

PROCEEDINGS REPORT

Rebuilding Public Trust in Science [Webinar]



Co-organised by



SEA SAN
Southeast Asia
Science Advice Network



Rebuilding Public Trust in Science [Webinar]

**28 JULY 2021
PROCEEDINGS REPORT**

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I. EXECUTIVE SUMMARY

On the 28th of July 2021, the Southeast Asia Science Advice Network (SEA SAN) and the International Network for Government Science Advice (INGSA)-Asia Regional Chapter co-organised a webinar entitled “Rebuilding Public Trust in Science” to examine the growing issue of declining public trust in science, especially during the COVID-19 pandemic, as well as to highlight the value and importance of rebuilding that trust for the effective management of current and future crises.

The webinar was emceed by Ms Jaymi Tan, SEA SAN Research Co-ordinator, and featured a keynote from Dr Rowena Cristina L. Guevara, who is the Undersecretary for Research and Development of the Department of Science and Technology (DOST) Philippines and Council Member of the SEA SAN, as well as a panel discussion featuring key experts from the region, namely Dr Anders Karlsson, Vice-President at the Global Strategic Networks of Elsevier Japan and Steering Committee Member, of INGSA-Asia, Dr Edson C. Tandoc Jr., Associate Professor at the Wee Kim Wee School of Communication and Information, and Director, at the Centre for Information Integrity and the Internet (IN-cube) at Nanyang Technological University Singapore, Dr Emma Mirza Wati Mohamad, Associate Professor at the National University of Malaysia (UKM), who is also the Chair of the Centre for Research in Media and Communication and Director at the UKM x UNICEF Communication For Development Centre in Health (HEALTHCOMM), Dr Finarya Legoh, Head of International Relations at the Indonesian Academy of Sciences (AIPI), Senior Program Officer at the Indonesian Science Fund (DIPI), and SEA SAN Working Group Member, as well as Dr Khuong Anh Tuan, Deputy Director at the Health Strategy and Policy Institute Vietnam who is also a Working Group Member of the SEA SAN. The panel discussion was moderated by Prof Zakri Abdul Hamid, Chair of the SEA SAN and Patron of INGSA-Asia.

In her keynote, Dr Rowena Guevara shared how the Philippine government strengthened public trust in science by putting science at the forefront of response towards any national concerns, during, prior to, and beyond the COVID-19 pandemic, particularly through the DOST, and highlighted the following takeaway points: (1) Top decision makers need to appreciate science and technology and have science advisors in the decision making process, (2) pressing national problems need to be solved with science and technology to continuously increase science literacy, (3) a whole-of-society approach is needed to guarantee co-operation, collaboration and success, and (4) more science communicators are needed to rebuild trust in science in the pandemic and infodemic.

Throughout the panel discussion, speakers shared their perspectives on the state of public trust in science and the factors that can promote and degrade that trust. Topics of discussion included the role of scientists, the scientific publications industry, and the news media in influencing public trust in science, misinformation and disinformation or 'fake news'. The speakers highlighted key points to consider when communicating science to ensure that the information being communicated is understood and relatable by the public, e.g. being clear and accurate while avoiding jargon, engaging influential persons such as religious leaders or community leaders to preserve and promote public trust in science, and exploring newer and more innovative ways to communicate with the public, such as through social media platforms.

The webinar was a success and was attended by members of the SEA SAN and INGSA network, as well as academicians, scientists, and policy practitioners from around the region and worldwide. The SEA SAN and INGSA-Asia will continue to collaborate in organising future webinars and events, especially to build upon the outcomes of this webinar and expand the dialogue on trust in science. The video clips and full recording of the webinar are available on the SEA SAN YouTube Channel (shorturl.at/gkmBS) and the INGSA-Asia Facebook page (<https://www.facebook.com/ingsa.asia>).

II. BACKGROUND

To say that the COVID-19 pandemic has changed the world would be a severe understatement. In less than two years, the pandemic has paralysed economies, crippled healthcare systems, and caused over 3 million deaths worldwide. It has also done immeasurable damage in terms of widening social and economic divisions within and between countries, as well as exacerbating existing inequalities across the globe. The United Nations' Sustainable Development Goals Report 2020 posited that the COVID-19 pandemic has reversed decades worth of progress on poverty, healthcare, and education.

As the pandemic continues to devastate economies and communities around the world, the scientific community has largely risen to the occasion, providing governments with sound and informed advice to contain the deadly disease and mitigate its detrimental social and economic effects. The scientific world has also seen advancement and innovation at an unprecedented pace, promising an end to the ongoing pandemic by delivering safe and effective vaccines to market in record time. Unfortunately, the advent of COVID-19 vaccines has unearthed yet another serious problem around the world: vaccine hesitancy. During the initial vaccine rollouts in many countries, the Edelman Trust Barometer 2021 found that only 1 in 3 people were ready and willing to take the vaccine as soon as possible.

While there are many factors that influence vaccine hesitancy, including misinformation, religious beliefs, and socioeconomic or geographical barriers, a declining level of public trust in science and its proponents certainly contributes to the problem. The Edelman Trust Barometer reported that public trust in societal leaders, e.g., government leaders and scientists has declined, with a staggering 57% of respondents believing that those with influence are “purposely trying to mislead people by saying things they know are false or gross exaggerations.”

