energy Transitions and Role of Science Diplomacy. *Science Diplomacy Review*, 2(1): 27-34.

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

Mohd Firdaus Abdul-Wahab, PhD
Department of Biosciences, Faculty of Science,
Universiti Teknologi Malaysia (UTM), Malaysia
Email: firdausw@utm.my



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 Zafrá 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

References

1. Lerman Z (2015) From Fighting for Human Rights to Building a Bridge to Peace: A Scientist's Role and Responsibility. *Science & Diplomacy*, 4(1). <http://www.sciencediplomacy.org/letter-field/2015/fighting-for-human-rights-building-bridge-peace>.

2. Korte A (2021) Virtual Course on Science Diplomacy Emphasizes Collaboration. <https://www.aaas.org/news/virtual-course-science-diplomacy-emphasizes-collaboration>
3. S4D4C (2020) What Are National and Regional Approaches of Science Diplomacy? *S4D4C Interactive Webinar Series 4*, 12 November 2020. <https://www.s4d4c.eu/what-are-national-and-regional-approaches-of-science-diplomacy-s4d4c-interactive-webinar-series-4/>
4. Kili KA (2015) UTM researchers venture to the Antarctic. *The Star*, 4 April 2015. <https://www.thestar.com.my/metro/focus/2015/04/04/utm-researchers-venture-to-the-antarctic-team-hopes-to-document-studies-in-journal>
5. Tangau DM (2016) Malaysia on World map in science diplomacy. *Daily Express*, 27 August 2016. <http://www.dailyexpress.com.my/read/2192/malaysia-on-world-map-in-science-diplomacy/>

MoUs Signed

MoU signed between Regional Ayurveda Research Institute and Sikkim Manipal University for Collaborative Research

On 2 October 2021, the Regional Ayurveda Research Institute (RARI) entered into research collaboration with Sikkim Manipal University (SMU) for the promotion of the research activities and development of academic co-operation by jointly involving in research and training programmes. Both the institutes will work jointly in research and education in one or

more disciplines of science, medical and allied health fields, and jointly organize seminars, conferences and workshops on topics of mutual interest. Both the institutes will also explore the opportunities for exchanging information on research, training, learning material and other literature which might be useful in educational and research activities.

Landmark MoU on Collaboration in Coking Coal Sector signed between India and Russian Federation

A landmark MoU regarding collaboration in coking coal used in steel-making and R&D in the steel sector was signed between India and Russian Federation on 14 October 2021, during the Russian Energy Week 2021 in Moscow. This collaboration foresees the implementation of joint projects and commercial

activities in coking coal, including long-term supplies of high-quality coking coal to India, development of coking coal deposits and logistics development, sharing of experience in coking coal production management, technologies of mining, beneficiation and processing as well as training.

MoU to Enhance India's Capacity in Formulating its Foreign Trade Policy

On 26 November 2021, the Permanent Mission of India to the WTO in Geneva (PMI), the Centre for Trade and Investment Law, New Delhi (CTIL), Indian Institute of Foreign Trade, and the Centre for Trade and Economic Integration of The Graduate Institute, Geneva (CTEI) signed a tripartite Memorandum of Understanding (MoU) in Geneva to begin collaboration towards research and capacity-building in the field

of international trade law and policy. The MoU seeks to provide valuable academic and research opportunities to the professional staff of CTIL and the officials of the Government of India in the field of international trade and investment law. The tripartite MoU establishes collaboration channels between CTIL and CTEI while the PMI will play a key facilitative role for activities under the MoU.

