

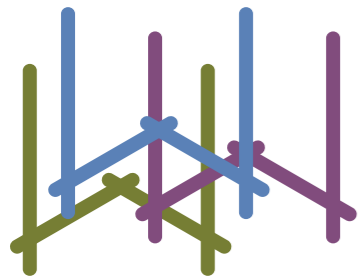


# PMAC | PRINCE MAHIDOL AWARD CONFERENCE 2022

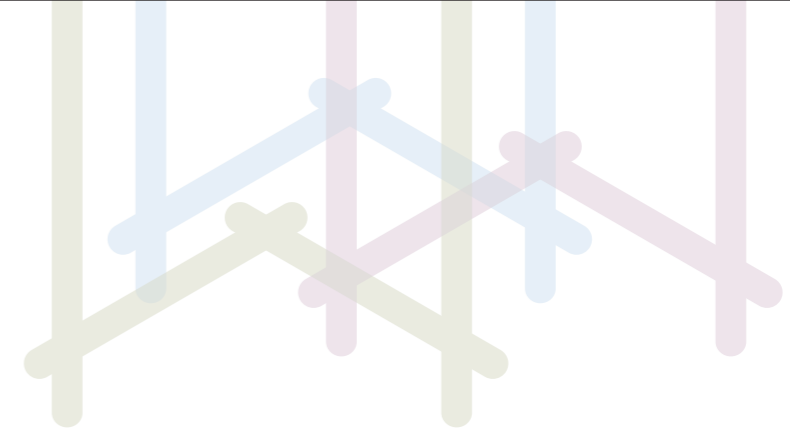
REPORT ON THE

PMAC | PRINCE MAHIDOL  
AWARD CONFERENCE 2022

WORLD WE WANT  
Actions Towards a Sustainable, Fairer and Healthier Society



## REPORT ON THE 2022 CONFERENCE ON **THE WORLD WE WANT** Actions Towards a Sustainable, Fairer and Healthier Society JANUARY 2022



[www.pmaconference.mahidol.ac.th](http://www.pmaconference.mahidol.ac.th)

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## PRINCE MAHIDOL AWARD

The Prince Mahidol Award was established in 1992 to commemorate the 100<sup>th</sup> birthday anniversary of Prince Mahidol of Songkla, who is recognized by the Thais as 'The Father of Modern Medicine and Public Health of Thailand'.

His Royal Highness Prince Mahidol of Songkla was born on January 1, 1892, a royal son of Their Majesties King Rama V and Queen Savang Vadhana of Siam. He received his education in England and Germany and earned a commission as a lieutenant in the Imperial German Navy in 1912. In that same year, His Majesty King Rama VI also commissioned him as a lieutenant in the Royal Thai Navy.

Prince Mahidol of Songkla had noted, while serving in the Royal Thai Navy, the serious need for improvement in the standards of medical practitioners and public health in Thailand. In undertaking such mission, he decided to study public health at M.I.T. and medicine at Harvard University, U.S.A. Prince Mahidol set in motion a whole range of activities in accordance with his conviction that human resource development at the national level was of utmost importance and his belief that improvement of public health constituted an essential factor in national development. During the first period of his residence at Harvard, Prince Mahidol negotiated and concluded, on behalf of the Royal Thai Government, an agreement with the Rockefeller Foundation on assistance for medical and nursing education in Thailand.

One of his primary tasks was to lay a solid foundation for teaching basic sciences which Prince Mahidol pursued through all necessary measures. These included the provision of a considerable sum of his own money as scholarships for talented students to study abroad.

After he returned home with his well-earned M.D. and C.P.H. in 1928, Prince Mahidol taught preventive and social medicine to final year medical students at Siriraj Medical School. He also worked as a resident doctor at McCormick Hospital in Chiang Mai and performed operations alongside Dr. E.C. Cord, Director of the hospital. As ever, Prince Mahidol did much more than was required in attending his patients, taking care of needy patients at all hours of the day and night, and even, according to records, donating his own blood for them.

Prince Mahidol's initiatives and efforts produced a most remarkable and lasting impact on the advancement of modern medicine and public health in Thailand such that he was subsequently honoured with the title of "Father of Modern Medicine and Public Health of Thailand".

In commemoration of the Centenary of the Birthday of His Royal Highness Prince Mahidol of Songkla on January 1, 1992, the Prince Mahidol Award Foundation was established under the Royal Patronage of His Majesty King Bhumibol Adulyadej to bestow an international award - the Prince Mahidol Award, upon individuals or institutions that have made outstanding and exemplary contributions to the advancement of medical, and public health and human services in the world. The Prince Mahidol Award will be conferred on an annual basis with prizes worth a total of approximately USD 100,000. A Committee, consisting of world-renowned scientists and public health experts, will recommend selection of laureates whose nominations should be submitted to the Secretary-General of the Foundation before May 31<sup>st</sup> of each year. The committee will also decide on the number of prizes to be awarded annually, which shall not exceed two in any one year. The prizes will be given to outstanding performance and/ or research in the field of medicine for the benefit of mankind and for outstanding contribution in the field of health for the sake of the well-being of the people.

These two categories were established in commemoration of His Royal Highness Prince Mahidol's graduation with Doctor of Medicine (Cum Laude) and Certificate of Public Health and in respect to his speech that:

*“ True success is not  
In the learning, but in its application  
To the benefit of mankind ”*

In the past 29 years, the Prince Mahidol Award has been conferred to 87 individuals, groups of individuals, and institutions. Among them, 4 were Award recipients of Thai nationality, namely: (1) Professor Dr. Prasong Tuchinda, from studying the effects of Dengue virus to the disability of children who are sick with dengue hemorrhagic fever, (2) Dr. Suchitra Nimmannitya, from identifying severity classification of dengue hemorrhagic fever. Both of them received the Prince Mahidol Award in the field of Medicine in 1996; (3) Dr. Wiwat Rojanapithayakorn, from founding the project to promote the use of condom to prevent spread of HIVs; and (4) Mr. Mechai Viravaidya, from initiating the communication campaign to disseminate the use of condoms. Both Dr. Wiwat Rojanapithayakorn and Mr. Mechai Viravaidya received the Prince Mahidol Award in the field of Public Health in 2009.