Such public mistrust is extremely concerning, especially during a global pandemic. The success of vaccine development would mean nothing if the public at large are not willing to get vaccinated. Dr Sudip Parikh, the Chief Executive Officer of the American Association for the Advancement of Science (AAAS), noted that “a scientific endeavour that is not trusted by the public cannot adequately contribute to society.” Therefore, there is an urgent and dire need to foster strong connections and build trust between the public and the scientific community.

III. OBJECTIVES

The main objective of this webinar was to examine the growing issue of declining public trust in science, especially during the COVID-19 pandemic, as well as to highlight the value and importance of rebuilding that trust for the effective management of current and future crises.

The specific objectives included to:

- Identify the factors behind the declining public trust in science, particularly in the context of Southeast Asia as well as the larger Asian region.
- Delineate the roles of the various stakeholders in the science-society-policy nexus, including the scientific community, the government, and the public, in promoting and strengthening the trust in science as well as between each other.
- Build thought leadership on the value and importance of fostering strong public trust in science, especially in times of pandemic.
- Promote the science advice capacity and the potential for evidence-informed policy making in Southeast Asia as well as the larger Asian region through the enhanced trust between members of the science-society-policy nexus.
- Strengthen the role and reputation of the SEA SAN as source of high-level, expert knowledge and advice, particularly in the context of providing science advice to governments in Southeast Asia.

IV. EXPECTED OUTCOMES

After the webinar, participants were expected to be able to:

- Recognise the driving factors behind the decline in public trust in science and the potential strategies to improve public trust in science and its proponents.
- Understand the roles of the scientific community, the government, as well as the public in promoting and strengthening the trust within the science-society-policy nexus.
- Initiate and participate in conversations regarding the importance of public trust in science, especially when dealing with crises.
- Appreciate the value of having the SEA SAN as a key source of science advice for the management of crises, particularly for governments in Southeast Asia.

V. WELCOMING REMARKS



Prof Zakri Abdul Hamid

Chair of SEA SAN;
Patron of INGSA-Asia

Prof Zakri Abdul Hamid thanked the organisers for successfully coordinating the event. He shared about how he was approached by the Chair of INGSA, Sir Peter Gluckman, to lead the SEA SAN pilot project and to evaluate what can be done in the science-policy interface especially in the region. Although he was hesitant at first, he eventually accepted the position given the increasing relevance and importance of the interface in this day and age.

In mentioning how the COVID-19 pandemic has caused more than 4 million deaths worldwide, crippled healthcare systems, paralysed economies, and exacerbated existing inequalities across the globe, Prof Zakri

added that what is most worrying is that the pandemic is also being accompanied by a massive 'infodemic' whereby misinformation is being spread farther and faster than the virus itself, making it even harder for people to trust in science and its proponents, and to find trustworthy sources of evidence-based information.

He then quoted Dr Sudip Parikh, the Chief Executive Officer of the American Association for the Advancement of Science by saying, “a scientific endeavour that is not trusted by the public cannot adequately contribute to society”, and noted that the main objective of the webinar is to examine the growing issue of declining public trust in science especially during the COVID-19 pandemic, as well as to highlight the value and importance of rebuilding that trust for the effective management of current and future crises.

Prof Zakri ended his remarks by welcoming all participants to the first public event of the SEA SAN pilot project, and expressed his hopes that the webinar will be able to highlight some of the challenges, problems and prospects regarding the timely yet important topic of public trust in science.

VI. KEYNOTE PRESENTATION



Dr Rowena Cristina L. Guevara

Undersecretary for Research and Development, Department of Science and Technology (DOST) Philippines;
Council Member, SEA SAN

In her Keynote presentation, Dr Rowena Cristina L. Guevara shared how the Philippine government has strengthened public trust in science by putting science at the forefront of response towards any national concerns, during, prior to, and beyond the COVID-19 pandemic, particularly through the Department of Science and Technology (DOST).

As the premier S&T body in the Philippines, the DOST provides leadership as well as central direction for national S&T efforts, and ensures that S&T is geared towards and utilised for maximum economic and

social benefit through efforts such as innovation, technology promotion, adoption and commercialization, increasing the critical mass capacity, human resource, and improvement of the competitiveness of micro, small and medium enterprises through science and technology, disaster risk and climate change resiliency, and effective STI governance.

In describing the current backdrop for S&T in the Philippines, and how the government's budget for R&D expenditure had increased dramatically in the last decade, Dr Guevara shared that the country is now considered an efficient innovator and has achieved its best rank ever in the 2020 Global Innovation Index, at the 50th place out of 131 world economies, as compared to six years ago when it was at the 100th place.

She described how in the past, the Philippine government was able to gain public trust through weather forecasting and disaster preparedness to mitigate the devastating effects of typhoons that plague the country every year. Under the leadership of Former President Benigno Aquino, the DOST increased the physical and human resource capabilities of the Philippine Weather Bureau (PAGASA), and introduced LiDAR technology to

generate flood hazard models and real time information to provide early warnings to local communities. As such, PAGASA was able to issue timely weather and tropical cyclone warnings and performed better than many similar agencies worldwide, leading it to win various international awards and recognitions, and subsequently create the Philippine Space Agency.

