



NSTDA

NAC2022  
17<sup>th</sup> NSTDA Annual Conference  
การประชุมประจำปีของสถาบันพัฒนา  
วิทยาศาสตร์และเทคโนโลยีแห่งชาติ

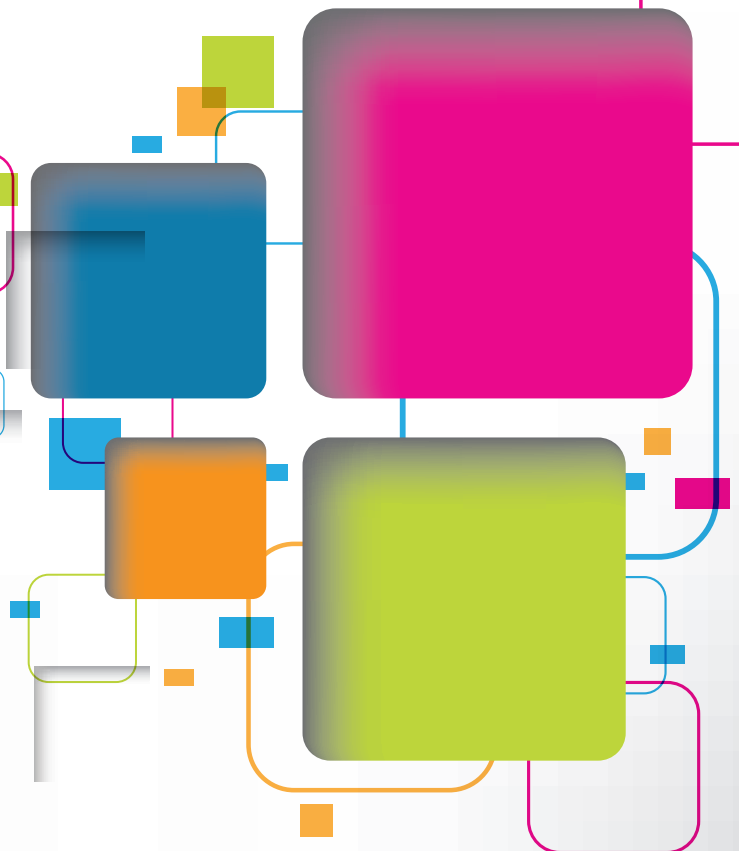


# PRESIDENTS' FORUM 2022

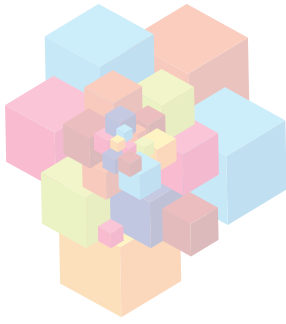
**Transforming Research Institute to  
Support Sustainable and Resilient  
Societies in the 21<sup>st</sup> Century**

13:30 - 16:40 hrs.,  
30<sup>th</sup> March 2022

Thailand Science Park, NSTDA

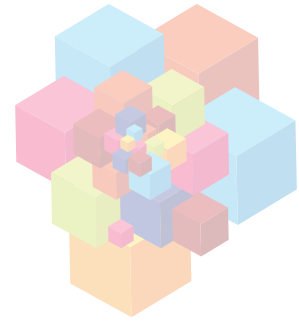


National Science and Technology Development Agency (NSTDA)



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## Introduction Statement

For nearly two decades, the National Science and Technology Development Agency (NSTDA) has been hosting the NSTDA Annual Conference, or NAC, to showcase the research and innovation that NSTDA and its local and international partners have achieved over the year. Comprehensive scientific seminars, exhibitions, the Thailand Science Park Open House, a job fair, and STEM educational activities complete the full program of NAC, making it one of the most exciting events of the year for our scientific community.