MoU signed between MoHUA and UNDP for Strengthening the Waste Management Sector in India under Swachh Bharat Mission- Urban 2.0

On 6 December 2021, collaboration is made between the Ministry of Housing and Urban Affairs

(MoHUA), the Government of India and the United Nations Development Programme (UNDP) in India

for strengthening the Waste Management Sector in India under the scope of the Swachh Bharat Mission- Urban 2.0. This collaboration marks the starting of the collaborative journey to strengthen collection, segregation, recovery, and recycling of all kinds of non-biodegradable waste, and integrated

plastic waste management under SBM-U 2.0. The collaboration between MoHUA and UNDP India is another step towards realizing the vision of 'Clean Air, Clean Water, Clean Land' in urban India through a circular economy approach based on the 3R (reduce, reuse, recycle) principle.

India and Vietnam signed an MoU towards Promoting Scientific and Technical Cooperation in Marine Science and Ecology

The first-ever MoU aimed at promoting scientific and technical cooperation in marine science and ecology was signed between India and Vietnam on 17 December 2021. There are seven key areas of cooperation aimed at sustainable development of marine resources by India and Vietnam. The key areas are coastal erosion and vulnerability, coastal management, monitoring and mapping marine ecology and critical habitats, ocean observation system, marine pollution and microplastics, marine

weather forecast, and capacity building. As part of the MoU, the two countries will facilitate the exchange of scientists, researchers, technical expertise, projects, and information in marine science and technology. A joint committee will also be established to suggest new areas of cooperation, prepare programs and proposals, provide financial assistance for planning and implementing the MoU mandates, decide on administrative and technical procedures, and monitor work progress.

Compiled by Mr Kashmiri Lal, CSIR-NIScPR

News

A new Lab for Science in Diplomacy in Geneva

ETH Zurich and the University of Geneva (UNIGE) are establishing an interdisciplinary unit dedicated to science in diplomacy in the heart of international Geneva. This joint lab will bring scientific insights and methods into diplomatic, international conflict

resolution and help address the global challenges our societies are facing. It aims at improving governance and responding effectively to global challenges such as health, politics or climate change.

The GESDA 2021 Science Breakthrough Radar

The 2021 GESDA Science Breakthrough Radar provides an overview of science trends and breakthrough predictions at 5, 10 and 25 years in 24 science and technology areas, a synthesis of the related fundamental debates in society, and an

exploration of opportunities for concerted action through initial contributions on the implications for international affairs, global challenges, and the SDGs.

Announcements

Call for Papers: “Re-envisioning STEM Education and Workforce Development for the 21st Century”

Submission deadline: 23 January 2022

Further information at:

<https://www.sciencepolicyjournal.org/sigma-xi-stem-ed-workforce-issue.html>

Call for Applications: “Science Diplomacy: Improve Capacity of Science to Inform Policy (Venice International University)”

Submission deadline: 22 March 2022

Further information at:

<https://www.univiu.org/study/summer-schools/science-diplomacy>

Call for Papers: “Innovations in Science & Diplomacy: Structures, Policies & Governance for the New Decade”

Submission deadline: 3 April 2022

Further information at:

<https://www.sciencepolicyjournal.org/uclsteapp-diplomacy-special-issue.html>

Publications

Abdullah H, Roig A (2021) **City-led science diplomacy: Building urban sustainability and resilience at the science-policy interface.** *CIDOB notes internacionals*, 258, October 2021. https://www.cidob.org/en/publications/publication_series/notes_internacionals/258/city_led_science_diplomacy_building_urban_sustainability_and_resilience_at_the_science_policy_interface

Flink T (2021) **Taking the pulse of Science Diplomacy and developing practices of valuation.** *Science and Public Policy*, scab074. <https://doi.org/10.1093/scipol/scab074>

Florido F (2021) **Science Diplomacy: speak 'science' and enter.** *CREAF el Blog*, 11 November 2021. <http://blog.creaf.cat/en/coneixement/science-diplomacy-speak-science-enter/>

Hill C (2021) **Europe's science for policy pathways.** <https://www.euroscientist.com/europes-science-for-policy-pathways/>