Among the Awardees of the Prince Mahidol Award, 5 subsequently received the Nobel Prize:

(1) PROFESSOR BARRY J. MARSHALL

from Australia was conferred the Prince Mahidol Award in the field of Public Health in 2001 for the discovery of the new bacterium identified as *Helicobacter pylori* that caused severe gastritis and its sensitivity to particular antibacterial drugs. He received the Nobel Prize in the field of Medicine in 2005 for the same discovery;

(2) PROFESSOR HARALD ZUR HAUSEN

from Germany was conferred the Prince Mahidol Award in the field of Medicine in 2005 for the discovery of the human papilloma virus HPV16 and HPV18 from the cancer tissue and elucidated how the viruses turn normal cells into cancer cells. He received the Nobel Prize in the field of Medicine in 2008 for the same discovery;

(3) PROFESSOR DR. SATOSHI OMURA

was conferred the Prince Mahidol Award in the field of Medicine in 1997. He is known for the discovery and development of various pharmaceuticals originally occurring in microorganisms. His research group isolated a strain of *Streptomyces Avermitilis* that produce the anti-parasitical compound avermectin which contributed to the development of the drug ivermectin that is currently used against river blindness, lymphatic filariasis, and other parasitic infections. He received the Nobel Prize in the field of Medicine in 2015 for the same discovery; discovery of Qinghaosu as a new drug for treatment of the *P.falciparum* malaria. She received the Nobel Prize in the field of Medicine in 2015 for the same discovery;

(4) PROFESSOR TU YOU YOU

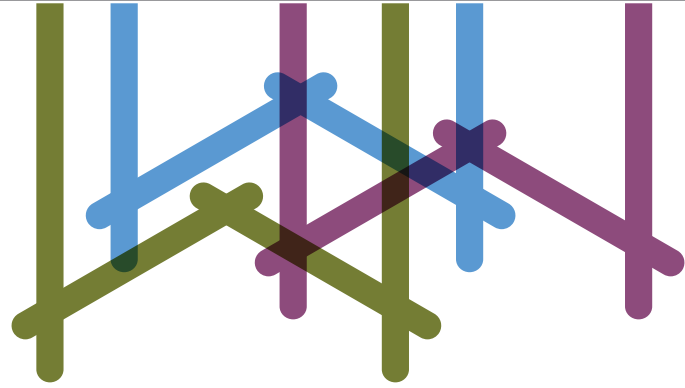
a member of the China Cooperative Research Group on Qinghaosu and its Derivatives as Antimalarials, was conferred the Prince Mahidol Award in the field of Medicine in 2003 in an organisational category for the

(5) SIR GREGORY PAUL WINTER

was conferred the Prince Mahidol Award in the field of Medicine in 2016. He was a pioneer in the field of antibody engineering and modification technology. He invented techniques to humanise antibodies for therapeutic uses, which later led to the creation of cutting-edge the rapeutic drugs. He received the Nobel Prize in the field of Chemistry in 2018 for the same discovery.

[www.princemahidolaward.org](http://www.princemahidolaward.org)





# The Prince Mahidol Award 2021

in the Field of Medicine



**Katalin Karikó, Ph.D.**

Senior Vice President, BioNTech  
RNA Pharmaceuticals Germany  
Adjunct Professor, Perelman School of  
Medicine University of Pennsylvania,  
Philadelphia, USA.

**Hungary/USA**



**Drew Weissman, M.D., Ph.D.**

Director of Vaccine Research,  
Infectious Diseases Division  
Professor, Department of Medicine,  
Perelman School of Medicine  
University of Pennsylvania,  
Philadelphia USA.

**USA**

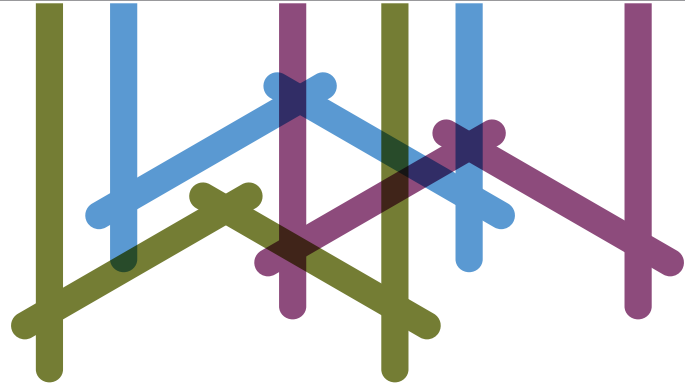
Professor Katalin Karikó received her Ph.D. from University of Szeged, Hungary.

Professor Drew Weissman received his M.D. and Ph.D. from Boston University, USA before attended the training program with Dr. Anthony Fauci, who received the Prince Mahidol Award in the field of medicine in 2013, at the National Institutes of Health, Maryland, USA.

Prof. Karikó and Prof. Weissman have been working side by side in developing mRNA technology and its applications in medicine. In 2006, they discovered that modification of nucleosides in mRNA could reduce cellular reactions toward foreign RNA. This was an important step in the utilization of mRNA technology. Foreign RNA is naturally recognized by cellular anti-viral machinery, which suppresses translation of mRNA and induces inflammation. These reactions were the main obstacle preventing the applications of mRNA in prevention and treatment of diseases. This and subsequent studies of Prof. Karikó and Prof. Weissman have led to the use of pseudouridine in mRNA production and invention of purification method for pseudouridine-containing mRNA. These are the critical basis for the mRNA vaccine development. Prof. Karikó and Prof. Weissman have also played important role in the rapid development of COVID-19 mRNA vaccine.