In the context of the COVID-19 pandemic, Dr Guevara then shared a quote from the article “Policy responses and government science advice for the COVID-19 pandemic in the Philippines: January to April 2020“ by Vallejo and Ong in the journal Progress in Disaster Science:

“In the COVID-19 crisis, the Philippine government and its public has immediately recognized the importance of the role of scientists, providing science information in economic and political life. This presents an opportunity never before in the history of the Philippines to locate science and technology as essential to responsive government and governance.”

She described how in March 2020, President Rodrigo Roa Duterte convened the Inter-Agency Task Force on Emerging Infectious Diseases (IATF) led by the Department of Health as the policy making body for COVID-19 operations, which then created the National Task Force against COVID-19



In the COVID 19 crisis the Philippine government and its public has immediately recognized the importance of [scientists and scientific information]... This presents an opportunity... to locate science and technology as essential to responsive government and governance.

- Vallejo and Ong, 2020

(NTF) to execute operational commands. In both the IATF and the NTF, scientists are called upon whenever needed. As part as the task forces, the DOST also serves as the head of the Task Group on Vaccine Evaluation and Selection (TG-VES) that recommends which vaccines to consider for negotiation, and evaluates safety, efficacy and other relevant data from clinical trials, and international recommendations on vaccine use. She also shared that the DOST is establishing the Virology and Vaccine Institute of the Philippines (VIP) which will become a venue for local and international scientists to study viruses of agricultural, industrial, clinical, and environmental importance to better equip the nation for future crises.

She provided an example of trust between government agencies, whereby the DOST handed over its management

of FASSSTER (Feasibility Analysis of Syndromic Surveillance Using Spatio-Temporal Epidemiological Modeler) to the Department of Health.

FASSTER was created in April 2020 by scientists from the Ateneo de Manila University when a sub-technical working group on Data Analytics was tasked to develop a science-based approach in determining whether community quarantines should be lifted or extended. It uses data from the Philippine Integrated Disease Surveillance and Response System, electronic medical records and SMS-based reports of primary care facilities to visualise the spread of disease and can be used to predict the peak of confirmed cases, peak date, case doubling time, and other relevant information, as well as to forecast health system capacity requirements at the municipal, provincial and regional level.



Our people's psychology, beliefs, and motivations are important predictors of their trust in science. They are valid. So, we need to communicate with them in a more familiar and relatable manner and become transparent, all the time.

Dr Guevara emphasised how R&D is one of the pillars in combating the pandemic in the Philippines. She listed the RT-PCR Detection Kit, specimen collection booths, ventilators, reusable facemasks, QR codes for checkpoints during community quarantine, FASSSTER, and the RxBox telemedicine device for patient telemonitoring, as examples of R&D outputs that were adopted by the government and the private sector in the fight against COVID-19.

According to studies done by the Social Weather Stations (SWS) an independent institute which conducts surveys on various topics of interest in the Philippines, Filipinos are historically very fearful of virus infection.

Previous SWS surveys on SARS, bird flu, swine flu and Ebola showed that 50 to 60% of Filipinos were very worried about these viruses, and in 2020 during COVID-19, the fearfulness rose to 65 to 75%. She then cited the President of the SWS, Mahar Mangahas as saying that “while Filipinos think that vaccines are safe, they are still relatively fearful of its harmful effects,” and shared the DOST’s efforts to also help combat the ‘infodemic’ by communicating science to the people via layman terms and social media, as well as organising webinars on livelihood, health, entrepreneurship, and technologies for the new normal.

Citing the article ‘Why we need to trust science’ on CNN Philippines, Dr Guevara highlighted that visibility and transparency is highly important to improve public trust in science. She shared how the DOST demonstrates accessibility towards Philippine scientists and researchers by hosting a series of weekly reports featuring interviews with the scientists and researchers on their dedicated news channel, the DOSTv, and how the R&D communications team composed of science communicators from all R&D agencies regularly communicate DOST scientific outputs to the public.

She stressed that public trust is crucial to successful implementation of new policies in hospital services and travel restrictions with changing community quarantine levels. “Our people’s psychology, beliefs, and motivations are important predictors of their trust in science. They are valid. So, we need to communicate with them in a more familiar and relatable manner and become transparent, all the time.”

Dr Guevara then shared the findings of the 2018 Wellcome Global Monitor Index on Trust in Scientists. The Wellcome Trust is a UK-based foundation that funds health research, leads policy and advocacy campaigns and builds global partnerships. The Index showed that worldwide, 18% of people had a high level of trust, followed by 54% with a medium level of trust, 14% with low trust (and 13% with

no opinion). The Philippines is ranked 16th in the Index, between New Zealand and Iceland, alongside other countries where people are most likely to have high trust in scientists—with 32% of people with high trust, 52% with medium trust, 13% with low trust (and 3% with no opinion).



The COVID-19 crisis presented an opportunity for science and technology to shine the light on responsive government and governance.

Dr Guevara also shared that the DOST is the third most trusted government agency in the Philippines. According to a non-commissioned national poll by PUBLiCUS Asia Inc., an independent firm for Lobbying & Campaigns Management in the Philippines, in the first quarter of 2021, S&T in the Philippines had earned a relatively high trust from the people, and the people are appearing to become increasingly willing to get vaccinated as COVID-19 vaccinations are being rolled out in the Philippines. Nevertheless, she admits that there is still progress to be made, and the DOST will need to continue their efforts in communicating science to the people.