Held under the concept of “Revitalizing Thai Economy through BCG Research and Innovation”, NAC2022 will take place on 28 – 31 March 2022. The BCG or Bio-Circular-Green Economy has been declared the national agenda to enable the country to achieve the UN Sustainable Development Goals (SDGs). The BCG model employs science, technology and innovation to turn Thailand’s comparative advantage in biological and cultural diversity into competitive advantage to create sustainable economic growth, while preserving the environment and natural resources and promoting fair wealth distribution.

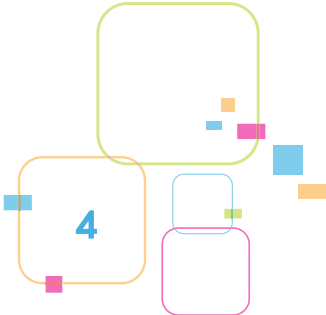
NAC2022 will be a hybrid event filled with plenty of onsite and online activities, including 26 conference/seminar tracks, a virtual exhibition in honor of Her Royal Highness Princess Maha Chakri Sirindhorn and her initiatives such as “Herbs for healthy water” and “Coding for students with disabilities”, and BCG exhibition displaying the application of BCG model in four sectors: 1. Agriculture & Food 2. Health & Wellness 3. Energy, Materials & Biochemicals, and 4. Digital & Electronics.

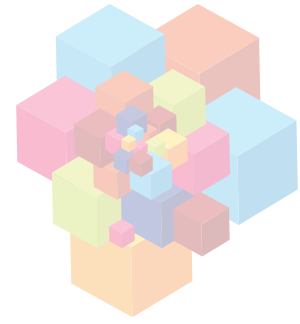
Since 2019, one of the highlights of NAC has been the Presidents’ Forum - a roundtable in which leaders of prominent research organizations from various countries around the world are invited to share and discuss their views on issues pertaining to science, technology and innovation.

The Presidents’ Forum held in conjunction with NAC2022 is scheduled to take place on 30 March 2022 with the theme “Transforming Research Institute to Support Sustainable and Resilient Societies in the 21st Century”.

Over the past decade, our world is confronted with multiple challenges including the COVID-19 pandemic, increasingly frequent climate extremes, and escalating degradation of the biophysical environment. To cope with these challenges, it is imperative to understand how best we can realize the transformations that will ensure that we achieve the Sustainable Development Goals (SDGs) and build resilient societies. Science, technology and innovation can play a vital role in this scenario, enabling us to turn challenges and risks into opportunities and combining mitigation of the drivers of impacts with adaptation to those which cannot be mitigated.

In this forum, S&T leaders are invited to share their experience and perspective in the transformation of their organizations to meet this objective.