The achievement of Prof. Karikó and Prof. Weissman has led to the rapid availability of COVID-19 mRNA vaccine, which has saved millions of lives and become an important tool for the control of COVID-19 pandemic around the world.





# The Prince Mahidol Award 2021

in the Field of Medicine



## Pieter Cullis, Ph.D.

Professor, Department of Biochemistry  
& Molecular Biology,  
University of British Columbia, Vancouver

Canada

Professor Pieter Cullis received his Ph.D. from the University of British Columbia and continued his research career there in lipid biochemistry.

Prof. Cullis is a pioneer in lipid nanoparticles, which have been used for various applications in medicine such as delivering anticancer drugs to cancer tissues without causing too much toxicity in normal tissues. The most remarkable type of lipid nanoparticles developed by Prof. Cullis is lipid nanoparticles with ionizable cationic lipid. These lipid nanoparticles have no charge at neutral pH, but become positively charged in low pH. Because of the absence of positive charge, the lipid nanoparticles are not toxic to cells. When they are taken up by cells into endosomes, the acidic pH in endosome turns the neutral lipid into positively charged lipid, which causes fusion to negatively charged cellular membrane. This membrane fusion delivers the content of the lipid nanoparticles into cytoplasm of the cells. This technique has been successfully employed to develop the delivery system of mRNA vaccines, which are being used to control the COVID-19 pandemic.

The achievement of Prof. Cullis not only made COVID-19 mRNA vaccines possible but has also created a way to safely deliver nucleic acid into cells, which opened up possibilities for various applications of nucleic acid technology for prevention and treatment of many diseases in the future.





## PRINCE MAHIDOL AWARD CONFERENCE

The Prince Mahidol Award Conference was first organized in 1998 to celebrate the 5th anniversary of the Prince Mahidol Award, then again in 2002 to celebrate the 10<sup>th</sup> anniversary of the award. To celebrate the 15<sup>th</sup> anniversary of the award and the 115<sup>th</sup> Birthday Anniversary of His Royal Highness Prince Mahidol of Songkla, Her Royal Highness Princess Maha Chakri Sirindhorn, President of the Prince Mahidol Award Foundation under the Royal Patronage, requested the conference to be organized annually since 2007.

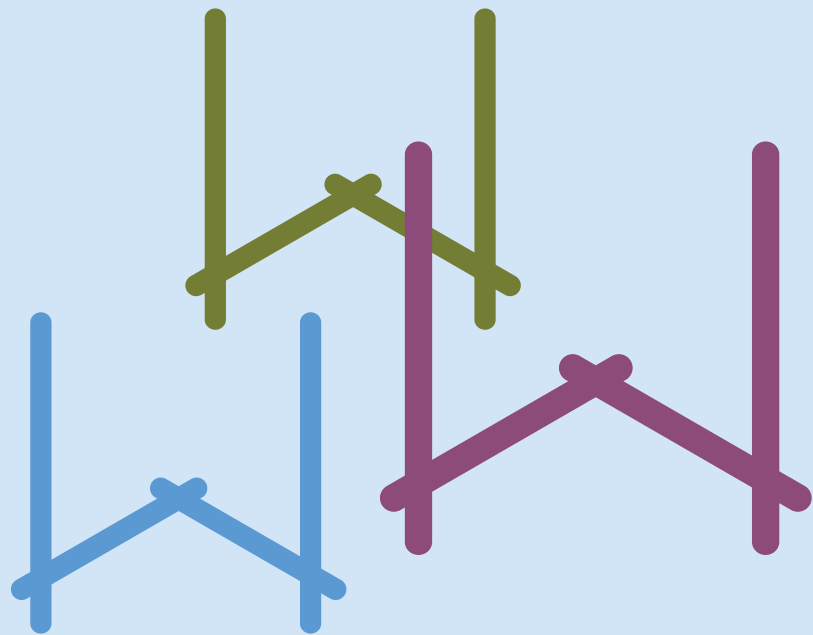
Since 2007, the Prince Mahidol Award Conference has been organized as an annual international conference focusing on policy-related public health issues of global significance. The conference is hosted by the Prince Mahidol Award Foundation, the Royal Thai Government and other global partners, for example the World Health Organization (WHO), the World Bank, the United States Agency for International Development (USAID), the Japan International Cooperation Agency (JICA), the Rockefeller Foundation, the China Medical Board (CMB), and other related UN agencies.

The general objective of the annual Prince Mahidol Award Conference is to bring together leading public health leaders and stakeholders from around the world to discuss high priority global health issues, summarize findings and propose concrete solutions and recommendations.

It aims at being an international forum that global health institutes, both public and private, can co-own and use for the advocacy and the seeking of international advices on important global health issues. Specific objectives of each year's conference will be discussed among key stakeholders and co-hosts of the conference. The conference participants include ministers, senior government officials, intergovernmental organizations, international development partners, global health initiatives, health policy and health systems researchers and advocates, civil society organizations, and high-level stakeholders from developing and developed countries.