In her concluding remarks, Dr Guevara noted that the COVID-19 crisis presented an opportunity for science and technology to shine the light on responsive government and governance, and ended her presentation with four takeaway points: (1) Top decision makers need to appreciate science and technology and have science advisors in the decision making process, (2) pressing national problems need to be solved with science and technology to continuously increase science literacy, (3) a whole-of-society approach is needed to guarantee co-operation, collaboration, and success, and (4) more science communicators are needed to rebuild trust in science in the pandemic and infodemic.

VII. PANEL DISCUSSION

Moderated by: Prof Zakri Abdul Hamid

a) Opening statements



Dr Anders Karlsson

Vice-President, Global Strategic Networks, Elsevier Japan;
Chair, International Association of Scientific, Technical and Medical Publishers (STM) Japan Chapter;
Steering Committee Member, INGSA-Asia

Dr Anders Karlsson began by spotlighting an article in *The Lancet* titled “Clinical Features of Patients Infected with 2019 Novel Coronavirus in Wuhan, China” which he deemed as “one of the very first steps towards global attention on the current COVID-19 pandemic”. He noted that Elsevier has long worked with the community to build trust and facilitate trusted dialogue with the broader society. The company has published over 2500 journals, one of them being *The Lancet*, and works to

provide analytics to academia as well as the government.

Dr Anders also noted that the current COVID-19 pandemic actually resides against the backdrop of planetary climate change. With weather being pushed to extremes and the Earth experiencing its sixth period of mass extinction, our society is facing an existential threat to life as we know it. Trust in science is therefore key to mitigate the potentially detrimental effects of these events.

He posited that the public’s willingness to comply with tough preventive measures and their wide acceptance of vaccines indicate a high level of trust in science. However, while ‘real science’ has seen triumphs in terms of vaccine development and distribution in a remarkably short period of time, ‘fake science’ has also seen a dramatic rise. A recent study by the Center for Digital Health in the US found that anti-vaccination influencers amplify ‘fake science’ via social media such as Facebook, Twitter, and Instagram. While Big Tech has made efforts to try and curb this spread of misinformation, he believes that this might be “too little and too late”.

He also brought to attention a finding from the recent Edelman Trust Barometer which suggests that people trust information from their employers more than that from the government or the media. As such, there is great responsibility for businesses to be transparent, factual, and inclusive. According to Dr Anders, Elsevier is playing its part by working with academia as well as the government to ensure that 'real science' is understood and turned into positive action, and that 'fake science' is disarmed because it can cause significant harm.



Dr Edson C. Tandoc Jr.

Associate Professor, Wee Kim Wee School of Communication and Information;
Director, Centre for Information Integrity and the Internet (IN-cube), Nanyang Technological University Singapore

Dr Edson Tandoc noted that although science communication is extremely important, particular during a pandemic, it is rarely direct from the scientific community to the public. Moreover, the public is gaining increasing autonomy over their own 'news consumption' and can obtain and share information without any intermediaries such as the news media. As such, the public should be responsible for the verification and authentication of the information that they receive and subsequently share. However, our experience with the COVID-19 pandemic has shown that the public is "not ready to engage in such a large-scale form of verification".

Reasons for this may include that they (1) may not have the time to verify everything that they read on social media, (2) may not have the necessary training to engage in proper verification strategies, or (3) may not be sufficiently motivated to consistently engage in the verification of the information that they receive.

This unchecked ability to share unverified information may explain the recent rise in 'fake news' and demonstrates the need for intermediaries such as the news media to vet the information that is disseminated to the public. Hence, Dr Edson argued that the vilification of the news media and the restriction of media freedom in many countries around the world is "very concerning, especially during a health crisis" such as the COVID-19 pandemic.



Dr Emma Mirza Wati Mohamad

Associate Professor, National University of Malaysia (UKM);
Chair, Centre for Research in Media and Communication;
Director, UKM x UNICEF Communication For Development Centre in Health (HEALTHCOMM)

Dr Emma Mirza started by remarking that “science is as good as public trust in science”, whereby scientific advancements can only benefit the public if they are willing to trust the scientific process, the people behind the process, and the innovations themselves. She believes that science is very much like religion, whereby it is something that people cannot see but must have faith in. She stressed that it is important to remember that trust cannot be forced, but must be earned and continually nurtured. The public cannot be asked to trust scientists simply because scientists are assumed to know better. She shared that it is unfortunate that science has sometimes

lost public trust due to political influence, the rise of anti-science beliefs, or even the researchers’ own mistakes. These are all factors that must be considered and addressed when discussing about building public trust in science.



Dr Finarya Legoh

Head of International Relations, Indonesian Academy of Sciences (AIPI); Senior Program Officer, Indonesian Science Fund (DIPI); Working Group Member, SEA SAN

Dr Finarya Legoh proposed that the public may be aware of science and might even understand it, but have trouble trusting it because they perceive science as something belonging to the scientists in the laboratory, and not the everyday person. However, due to the current pandemic and with the accessibility of social media, she noted that “science is everywhere”, and that there is an abundance of information on COVID-19, from both trusted and untrusted sources circulating among the public. This overflow of information, which may or may not be accurate, has the potential to confuse the public and as a result, erode their trust in science.