# Program Summary

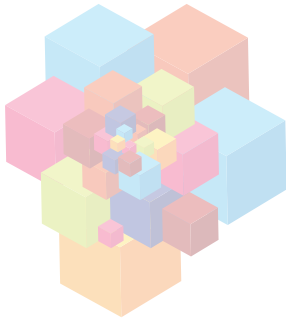
## Presidents' Forum 2022

### Transforming Research Institute

### to Support Sustainable and Resilient Societies in the 21<sup>st</sup> Century

30<sup>th</sup> March 2022; 13:30 - 16:30 hrs., Thailand Science Park, NSTDA

- 13:30 - 13:40 hrs.** **Welcome Remarks and Introduction to the Presidents' Forum**  
By Dr. Lily Eurwilaichitr  
Vice President of National Science and Technology Development Agency
- 13:40 - 14:00 hrs.** **Opening Remarks**  
By Dr. Narong Sirilertworakul  
President of National Science and Technology Development Agency
- 14:00 - 15:30 hrs.** **Keynote Speeches on “Transforming Research Institute to Support Sustainable and Resilient Societies in the 21st Century”**  
(15 mins per speaker)
- 1. Prof. Dr. Ya-ping Zhang**, Vice President, Chinese Academy of Sciences (CAS), P.R. China  
Theme: Enabling ecological civilization through the support from science and technology
  - 2. Prof. Dr. Ulrich Schurr**, Director at Institute for Bio- and Geosciences 2: Plant Sciences (IBG-2), Forschungszentrum Jülich, Germany  
Theme: Regionalization of Bioeconomy - the path to sustainable economies and stewardship to natural resources
  - 3. Datuk Dr. Mohd Yusoff Bin Sulaiman**, President&CEO, Malaysian Industry-Government for High Technology (MIGHT), Malaysia  
Theme: Transformation model for innovative, resilient, and sustainable future
  - 4. Dr. Lakshmi Krishnan**, Vice-President of Life Sciences, National Research Council (NRC), Canada  
Theme: Lessons from COVID-19 and innovating for the future at the National Research Council Canada
- 15:30 - 16:15 hrs.** **Open Discussion**  
Moderated by Prof. Prasit Palittapongpim, Executive Vice President of NSTDA
- 16:15 - 16:30 hrs.** **Conclusion and Closing Remarks**  
By Dr. Narong Sirilertworakul  
President of National Science and Technology Development



Chair



Dr. Narong Sirilertworakul  
President of NSTDA

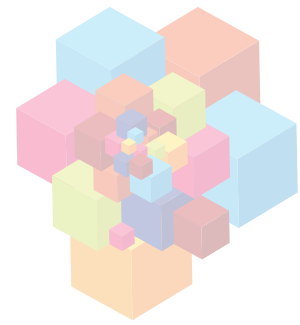
Dr. Narong Sirilertworakul is currently President of the National Science and Technology Development Agency (NSTDA). His key roles contributing to an international scientific community include Governing Board member of the Alliance of International Science Organizations in the Belt and Road Region (ANSO); Advisory Board member of Chinese Academy of Sciences - the Innovation Cooperation Center Bangkok (CAS-ICCB); High Commissioner of the World Business Angels Investment Forum (WBAF); Corresponding Member of the European Association of Research and Technology Organizations (EARTO); Council member of Science and Technology in Society Forum (STS Forum), Japan; and Advisory Board member of the Global Young Academy (GYA).

In Thailand, he is also Advisor to the Sub-Committee of the National Research, Science, and Innovation of the Senate; Chairman of the Innovation Qualification Examining Committee of the Thai Innovation List, the program whereby products and services entitled to a fast-track treatment in the government procurement process; Chairman of Microinnovate Co., Ltd, Board of Director of Internet Thailand Public Company Limited, Board of Director of SAKUN C Innovation Co., Ltd., and Executive Committee of the Thailand Center of Excellence for Life Sciences (TCELS) in addition to many other positions in the public and private sectors. His previous professions include being a researcher at the National Metal and Materials Technology Center (MTEC), and a director of Quality Management Systems for Automotive Industry at NSTDA.

Dr. Sirilertworakul earned his bachelor's degree in industrial engineering with first-class honors from King Mongkut's Institute of Technology Thonburi. Soon after his graduation, he was granted a scholarship to continue his doctorate study in manufacturing engineering at the University of Birmingham, UK. in 1993. In 2008, he completed an Advanced Management Program at Harvard Business School.



**Prof. Dr. Ya-ping Zhang**  
Vice President of the Chinese Academy  
of Sciences (CAS), P.R. China



**Speaker**

### **Education**

Prof. Zhang graduated from Fudan University with a Bachelor Degree in 1986, and Kunming Institute of Zoology, Chinese Academy of Science with a Doctorate Degree in 1991.

### **Work Experience**

Prof. Zhang became a Post-doctoral fellow at Zoological Society of San Diego, Center for Reproduction of Endangered Species, USA in 1991. After three years, he went back to China and worked as a professor in Kunming Institute of Zoology, CAS (KIZ) and director of Laboratory of Cellular and Molecular Evolution of KIZ. In 2002, Prof. Zhang was appointed professor & head of Laboratory of Genetics, Yunnan University. From 2005 to 2012, he was Director of KIZ and director of State Key Laboratory of Genetic Resources and Evolution, KIZ. He was nominated Vice President of Chinese Academy of Sciences in 2012.