### THE PAST AND UPCOMING CONFERENCES INCLUDE:

- 1997 : The International Conference Science and Health
- 2002 : Medicine and Public Health in the Post-Genomic Era
- 2007 : Improving Access to Essential Health Technologies: Focusing on Neglected Diseases, Reaching Neglected Populations
- 2008 : Three Decades of Primary Health Care: Reviewing the Past and Defining the Future
- 2009 : Mainstreaming Health into Public Policies
- 2010 : Global Health Information Forum
- 2011 : 2<sup>nd</sup> Global Forum on Human Resources for Health
- 2012 : Moving towards Universal Health Coverage: Health Financing Matters
- 2013 : A World United against Infectious Diseases: Cross-Sectoral Solutions
- 2014 : Transformative Learning for Health Equity
- 2015 : Global Health Post 2015: Accelerating Equity
- 2016 : Priority Setting for Universal Health Coverage
- 2017 : Addressing the Health of Vulnerable Populations for an Inclusive Society
- 2018 : Making the World Safe from the Threats of Emerging Infectious Diseases
- 2019 : The Political Economy of NCDs: A Whole of Society Approach
- 2020 : PMAC2020 / UHC Forum 2020: Accelerating Progress Towards UHC
- 2021 : COVID-19: Advancing Towards an Equitable and Healthy World
- 2022 : The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society
- 2023 : Setting a New Health Agenda – at the Nexus of Climate Change, Environment and Biodiversity



Prince Mahidol Award Conference 2022

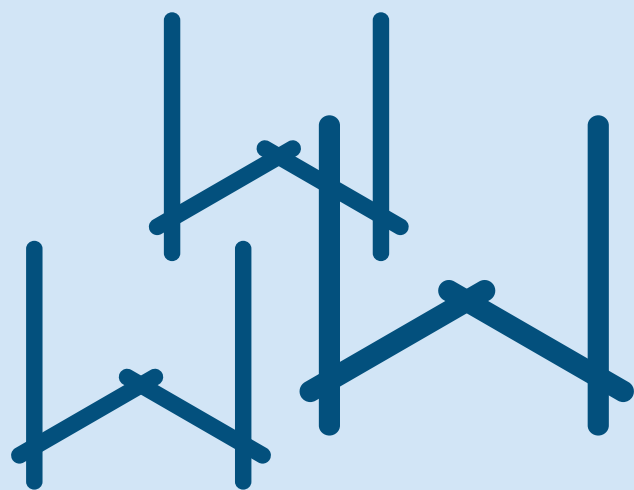
# THE WORLD WE WANT

Actions Towards a Sustainable,  
Fairer and Healthier Society

As we enter the third decade of the 21<sup>st</sup> century the world has been shaken at its economic, political, and social core by a series of convergent and interrelated events - the COVID-19 pandemic, the growing impact of climate change, and the rapidly growing economic inequalities between and within nations. They have led to calls for re-thinking the future of human societies in ways that will result in a fairer, healthier, and more sustainable world. While in the summer of 2021 some rich countries have had access to vaccines with robust immunization programs and are near to achieving herd immunity (Israel, Canada, UK, US), the story is completely different for the vast majority of the world's population. In low- and middle-income countries (LMIC), fewer than 1 percent have been vaccinated with little expectation that vaccine coverage will be widely available through 2022. In the absence of widespread vaccination coverage SARS-CoV-2 variants will remain a significant threat to those gains already achieved. The issue of equitable access to COVID-19 vaccines and treatment technologies is crucial and poses massive questions for the global community about equitable provision of access to health care and the conditions for health and wellbeing.

The 2022 PMAC theme – “The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society”, aims to take a long view by focusing on the ‘mega trends’ that will shape the rest of this century and the complex interplay between them, including how they are already reshaping our global health landscape. PMAC 2022 will consider how the experience of the COVID-19 pandemic is impacting the geopolitics of global health, implications of key shifts in the makeup of the world's population, the opportunity gains and threats of exponential technological change, and that most urgent of ticking clocks the imminent and evolving threats to global health and wellbeing posed by climate change.





# MESSAGE

from the Chairs of the International  
Organizing Committee

As we enter the third year of the COVID-19 pandemic we are more certain than ever of the vital role of strong public health systems in making our world safe for everyone, everywhere to live their lives to full potential, in good health and in balance with the planet.

COVID-19 has been the greatest global shock in decades. More than 5 million lives have been lost and more than 240 million cases have been reported to WHO, inflicting enormous pressure on health systems, livelihoods, economies and even democracies.

As of October 2021, almost 6,700,000,000 (six billion seven hundred million) vaccine doses have been administered worldwide, most of them in high and upper middle-income countries. The world has created yet another inequity in terms of access to COVID-19 vaccines and technologies

The pandemic has pushed the world into an economic crisis, the ramifications of which are still to play out fully. Economic prospects for recovery clearly show two tracks divided by vaccine access, as put recently by the OECD: those countries and economies that can look forward to further normalization of activity later in 2021 (almost all advanced economies) and those that will still face resurgent infections and rising COVID death tolls.

Yet, every country is at risk and the recovery is not secured as long as the virus circulates.

Again, we can see clearly that inequities have an economic cost, and there is an urgent need for improved governance for managing the response to this type of emergency, including pandemics.

But even before this pandemic caught us unprepared, there were other pandemics such as HIV, TB and malaria and major 'megatrends' developing and shaping what our future will look like.

The climate crisis is perhaps the biggest long-term threat to humankind. The climate emergency, for example, is impacting human lives and health in a variety of ways. It threatens the essential ingredients of good health - clean air, safe drinking water, nutritious food supply, and safe shelter - and has the potential to undermine decades of progress in global health, poverty alleviation and social development. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress alone. The direct damage costs to health is estimated to be between USD 2-4 billion per year by 2030. Once more the immense cost of inequities become evident as areas with weak health infrastructure and vulnerable populations will be the least able to cope without assistance to prepare, respond and recover.

Climate change, pollution and environmental degradation, along with the neglect of nature and the health of the planet, can only lead to a wider spread of infections and disease given the increased interface of human, animal and planetary health. Recognizing these complex and multidisciplinary issues requires enhanced coordination and collaboration among sectors and agencies, nationally and internationally through 'One Health' and planetary health approaches.