Dr Legoh also highlighted the influence of local culture on public perception and acceptance of science. She noted that in Indonesia, especially in the rural areas of the country, people face difficulties in adhering to COVID-19 protocols, which discourage physical contact and encourage social distancing, despite understanding their importance due to strong cultural habits that can be hard to break.

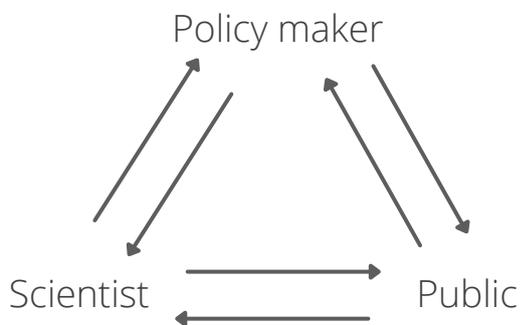
Nevertheless, Dr Legoh posited that the public are now more accepting of science and actively seek information on what they should or should not do with regards to the pandemic. As such, scientists must take this opportunity to engage with the public in creative and innovative ways such as through podcasts or social media, to directly and effectively disseminate credible and accurate scientific information.



Dr Khuong Anh Tuan

Deputy Director, Health Strategy and Policy Institute Vietnam;
Working Group Member, SEA SAN

Dr Khuong Anh Tuan emphasised the importance of the government and decision makers having the “right information from science” to ensure effective policy making, especially during a public health crisis such as COVID-19. He described the relationship between the government, the public, and the scientific community as a “triangle” whereby each entity is directly connected to the other.



As such, scientists have a responsibility to provide accurate and transparent information to both the government

and the public, so that they may understand how science can be beneficial to them. To this end, Dr Tuan noted that the scientific information disseminated to the public must be clear and easy to understand. He clarified that ‘science’ does not only mean medicine-related knowledge, but also includes other important disciplines such as socioeconomics. In the context of COVID-19, the scientific community must advise the government not only on effective ways to contain the virus, but also on the potential impact of proposed interventions on the public as well as the socioeconomic development of the country. The government on the other hand should heed this expert advice and incorporate scientific knowledge into its administration. The government should also mobilise its ministries and communication channels to transfer accurate and credible information to the public, to promote and protect public interest during a health crisis such as COVID-19.

Dr Tuan shared that in the early days of the pandemic, when Vietnam reported its first two cases of COVID-19, the government promptly created a platform for scientists to sit down and consult with the decision makers in the country. This led to Vietnam’s early and evidence-based response to the pandemic, which had largely contained the virus and mitigated the potentially detrimental effects of the pandemic.

b) Question & Answer

Reiterating Dr Anders Karlsson's point that action against 'fake news' tends to be taken "too little too late", Prof Zakri asked his opinion on the key ingredients of trust:

Dr Anders stated that the key ingredients for trust is for the information shared to be factual, and for scientists to be clear and transparent about their backgrounds and to ensure that there are no hidden agendas or motivations. On this note, Dr Anders feels that public trust in science is very high but trust in the scientists themselves has been eroded. He spotlighted a study by the US Center for Digital Health which found that there were essentially 12 influential accounts on Facebook that accounted for 65% of COVID-19 misinformation. He emphasised that necessary action must be taken to prevent such misinformation from being spread further through such influences.

In response to a question from a member of the audience, Ms Victorine Ghislaine, on 'how scientists can communicate scientific information to the public?',

Dr Anders stated that the scientific community has a duty to be factually correct and to simplify their message, but also to bridge the gap between

academic language and the language used and understood by the public.

Based on his earlier point about the vilification of the news media in certain countries whereby the news media appear to have "their backs to the wall when in actual fact, they are supposed to be our line of defence", Dr Edson was asked to elaborate on the point and share his opinion on the way forward for this issue:

Noting that the question alluded to the role of the news media, Dr Edson spotlighted a study by the Reuters Institute for the Study of Journalism at Oxford University which surveyed news audiences across 46 countries and found that trust in the news media had actually increased across most media markets from 2020 to 2021. This encouraging finding may be due to the COVID-19 pandemic as more and more people are interested in learning about the current situation and are turning towards trusted and legitimate sources for information.

Dr Edson also highlighted the important role played by the news media in simplifying complex scientific information to be understood by the public. He noted that journalists are in fact trained to write using simple language, and recalls how he was taught in journalism school to write "for a fifth

grade reader". However, this simplification may sometimes be at the expense of accuracy and is a reason why he believes that scientists must be encouraged and even trained to work closely with the news media.

Referring to Dr Emma Mirza's earlier point about "science having lost public trust in the past due to the scientists' own mistakes", Prof Zakri asked her to elaborate on the point and to provide some suggestions on how this issue may be addressed:

Dr Emma noted the importance of acknowledging that a large majority of the public have limited education in science and have little to no direct contact with the scientific community. As such, most of their knowledge and attitudes towards science come from media channels such as newspapers, magazines, movies, television programmes, and social media. Apart from the media, the public also obtains information from interpersonal communication sources such as family members, political and religious leaders, and even social media influencers. She highlighted the human tendency to believe in any information given by a person who is trusted, which may play a significant role in building either trust or distrust in science. Therefore, it is important to engage and include these platforms and individuals in efforts to foster public trust in science.