Prof. Zhang sits on editorial board for several international periodicals including *Human Molecular Genetics*, and *Frontier in Genetics*. He was elected CAS member in 2003, TWAS member in 2007 and member of Academia Europaea in 2018.

As a research professor of Kunming Institute of Zoology, he has been focusing his research on molecular evolution and genome biodiversity. His investigations involve five correlated areas: molecular phylogenetics; molecular ecology and conservation genetics; human genetics and evolution; origin of domestic animals and artificial selection; genome diversity and evolution.

# Abstract

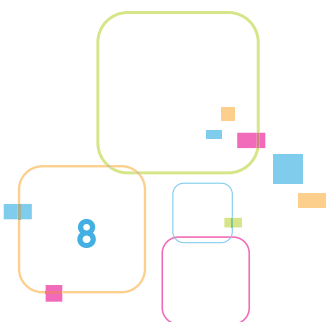
Enabling ecological civilization through the support from science and technology

**Prof. Dr. Ya-ping Zhang**

**Vice President of the Chinese Academy of Sciences (CAS), P.R. China**

Since the industrial revolution, human society has benefited from scientific and technological breakthroughs at the expense of a continuous deterioration of the harmony between human and nature. Facing the challenges of accelerated species extinction, biodiversity loss and ecosystem degradation, we must reconsider the relationship between human and nature. Thus, transformative measures are urgently required to tackle these challenges.

In recent years, China has been vigorously promoting ecological civilization construction. Noticeably with the green and sustainable development concepts of “Harmony between human and nature” and “Lucid waters and lush mountains are invaluable assets”, China has been implementing the ecological conservation red lines and ecological restoration, and increasing the investment in relevant scientific research. These measures not only highly agree with the main three objectives of the Convention on Biological Diversity and the United Nations Sustainable Development Goals (SDGs) but also demonstrate Chinese attributes, solutions and contributions to global ecological environmental governance. As an internationally well-established scientific research institution hosting multiple disciplines, the Chinese Academy of Sciences remains committed to providing sound science and strong technology support to achieving ecological civilization construction through scientific planning of natural reserves, scientific expeditions, species maintenance mechanisms research, biological resource platforms and germoplasm bank construction, and Overseas Science and Education Cooperation Center.

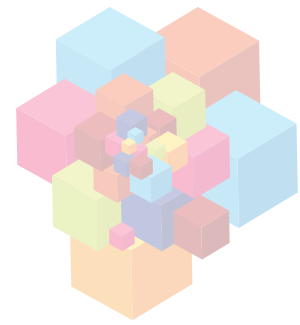






**Prof. Dr. Ulrich Schurr**

Director at Institute for Bio- and Geosciences 2: Plant Sciences (IBG-2),  
Forschungszentrum Jülich, Germany



**Speaker**

Ulrich Schurr (born 1963) became Directors of IBG-2: Plant Sciences in 2001.

Ulrich Schurr studied biology at University of Bayreuth (Germany) from 1982 to 1988. His PhD thesis had the title “Effect of soil drought on xylem and phloem transport in *Ricinus communis* and its importance for root-shoot interaction”. He received his honors as PhD 1991 at Bayreuth University. From 1991 to 2001 he was group leader for Plant Physiology in the Institute of Botany at Heidelberg University. In 2001, he became Directors of IBG-2: Plant Sciences of Forschungszentrum Jülich and Full Professor at Heinrich-Heine University Düsseldorf. He hold an adjunct professorship at Columbia University (USA) between 2002 and 2006.

Prof. Schurr’s scientific expertise is in the field of plant physiology, plant phenotyping – including technology development and quantitative image analysis. He extended this in the last decade to integrated bioeconomy and has established significant activities in biorefinery research, digital bioeconomy, socio-economic research and strategic concepts towards sustainable bioeconomy.