Likewise, there are four global demographic 'megatrends' critically important to shaping our future: population growth, population ageing, migration and urbanization. Globally, the population is growing, and the number and proportion of older people is increasing in parallel. In 2019, the number of people aged 60 years and older was 1 billion. This number will increase to 1.4 billion by 2030 and 2.1 billion by 2050. This increase is occurring at an unprecedented pace and will accelerate in coming decades, particularly in low- and middle-income countries. These changes in the global and national structure of the population require innovative adaptations to the way societies are organized across all sectors for all ages, including health and social care, transport, housing, urban planning, employment and services, and education.

Most of these environments will be urban. Currently half of the world's population lives in urban areas, and that is expected to grow to almost 80% in 2050, mostly in cities. This brings many challenges, including for health systems, but also many opportunities to create healthier, safer and more just cities and urban settings for all people. Careful urban planning can improve social cohesion and inclusion, as well as support disease prevention and health promotion among all population groups.

And populations move. Since the very first human settlements, people have moved for many different reasons. Human migration is also fuelled by environmental degradation and climate change, political instability and lack of opportunities to grow or because of aspirations to secure a safer, healthier and more supportive future. Migration is one of the 'megatrends' that will shape the world we want and the impacts on health and public health need to be addressed.

As global health leaders, practitioners and reformers, in PMAC 2022 we will consider the impact of these 'megatrends' and address together the challenges highlighted. We will also take account of the lessons learned during the COVID-19 pandemic and discuss what the required actions are to build more sustainable, fairer and healthier societies for all.

## **Prince Mahidol Award Conference 2022**

The theme of PMAC 2022, "The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society", aims to take a long view by focusing on the 'megatrends' that will shape the rest of this century and the complex interplay between them, including how they are already reshaping our lives, communities and global health landscape. They are shaping our future and the future of generations to come.

PMAC 2022 will also consider how the experiences of the COVID-19 pandemic are impacting the geopolitics of global health, population dynamics, and technological change, as well as how these experiences are also interlinked with the climate crisis.

Ten years ahead of the date to achieve the Sustainable Development Goals, PMAC 2022 will look at what is needed to fulfil the promise of the SDG targets, but also look at the world we want beyond 2030: the future we are building today.

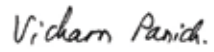
This is a four-day conference with thematic sessions that will bring together policy makers, futurists, academics and experts from the fields of global governance, international relations, demography, nutrition, political economy, climate, and technology alongside private sector and global health experts. They will carefully consider the world as it is today and envision the future for the world we want.

As the Co-chairs of this crucial global Conference, we are delighted to welcome you to join more than a thousand fellow health leaders, practitioners and reformers around the world, and to take full advantage of all the opportunities that PMAC 2022 has to offer.

### **Appreciation**

We would like to acknowledge the valuable contribution of the co-sponsoring organizations, whose tireless efforts helped bring the Conference to fruition. We especially thank the Prince Mahidol Award Foundation and the Royal Thai Government for their remarkable support and outstanding leadership, as well as the PMAC Secretariat for providing their overall guidance, day-to-day support and incredible team spirit. We are also grateful to the organizers and contributors to the preconference activities that have provided the excellent analyses and input used in this week's plenary sessions.

Finally, we would like to show, once more, our appreciation and solidarity to all frontline workers all over the world who have bravely put themselves in harm's way in the service of others.



Dr. Vicharn PANICH  
Chair  
Prince Mahidol  
Award Conference



Ms. Henrietta H. FORE  
Co-Chair  
United Nations  
Children's Fund



Ms. Winnie BYANYIMA  
Co-Chair  
Joint United Nations  
Programme on HIV/AIDS



Dr. Naoko YAMAMOTO  
Co-Chair  
World Health Organization



Dr. Juan Pablo URIBE  
Co-Chair  
The World Bank



Mr. Haoliang XU  
Co-Chair  
United Nations Development  
Programme



Dr. Osamu KUNII  
Co-Chair  
The Global Fund to Fight AIDS,  
Tuberculosis and Malaria



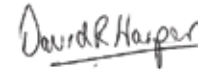
Mr. Tomoya YOSHIDA  
Co-Chair  
Japan International  
Cooperation Agency



Dr. Barbara J. STOLL  
Co-Chair  
China Medical Board



Dr. Naveen RAO  
Co-Chair  
The Rockefeller Foundation



Dr. David HARPER  
Co-Chair  
Chatham House



# CONFERENCE CO-HOSTS AND SUPPORTING ORGANIZATIONS

A full list of the PMAC 2022  
International Organizing Committee  
Members is given in ANNEX I.



PMAC PRINCE MAHIDOL  
AWARD CONFERENCE



World Health  
Organization



THE WORLD BANK  
IBRD - IDA | WORLD BANK GROUP



Empowered lives.  
Resilient nations.



CHINA  
MEDICAL  
BOARD



THE  
ROCKEFELLER  
FOUNDATION



CHATHAM  
HOUSE  
The Royal Institute of  
International Affairs



UNFPA



BILL & MELINDA  
GATES foundation



unicef  
for every child



UNAIDS



The Global Fund



USAID  
FROM THE AMERICAN PEOPLE



JICA



NUS  
Saw Swee Hock  
School of Public Health



BMJ



PEOPLE'S HEALTH  
MOVEMENT



SIGHT.  
INSTITUTE FOR HEALTH TRANSFORMATION



fhi360  
THE SCIENCE OF IMPROVING LIVES



## OPENING SESSION

### **Her Royal Highness Princess Maha Chakri Sirindhorn**

Chairman, Board of Trustees and President,  
Prince Mahidol Award Foundation

As the Chairman of the Board of Trustees and President of the Prince Mahidol Award Foundation, it is my great pleasure to join you today at the Prince Mahidol Award Conference 2022 on the theme "The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society".