Polejack A, Ramírez-Monsalve P, Wisz MS (2021) **Fish farts and the power of science diplomacy in the Atlantic Ocean.** <https://missionatlantic.eu/news-and-events/fish-farts-and-the-power-of-science-diplomacy-in-the-atlantic-ocean/>

Science Diplomacy Review (2021) Available at: <https://fisd.in/sites/default/files/SDR9.pdf>

Sime Z (2021) **European Union Science Diplomacy in the Southern Neighbourhood: Mapping the Field and Plurality of Resilience-Builders.** *EU Diplomacy Paper*, 08/2021. https://www.coleurope.eu/sites/default/files/research-paper/EDP%208%202021_Sime.pdf

Sinha S, Goveas J (2021) **Science Technology and Innovation (STI) Diplomacy: A View from the South.** <https://www.insscide.eu/news-media/news-and-events/article/guest-article-global-south-perspective-on-sd-discourse>

Vanheukelen M (2021) **EU Climate Diplomacy: Projecting Green Global Leadership.** *EU Diplomacy Paper*, 06/2021. <https://www.coleurope.eu>

Call for Proposals

DST announces India & Philippines Joint Call for R&D Proposals

Last Date: January 17, 2022

Further information at:

<https://dst.gov.in/sites/default/files/Final%20India%20Phillipines%20Joint%20Call%20for%20R%20%26%20D%20proposals.pdf>

EPFLLeaders4impact: MSCA Postdoctoral Fellowships in Sustainable Innovation

Last Date: January 31, 2022 & May 2, 2022

Further information at: <https://www.epfl.ch/research/services/fund-research/funding-opportunities/fellowship-mobility/epflleaders4impact/>

Call for Ignition Grants titled “Technology-based Energy Solutions: Innovations for Net Zero”

Last Date: February 22, 2022

Further information at:

<https://dst.gov.in/sites/default/files/Innovations%20for%20Net%20Zero.pdf>

ThinkSwiss Research Scholarships 2022

Last Date: March 15, 2022

Further information at: <https://swissnex.org/india/thinkswiss>

Forthcoming Events

Tip Conference 2022: “Building a Sustainable Knowledge Infrastructure on Transformative Innovation Policy”

Date: January 17-21, 2022

Further information at:

<https://www.tipconsortium.net/experiment/tip-conference-17-21-january-2022-building-a-knowledge-infrastructure-on-transformative-innovation-policy/>

Science Diplomacy in Changing Climate Change Session in American Meteorological Society’s 102nd Annual Meeting

Date: January 25, 2022

Further information at:

<https://ams.confex.com/ams/102ANNUAL/meetingapp.cgi/Session/60798>

International Conference on International Relations and Diplomacy

Date: March 11-12, 2022

Further information at:

<https://waset.org/international-relations-and-diplomacy-conference-in-march-2022-in-london>

InsSciDE Open Conference Lisbon

Date: March 22-25, 2022

Further information at:

<https://www.science-diplomacy.eu/events/insscide-open-conference-lisbon/>

Seminar on Space Diplomacy

Date: May 5-6, 2022

Further information at:

<https://www.science-diplomacy.eu/events/seminar-on-space-diplomacy/>

InsSciDE Concluding Conference Paris

Date: June 23-24, 2022

Further information at:

<https://www.science-diplomacy.eu/events/insscide-concluding-conference-paris/>

This Science Digest is open to new ideas, valid criticism and constructive feedback. If there is any science diplomacy/ policy related event which requires wider outreach, please share it with us. We welcome your articles/ feedback/ suggestions at scidip@niscpr.res.in

Director: Dr Ranjana Aggarwal

Editor: Dr Monika Jaggi

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CSIR - National Institute of Science Communication & Policy
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Council of Scientific & Industrial Research (CSIR)

Vigyan Sanchar Bhawan, Dr. K.S. Krishnan Marg, New Delhi-110012,
India.

Fax: +91- 11-25847062



+91- 11-26967789



scidip@niscpr.res.in



niscpr.res.in



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