Ulrich Schurr has served (and is presently serving a second term) as Vice-president of the European Plant Science Organisation (EPSO) and as Chair of the European Technology Platform Plants for the Future – interfacing industry, academia and farmers. He is member and member of leadership teams of the Excellence Clusters PhenoRob (Agrorobotic; Digital Agriculture) and CEPLAS (Plant Sciences and plant-microbe interaction). He is the coordinator of DPPN – the German national facility for plant phenotyping. He initiated and coordinated European Plant Phenotyping Networks (EPPN/ EPPN2020). He coordinates the ESFRI-project EMPHASIS, which builds a Pan-European Plant Phenotyping Research Infrastructure. He is the president of the International Plant Phenotyping Network (IPPN). He also runs a number of large scale initiatives in bioeconomy research, like the Bioeconomy Science Center and the BioökonomieREVIER. He is member of the International Advisory Council for Global Bioeconomy.

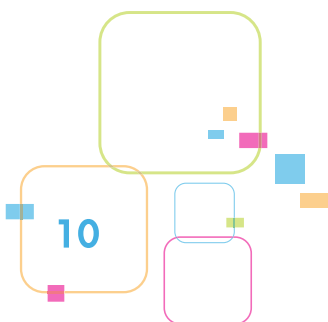
# Abstract

## Regionalization of Bioeconomy - the path to sustainable economies and stewardship to natural resources

**Prof. Dr. Ulrich Schurr**

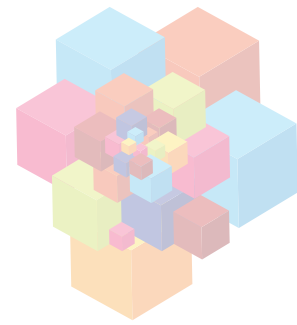
**Director at Institute for Bio- and Geosciences 2: Plant Sciences (IBG-2),  
Forschungszentrum Jülich, Germany**

Modern societies and economies face a multitude of interacting challenges: climate change affects production systems, while agricultural production itself is a major driver of climate change; the need to move from fossil energies towards renewable energy sources and resources is paralleled by the need to develop sustainable land use and protection of nature and biodiversity; the increase demand for food in amount and quality is challenging production, while reduction of food waste is a major source to reduce the footprint of human activities. Bioeconomy is a central concept to balance the need for use and the stewardship of natural resources. The presentation will elaborate on how novel technologies can improve the efficiency of resource use and how integration across sectors of bioeconomy and beyond opens transformation potentials towards sustainable economics. I will also discuss the need to address consumption patterns and how circularity in a bioeconomy approach can be reached as the basis for sustainable development. I will give examples, how the regionalization of bioeconomy can significantly improve the impact towards sustainable production and consumption as well as address the diversity of regions and utilize their opportunities, while addressing global challenges.





**Datuk Dr. Mohd Yusoff Bin Sulaiman**  
President & CEO, Malaysian Industry-Government  
for High Technology (MIGHT), Malaysia



**Speaker**

### **Education**

Dr. Yusoff graduated with his Ph.D. in Manufacturing Engineering from the University Technical Malaysia Melaka (UTEM) in 2014. He attended two Executive Education programs at Harvard University on STI Policy and Biopharmaceutical & Biotechnology.

### **Work Experience**

Dr. Yusoff is currently the President & CEO of the Malaysian Industry-Government Group for High Technology (MIGHT). MIGHT is a public-private partnership organisation for the advancement of technology and industrial development.

He was elected as the President & Founder of the Malaysian Rail Industry Corporation (MARIC) in 2017 whose members are the leading rail systems work companies.

He is a Fellow of the ASEAN Academy of Engineering and Technology, Academy of Sciences Malaysia and the Chartered Institute of Logistics and Transport.

He is a Council member of the Science & Technology for Society (STS) Forum, UNESCO's Isfahan Regional Centre for Technology Incubators & Science Park Development, Malaysian Standards and Accreditation Council, National TVET Industrial Advisory Council, Selangor Rail Council, and others.