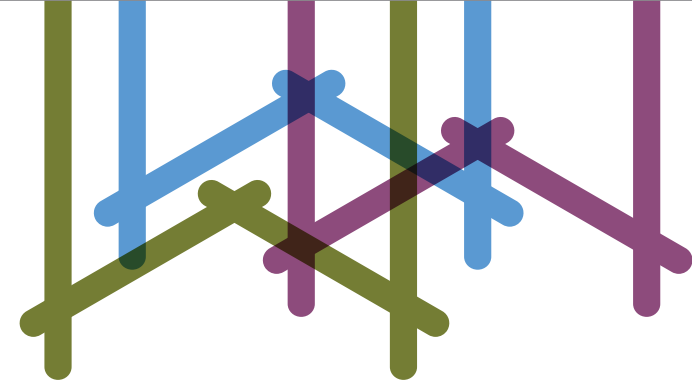
Today, the COVID-19 pandemic and global megatrends including climate change, demographic and social change, geo-political and economic power shifts, and digital technologies are transforming the way we live and work and shaping our future well-being. These megatrends present both risks and opportunities for our society. How can these global forces be harnessed to create new possibilities for everyone and not exacerbate the challenges faced by those less privileged? The COVID-19 pandemic has illustrated that vulnerable populations face greater risks and suffer the most from the impacts of the megatrends. Therefore, it is vital that we address the issue of equity and fairness.

I believe that this conference will serve as an excellent platform for international dialogue and engagement as we identify pathways to achieving a sustainable world that can accommodate the economic, social, environmental and health needs of future generations, and leaving no one behind.

I would like to sincerely thank our co-hosts and partners – the World Health Organization, the World Bank, the United Nations Development Programme, the United Nations Children's Fund, the Joint United Nations Programme on HIV/AIDS, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the U.S. Agency for International Development, the Japan International Cooperation Agency, the Rockefeller Foundation, the China Medical Board, the Chatham House, the United Nations Population Fund, the Swedish Institute for Global Health Transformation, the Bill & Melinda Gates Foundation, the National University of Singapore, the British Medical Journal, the People's Health Movement, and FHI 360 – for their continuous support to the Conference. With their strong and dedicated contributions, the conference has come to this day with wonderful success.

I wish you a very productive meeting and I now declare the Prince Mahidol Award Conference 2022 open.





# Message from the United Nations Secretary-General



**António Guterres**  
United Nations Secretary-General

## Message for Prince Mahidol Award Conference 2022

26 January 2022

As the world faces a third year of the COVID-19 pandemic, new waves and variants are exacting a heavy toll, with no end in sight.

Health systems are stretched to the limit, and poverty and inequalities are growing. Against this backdrop, conflicts continue to worsen, and climate change continues to wreak irreversible damage across humanity's only home.

As communities, countries and economies alike face an uncertain and uneven road to recovery, this year's Prince Mahidol Award Conference is an opportunity to lay the foundations for a healthier, more equal, peaceful and sustainable future for all.

This year's theme – The World We Want – reminds us that building tomorrow must start today.

We need to end the pandemic, with bolder action to vaccinate every person, everywhere.

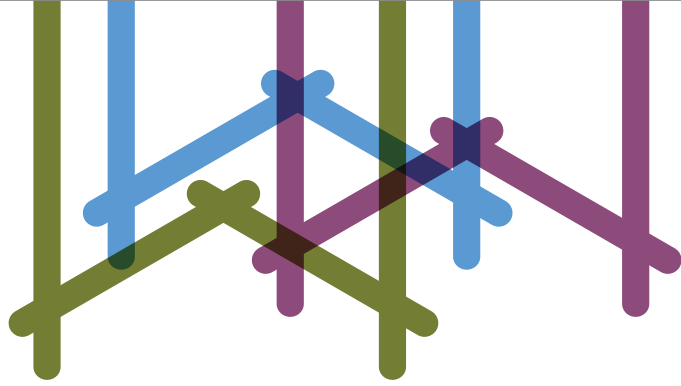
We need to scale-up investments in all the systems that support human development – from health and education, to affordable housing and decent employment, to universal social protection – in every country and community.

We need to reform the global financial system – with wealthier countries supporting the developing world with financing, investment and debt relief.

We need to prevent and end the conflicts that scar our world, with a renewed spirit of dialogue, compromise and reconciliation.

And we need to end the planetary emergency of climate change through determined action and credible commitments that match the scale and urgency of the crisis.

The United Nations is counting on the ideas and solutions that emerge from this year's Conference to help us recover from this trying moment in history and build a healthier, fairer and more sustainable future for every person, everywhere.



## Opening Remarks for Prince Mahidol Award Conference 2022

I thank Thailand for hosting this event and for its leadership in global health.

We are entering the third year of the COVID-19 pandemic. Inequitable access to vaccines and inconsistent use of public health measures are prolonging it and give the virus more room to spread and mutate.

But as a global community, we face many other opportunities and challenges beyond the pandemic. The climate crisis, population growth, aging, migration and urbanization to name a few.

Many of these challenges are linked, which means none can be solved in isolation from the others. They require innovative adaptations to the way societies are organized across all sectors, including health, transportation, housing, urban planning, employment, education and more.

Most of all, building resilient, inclusive and equitable societies demands collaboration and solidarity.

We have no future, but a common future. PMAC 2022 is an opportunity to think about the innovative solutions we need to build “The World We Want” – a future that's healthier, safer, fairer and more sustainable.

I thank you.

# Message from the WHO Director-General



**Tedros Adhanom Ghebreyesus**  
WHO Director-General





# Conference Sessions at a Glance

A full list of the PMAC 2022 Speakers, Panelists, Moderators, and Rapporteurs is given in ANNEX II.