Dr Emma also noted the amount of misinformation that is being circulated in media and interpersonal communication channels can instigate significant fear among the public and build negative attitudes towards science. She cited a study on COVID-19 vaccine acceptance which found that Asian countries, including Malaysia, recorded a high percentage of fear towards the potential side effects of the COVID-19 vaccine. Similarly, a survey by the Ministry of Health Malaysia found that while 67% of Malaysians were agreeable towards taking the COVID-19 vaccine, many expressed concerns about the contents of the vaccine as well as the potential side effects of getting vaccinated. This problem is compounded by widespread conspiracy theories surrounding COVID-19 vaccines, which further increase public fear towards COVID-19 vaccines.

She shared her experience from Malaysia, whereby there are people who openly express their anti-vaccination views and spread false information about the vaccines, such as needing to 'cleanse' using traditional remedies after getting vaccinated, and highlights how such individuals have the ability to spread misinformation which can confuse and instigate fear among the general public, and promote distrust in science.

Dr Finarya Legoh was invited to elaborate on her point about the influence of cultural beliefs and behaviours on public acceptance and adherence to science, especially in Southeast Asia:

Dr Legoh emphasised that South Asian communities are strongly bound to culture, as evidenced by their preference for herbal remedies, even for COVID-19. She reiterated her earlier point that people face difficulties in avoiding behaviours that are strongly embedded in their culture, such as conducting wedding ceremonies, despite knowing that the prohibition of such events is for their own safety.

In an effort to compromise, the Indonesian government had sometimes allowed small gatherings and events subject to strict health protocols. Community leaders have been engaged to remind and educate their people on COVID-19 prevention strategies, which Dr Legoh noted has been effective in controlling the spread of infection. She also described the significant role of religious leaders in increasing public acceptance and adherence to science-based protocols. For example, 90% of the population in Indonesia are Muslims who are accustomed to congregating at local mosques throughout the day for prayers. Religious leaders have helped to raise awareness among their followers regarding the dangers of COVID-19 and the ways to prevent its spread, such as

praying at home and avoiding large crowds. She shared how Christians are also now attending mass and worship congregations online to avoid large in-person gatherings.

Prof Tateo Arimoto, Deputy Director of the Science, Technology and Innovation Policy Research Center at the National Graduate Institute for Policy Studies (GRIPS) who attended the webinar, shared his comments on: (1) the need to create new types of training and education programmes for promising future scientists, as well as the need to create a platform for discussion between scientists and political leaders, (2) the need to build and strengthen a transdisciplinary approach that incorporates the traditional natural sciences, engineering, and medicine as well as the social sciences and humanities, and (3) the need to involve young scientists in discussions with government officials and senior scientists. Dr Emma and Dr Legoh were invited to share their thoughts on Prof Arimoto's comments.

Dr Emma began by stating that the concept of trust itself is “underdeveloped”, and that although significant work is being done in terms of measuring trust from a scientific perspective, the measurement of trust from a social science or psychological perspective remains underexplored. Hence, the methods to measure public trust have to be reviewed and

broadened to include multidimensional measures of trust.

Dr Emma concurred with Prof Arimoto's sentiment that literacy skills, including media literacy skills, must be developed from a young age. Speaking about the initiative that she Chairs – the UKM x UNICEF Communication for Development Centre in Health (HEALTHCOMM), which aims to engage health care practitioners and educators to recognise the importance of communication and to incorporate this into their delivery of programmes and campaigns at a community level. She shared that the Centre is developing the curricula for both undergraduate and postgraduate programmes to introduce 'science communication', 'health communication', and 'communication for development' in hopes of producing graduates with better communication skills.

The Centre is also conducting research on communication for development and health, and is training Ministry of Health practitioners to effectively communicate and design impactful programmes. Dr Emma believes that this synergy will help close the gap between health practitioners and social scientists.

Meanwhile, Dr Legoh shared her experience working at a research and development centre, where her colleagues largely did not recognise the importance of knowing how to

communicate effectively with the public. She also shared about a training programme that has been implemented to educate scientists on how to share scientific information with someone from a non-scientific background within a short period of time. This includes avoiding jargon and complicated technical terms, and explaining things simply but systematically to ensure that the information is easy to follow and understand. Dr Legoh acknowledged that communicating with the public may come easily to some scientists, but others may struggle to do the same.

Dr Legoh also noted the value of identifying and recruiting scientists from various disciplines who have good communication skills into a team that regularly disseminates scientific information to the public. She shared that this has been very effective in Indonesia, whereby such teams have been responsible for the publication and sharing of short informational films on various topics to the public, such as natural disasters, which are common in the country.

To a question from audience member Ms Victorine Ghislaine on “Communication [with] decision makers or public policy makers is mostly made in the context of emergency. What are the strategies [that scientists] can use to be accurate in communication, given the limited time [that is available]?”,

Dr Edson Tandoc noted that very few scientific PhD programmes have a component dedicated to training future scientists to communicate their research outside of academia. Instead, the emphasis is on teaching them to write good research projects and to publish in journals. Therefore, he urged schools to start including PhD modules or curricula that prepare future scientists to communicate with the public.