He is a Board member of the Kulim High Technology Park, Melaka Green Technology Corporation and Aerospace Malaysia Innovation Centre. Previous Boards included Malaysia Debt Ventures, Malaysia Automotive Institute, A-BIO (Chairman), MYBiomass (Chairman), Senstech (Chairman), and others.

# Abstract

## Transformation model for innovative, resilient and sustainable future

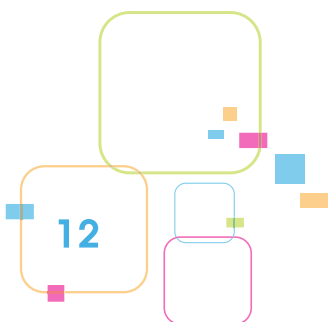
**Datuk Dr. Mohd Yusoff Bin Sulaiman**  
**President&CEO, Malaysian Industry-Government**  
**for High Technology (MIGHT), Malaysia**

Countries are facing new challenges due to rapid demographic change, rural–urban transitions, increasing demand for natural resources, globalization and economic liberalisation, climate change and technological progress. Therefore, we need innovation to create sustainable and resilient solutions for the future. Most countries are not investing enough into research and research institutes. Expanding the outreach and space for collaboration and inclusiveness can boost value creation and win-win outcomes.

Five future-defining attributes will guide the transformation of the research institutes: innovation, partnership, resilience, inclusiveness, and sustainability. For the best results, these attributes are interconnected and must be applied simultaneously to drive future strategies into a truly transformative agenda.

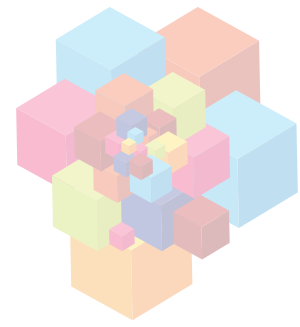
These five future-defining attributes can also help to develop a future-oriented governance and eco-system across the research and technology development strategy that addresses: financial aspects, infrastructure, regulation, skills development and technology i.e. the F.I.R.S.T.<sup>TM</sup> implementation framework.

Therefore, it is timely to propose a different model for transformation of the research institutes: one that accommodates innovative, resilient, inclusive, and sustainable systems. Partnerships between governments, the private sector, citizens and the research institutes will be required to achieve success which is shared and sustainable.





**Dr. Lakshmi Krishnan**  
Vice-President of Life Sciences,  
National Research Council (NRC), Canada



**Speaker**

### **Education**

Dr. Krishnan holds a Master's degree in Bio-medical Genetics from the University of Madras (India) and a Ph.D. in Immunology from the National Institute of Immunology in India. She completed post-doctoral studies at the University of Alberta through an Alberta Heritage Foundation scholarship. She serves as an Adjunct Professor in the Department of Biochemistry, Microbiology and Immunology at the University of Ottawa and has mentored many graduate students. She also volunteers with several organizations mentoring youth on leadership skills. Dr. Krishnan has published over 75 primary research articles in peer-reviewed journals and is listed as an inventor on several patents.

### **Work Experience**

Dr. Lakshmi Krishnan is the acting Vice-President of Life Sciences at the National Research Council, Canada (NRC). In this capacity, she oversees the Human Health Therapeutics, Aquatic and Crop Resource Development and Medical Devices research centres.

As a globally recognized Life Sciences researcher, Dr. Krishnan has been a leader for driving innovation in the area of novel biologics treatments for the improvement of human health. She has represented NRC at government of Canada international joint committees and being invited as guest speaker in several countries. Dr. Krishnan is committed to Health Innovation and sustainable bio-economy.

Dr. Krishnan joined the NRC in 1998. Prior to her current appointment, she was Director General of the Human Health Therapeutics Research Centre (2018-2020), Director of R&D for Immunobiology and the Program Lead for Vaccines and Immunotherapy (2014 to 2018), research officer in the areas of vaccine adjuvant development and host pathogen interactions (1998-2014). As an expert researcher in the field of vaccine development, infectious diseases and cancer, Dr. Krishnan has been the recipient of numerous competitive research grants from various agencies including the Ontario Institute for Cancer Research (OICR), the Canadian Institutes of Health Research (CIHR) and the National Institutes of Health (NIH – USA).