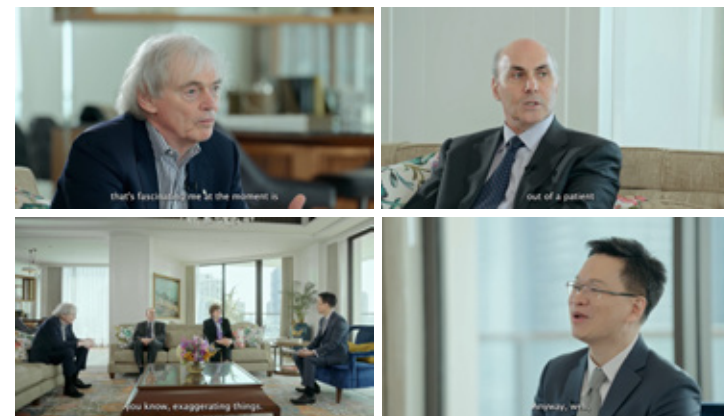
## KEYNOTE SESSION

– Armchair Interview with Prince Mahidol Award Laureates 2021: Development of the mRNA Vaccine and Future Applications

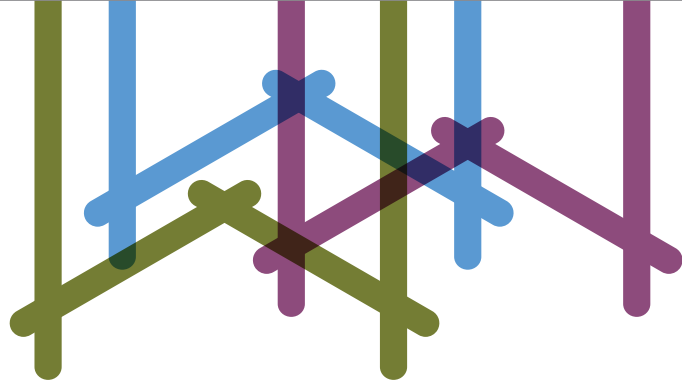
Watch Video with English Subtitle



Watch Video with Thai Subtitle







**"None of us are ever satisfied about anything and that's why we are researchers"**

Drew Weissman



**"The pandemic pushed the mRNA to the frontline"**

Katalin Karikó



**"Science is not a very linear path. You don't go straight; you go all over the place. Then interesting things happen."**

Pieter R. Cullis

## OPENING SESSION

– Armchair Conversation

Watch Video



**"Access should not be limited to wealthy countries who can pay top dollar and buy more than they need that excludes others."**

Helen Clark



**"We do need an affordable universal health coverage based on primary health care because that is fundamental for health."**

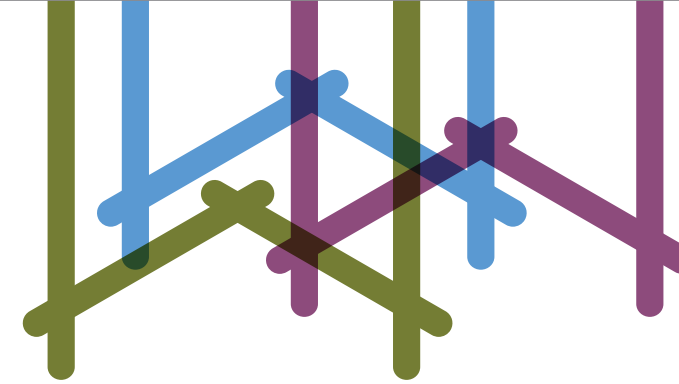
**"We must invest in our youth, particularly women, and cultivate them to be responsible future leaders with integrity, courage, professional skills, multidisciplinary thinking, and humanity at heart."**

Margaret Chan



**"A more equitable, sustainable, and resilient world by placing human rights at the center of our response. We can achieve the world we want."**

Michelle Bachelet



Watch S1 Video



## SESSION 1

Understanding the Megatrends of the 21<sup>st</sup> Century –  
A Critical Step Towards Getting the World We Want



**"Understanding these dynamic [and] these trends [in] both biologic, ecologic, economic, and political [aspects], we'll have the opportunity to think in a much more forward learning way."**

**"Our sense of public health is too narrow that we need to understand public health within the larger context of the world we live in. We can't separate our own health from the ecology around us, from the system around us."**

Dennis Carroll



**"We need to stop just speaking about solidarity, speaking about unity speaking about collaboration and doing the opposite."**

Mohamed Mamdouh Elsayed Sayed Ahmed Eissa



**"What I can do, I will do."**

Katalin Karikó



**"We need a modernized public health based on data, partnership and most importantly trust."**

Naveen Rao



**"COVID-19 and climate change are 2 sides of same coin. We observed insufficient commitment by leaders and countries to address them."**

**"We need to understand the situations on the grounds from bottom up. You cannot make those decisions from Geneva and Washington."**

Ayoade Olatunbosun-Alakija



**"What we similarly need for AI and global health infrastructure are fairness including representation in the policy making process and transparency."**

Brian Christian



**"The [global health] architecture is less optimistic today than 2 decades ago. Now there is less respect on the multilateral system, less attention to global interests but more to local and national ones. More attention is paid to competition with other countries than working together."**

Gro Harlem Brundtland



## SESSION 2

To What Extent Will the COVID Pandemic Affect Achievement of the SDG Goals

Watch S2 Video



**"I do want to believe that one of the biggest ways of giving back to the communities is the health sector, is the education sector, is to water and sanitation sectors because if you can put those things back into the community, at least in our many of those community will be grateful villagers."**

Aboubacar Kampo



**"We also have to work to protect the space for social movement activism to challenge governments to begin this essential mission works for equitable human well-being on an environmentally healthy planet."**

Ronald Labonté



**"The world we want is not the world for me it's the world for the next generation."**

Richard Horton



**"COVID-19 taught us that global solutions are possible, but we will fail if we do not engage in local participation and trust. The voice of the locals must be heard."**