In this context, Dr Edson shared about a focus group study he is involved in, which investigates the dissemination of energy-related scientific information. When participating scientists were queried about the ways in which they disseminate information about their research, many pointed towards seminars and public lectures as methods of communicating directly to the public. However, almost none of the participants from the public indicated that they learn directly from scientists. Dr Edson highlighted news commentaries and interviews with the media as alternative avenues that seem

promising for scientists to reach a wider audience beyond the constraints of in-person events such as public lectures, and again emphasised the importance of training future scientists to engage with the news media.

Dr Edson also highlighted the need for scientists to learn the language used by the public. For example, when Typhoon Haiyan hit the Philippines in 2013, the country’s Weather Bureau had actually warned people in potentially affected areas of an impending ‘storm surge’. However, at that time, the term ‘storm surge’ was rarely used among the public. As such, people largely did not understand the grave danger that they were facing, and when the typhoon did hit, many actually described it as more of a ‘tsunami’ or ‘tidal wave’. While these terms may not be exactly precise, they are more relevant to the locals and thus, would have been more easily understood. Dr Edson used this example to acknowledge that scientists can sometimes become so involved in their own research that they use heavy jargon when communicating their findings. This may be understood by other members of academia, but certainly not by members of the general public.

Intrigued by Dr Khuong Anh Tuan's description of the triangle between scientists, policy makers, and the public, as well as his statement that the social sciences are sometimes "more critical" than the natural sciences in trying to reach out to the public, Prof Zakri invited Dr Tuan to elaborate on his statements.

Dr Tuan clarified that in the context of an emergency or crisis, decision makers require evidence of very high value as well as evidence from many different disciplines in order to make the right decision for their country. He noted that during the COVID-19 pandemic, experts from the health sector would be focused on stopping the spread of infection and protecting people from the virus, whereas experts from the social or economic sectors would be thinking about other aspects of the pandemic, based on the knowledge and evidence from their respective fields. Therefore, he stressed the importance of considering how evidence and expert advice from all of the different fields can be brought together to protect public interest. To this end, Dr Tuan believes that the government plays the central role in guiding the scientific community to provide the "right evidence" for policy making.

Based on the earlier question on 'how scientists can accurately communicate with decision makers and public policy makers during an emergency when time is extremely limited?',

Dr Tuan explained that due to the limited time, scientists must understand the context of a given problem and must consider the policy objectives in order to provide suitable evidence and scientific advice. Scientists should also provide a few different policy options, each with their own pros and cons, to enable policy makers to weigh the different options before choosing the 'best' one.

Dr Anders was invited to share his final thoughts with regards to this line of discussion.

Dr Anders concurred with Professor Arimoto's earlier comment that funders have an important role to play in providing effective training programmes to future scientists. He shared that one of the "best research grants" that he had received in the past had actually included training on communicating with the media as well as training on understanding and participating in the science advice landscape. Dr Anders also echoed the panel's overall sentiment that the humanities and social sciences are extremely important and must be given due attention in any circumstances.

Furthermore, Dr Anders believes that there is great value in providing 'synoptic science', or scientific summaries, to support policy decisions. From his experience, he has learned that top-level decision makers rarely read scientific papers and rather interpret

the science that is communicated by other sources such as the media. Therefore, if scientists and the industry can bridge this gap by providing useful summaries such as policy briefs, this will certainly help to facilitate evidence-informed policy making.

Adding onto Dr Anders's point on 'synoptic science', Prof Zakri mentioned there has already been precedence on this concept, e.g., the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which extract information from scientific reports and communicate them to the public.

On a question from audience member Mr Tariq Bashir about the potential value of having 'stand-up sci-medians' (similar to stand-up comedians) to popularise science among the public, Prof Zakri noted that this has already been done by the likes of David Attenborough, English broadcaster and natural historian who is the face of nature conservation, as well as Maya Karin, a Malaysian actress who is a spokesperson for science, and invited the panellists to share their thoughts.

Dr Emma shared her belief that people unite through comedy and humour. Speaking about how scientists can leverage newer and underutilised social media platforms such as Tik Tok to promote science-related content, she

noted that Tik Tok provides a perfect environment to facilitate 'micro-learning'. She acknowledged that many educators are already on this platform, sharing educational material with large numbers of followers.

At the end of the panel discussion, Prof Zakri invited the Keynote Speaker Dr Rowena Guevara, and Prof Abhi Veerakumarasivam, Chair of the INGSA-Asia Chapter, to give their remarks.

Prof Abhi felt that all of the speakers have highlighted the interest of each stakeholder involved in the science-policy interface to come together and collaborate to ensure and promote trust in science. He added that it is important for the interface to prove that it is useful and effective to the people, as public perception is a critical component for promoting that trust. He congratulated the SEA SAN for organising the webinar and expressed his hopes that it will be a start for a series of conversations surrounding the topic, and that INGSA-Asia would certainly like to contribute to advance the dialogue.