She is member of the board of the Canadian Cancer Research Alliance, National Synthetic Biology Steering Committee and chairs the Federal Vaccine Research Innovation and Development Committee that includes membership from 13 federal departments across the Government of Canada.

# Abstract

## Lessons from COVID-19 and innovating for the future at the National Research Council Canada

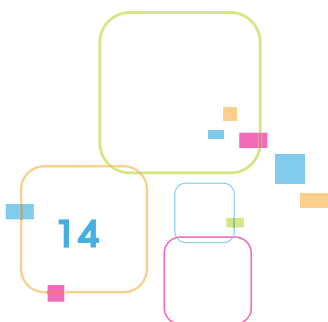
**Dr. Lakshmi Krishnan**

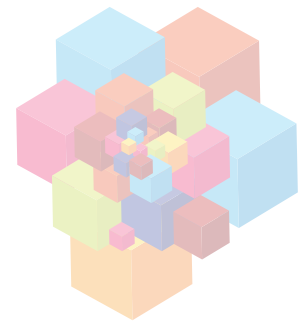
**Vice-President of Life Sciences, National Research Council (NRC), Canada**

Over the past century, the National Research Council (NRC) has provided pivotal support for Canada in times of need, through world wars and economic depression, and was once again called upon to help as the country faced a global pandemic. First and foremost, our researchers devoted their expertise to meeting the most urgent pandemic needs, contributing to Canada's government-wide response to COVID-19. We rapidly pivoted our research and development to help protect the health and safety of Canadians. We helped our Canadian industry advance innovative solutions to tackle the pandemic while supporting their R&D efforts in other areas. We invested in Biomanufacturing facilities that will provide public capacity in the future to test and produce vaccines. In taking that action, we also kept in mind the country's long-term recovery from the pandemic, laying the foundation to "build back better" — whether that means strengthening domestic capacity to handle the next health challenge that may come or creating the conditions for a greener, more sustainable economy and society.

Like nearly every organization, NRC did this while embracing new ways of working. As the majority of our people shifted to remote work and embraced digital collaboration both internally and with partners around the world, we are positioning NRC as a cross-cutting platform for advancing research excellence, business innovation and public good.

As we move forward to the future of making science work for Canada and the world, we are building stronger mission oriented programs and deploying tactics to increase collaboration with industry, academia, and our international partners. We strive to foster and facilitate research excellence and innovation contributing to a sustainable ecosystem and resilient society by leveraging our collective expertise and R&D infrastructure to build an agile and world-leading research and technology organization.





Organizer

The National Science and Technology Development Agency (NSTDA) is an autonomous government agency affiliated to the Ministry of Higher Education, Science, Research and Innovation (MHESI). NSTDA is tasked to be a driving force to enhance scientific and technological capabilities of Thailand and to enhance the country's competitiveness and the well-being of Thai citizen through science and technology. The agency is committed to achieve four strategic missions comprising; 1) research & development 2) technology transfer 3) human resource development and 4) S&T infrastructure development, through its five main national research centers; the National Center for Genetic Engineering and Biotechnology (BIOTEC), the National Metal and Materials Technology Center (MTEC), the National Electronics and Computer Technology Center (NECTEC), the National Nanotechnology Center (NANOTEC) and the National Energy Technology (ENTEC). In addition, NSTDA reaches out to other research organizations and universities through joint collaboration and other supporting mechanisms to ensure the best resources are being captured to meet the country's innovation needs. To tie all these functions together, the Technology Management Center (TMC) and the Agricultural Technology and Innovation Management Institute (AGRITEC) of NSTDA serve as a linkage between scientists and end users through various mechanisms.

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