Dr Rowena commented on Dr Edson Tandoc's sharing about Typhoon Haiyan in the Philippines, and how the wrong terminology was used by the Weather Bureau. She shared that they had later learned that the locals had experienced a similar 'storm surge' 400 years ago, and that it was referred to as

'Walo walo'. Therefore, if the Weather Bureau had used the term 'walo walo' instead, the locals would have understood the level of danger at the time. She felt that all of the speakers have emphasised that scientists need to learn how to 'speak' science to their people and use the correct terminology when communicating science.

VIII. CLOSING REMARKS



Prof Zakri Abdul Hamid

Chair of SEA SAN;
Patron of INGSA-Asia

Prof Zakri reminded the participants that the science policy interface is the last piece of a giant jigsaw puzzle of trying to bring the advantages of science to the public. As one of the key players in that interface, scientists have to overcome the challenge of not being able to communicate in simple language to the other stakeholders, particularly the policy makers or politicians.

In this premise, he highlighted that there is room for INGSA to provide training courses for the scientists, and eventually build a community of stakeholders who could understand one another.

Gleaning from his past experiences of dealing with policy makers and politicians, as the former Science Advisor to the Prime Minister of Malaysia and as a member of the Scientific Advisory Board to former UN Secretary-General Ban Ki Moon, Prof Zakri shared that policy makers and politicians are very simple and practical people. What is important to them is that the science advice given must have an impact on the people, whether they can get jobs, income, and good health, which is a very heavy responsibility for the scientists and experts.

In closing, he shared Prof Abhi Veerakumarasivam's hopes that the webinar will be the beginning of more dialogue to be convened by the SEA SAN and thanked everyone for their participation and commitment.

IX. LESSONS LEARNED

There are several important lessons that can be learned from the webinar's discussions, which can be used to inform actionable plans to promote and build public trust in science particularly in the Southeast Asian region. These include:

- Science cannot benefit the public if there is no public trust in science.

For example, scientific advancements such as the development and delivery of COVID-19 vaccines to market in record time would have no meaning and purpose if the public are not willing to take the vaccines due to 'a lack of trust in the scientific process, the people behind the process, and the scientific innovations themselves'. All of the stakeholders involved in the process of bringing science to the public must work together to continuously nurture public trust in science. It is critical to remember that trust cannot be forced, but must be earned through genuine effort.

- There are several keys to promote and ensure trust in science, which should be kept in mind when communicating science to the public.

When communicating science to the public, it is important to ensure that the information being communicated is factually correct, clear, and transparent; and that the language being used is simple to understand, avoiding jargon and using colloquial or layman terms wherever possible. This will ensure that the public can understand and relate to the scientific information that is being communicated, and not be confused or even intimidated by the science.

- The news media outlets play an important role in communicating and in portraying science to the public, and in combating the 'infodemic'.

The news media is largely responsible for simplifying complex scientific terms and processes for public consumption, as well as in building the public's perception and their trust in science. However, to ensure that the simplification is not at the expense of accuracy, scientists should be encouraged to collaborate with news media outlets to communicate their research to the public, and should be provided appropriate and adequate training to do so. In addition, information intermediaries such as the news media play an important role in the authentication and verification of information, which is critical to curb the spread of misinformation/disinformation that can degrade public trust in science.

- Trusted and influential persons such as religious leaders, opinion leaders, educators, social media influencers, or even family members, are key stakeholders who can promote public trust in science.

It is important to keep in mind that it is human nature to perceive any information given by persons who are trusted to be accurate and trustworthy. These persons can include family members, friends, teachers and others. For example, community or religious leaders particularly in rural Indonesia have been shown to be effective mediums in communicating COVID-19 SOPs and restrictions despite strong cultural habits that can be hard to break. Likewise, such trusted and influential persons can easily be involved in misinformation/disinformation and instigate public confusion, fear and lack of trust in science. Therefore, there is incentive in ensuring that such trusted and influential persons are engaged in efforts to preserve and build trust in science, for public safety and benefit.

- Scientists should capitalise on new and innovative ways to engage with the public and build public trust.

In the digital era, social media outlets have the potential to become tremendously effective platforms for direct and rapid science communication to a wide audience with virtually no limitations. Tik Tok for example provides unique micro learning environments and that some educators are already utilising to interact and communicate with large numbers of audiences worldwide. Therefore, scientists should be cognisant of such new and upcoming social media platforms in order to utilise them for their benefits in facilitating rapid dissemination of scientific information and knowledge, and to build public trust in science.

APPENDIX 1: PROGRAMME



Southeast Asia Science Advice Network (SEA SAN) Webinar

Theme: Rebuilding Public Trust in Science

Date: 28th July 2021 (Wednesday)

Time: 10am - 11.30 am (GMT +8)

Tentative Programme

Item	Resource Person	Time (GMT +8)
Registration	Jaymi Tan & Arjun Thanaraju	09:45-10:00
Welcome Remarks	Prof Zakri Abdul Hamid	10:00-10:10
Keynote	Dr Rowena Guevara	10:10-10:25
Panel Discussion + Q&A Moderated by Prof Zakri Abdul Hamid	Speakers: <ul style="list-style-type: none">• Dr Anders Karlsson• Assoc Prof Dr Edson Tandoc C. Jr.• Assoc Prof Dr Emma Mirza Wati Mohamad• Dr Finarya Legoh• Dr Khuong Anh Tuan	10:25-11:25
Closing Remarks	Prof Zakri Abdul Hamid	11:25-11:30