Agnes Binagwaho





## SESSION 3

Scaling up Efforts to Tackle the Climate Crisis and Building Forward Greener

Watch S3 Video



**"Now the opportunity is to work with other disciplines in a respectful way, understanding the ways social science, physical science, health science going to work together to understand the kind of solutions and the ways forward."**

Andy Haines



**"While we may all be in the same storm, we are not in the same boat."**

Elizabeth Waituti



**"The commitment is one thing, but the roadmap and the viability of delivery of those actions are one another."**

Gillian Caldwell



**"Building forward greener is no longer an option, it is a necessity."**

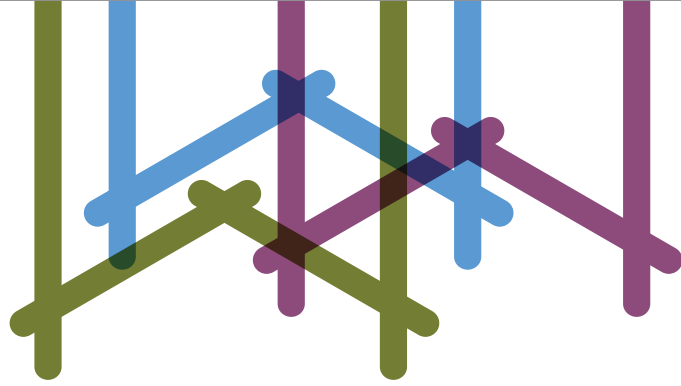
Iferemi Waqainabete



**"We need young people to not just be aware of the situation, but be part of the solution."**

Jun Ma





Watch S4 Video



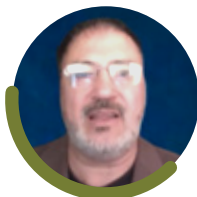
## SESSION 4

Scaling up Efforts to Tackle the Climate Crisis and Building Forward Greener



**"From the ashes of the current crisis, all nations have something to learn about building back better when it comes to health systems."**

Gavin Yarmey



**"Health Spending cannot be controlled, or kept below the GDP growth because you will fail."**

Ariel Pablos-Mendez



**"We cannot detach primary care from the whole health system."**

Maris Jesse



**"We actually have to develop a culture of listening to the people, having dialogue with them and having a seat on the table for them."**

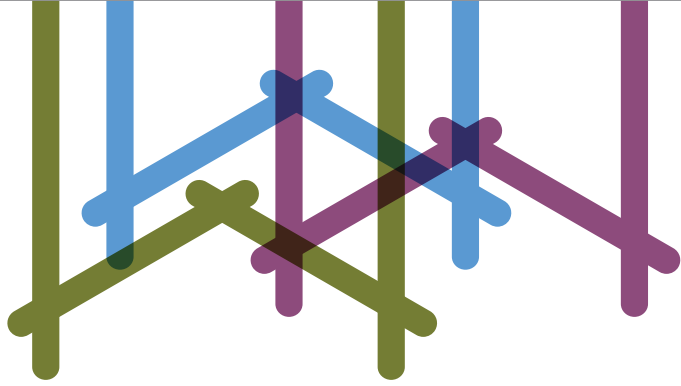
Yogesh Jain



**Private sector is like the kettle drum in an orchestra. If they play alone, they are expensive, noisy and just very annoying. But in a symphony orchestra, they are valuable, powerful and beautiful. This is like the role of private sector in a healthcare system."**

Jan-Willem Scheijgrond





## SESSION 5

Managing Pandemics During The Fourth Industrial Revolution



Watch S5 Video



**"Doctors are nothing without their tools (social media) and tools are nothing without their doctors."**

Mike Varshavski



**"Preparedness should not be seen as a cost."**

**"Will the Fourth Industrial Revolution and technological innovation take us closer or further away from being ready?"**

Michael J. Ryan



**"When COVID-19 hit, we knew we needed to act."**

Melanie Saville



**"We cannot underestimate the role of partnerships, networking, and collaboration, all putting their hands together working together for effective public health response."**

Adebola Olayinka



**"We really need to go local and put people at the heart of our programs and design people centered or citizen centered strategies to understand why people are missed"**

Sarah Hess



**"We all remain at risk. 2022 has to be the year that we act."**

Beth Thompson



**"Health Security is like a chameleon that changes colors depending on its environment."**

David Heymann



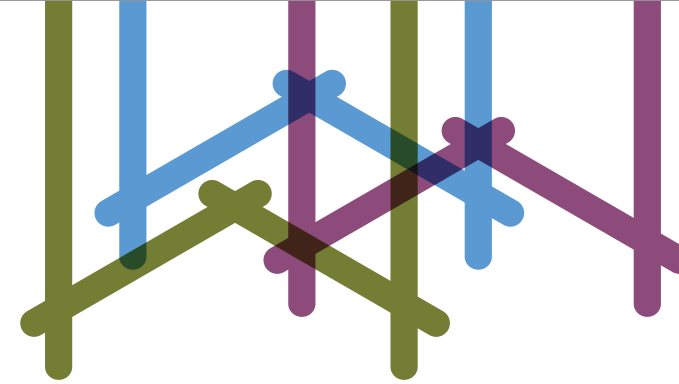
**"The pandemic brought us a lot of problems and challenges, but it also brought us a lot of opportunities and new possibilities."**

Alexandre Pinho



**"No one is safe until everyone is safe."**

Nahoko Shindo



Watch S6 Video



## SESSION 6

Pandemic Preparedness and Response: Stopping the Next Outbreak Before It Becomes a Pandemic



**"The vulnerability that we thought existed are more than actually it is."**

John Nkengasong



**"Pathogens can travel around the world within few hours, therefore, nationalism is not going to work."**

Soumya Swaminathan



**"The secret weapon for every outbreak is data."**

Rick Bright

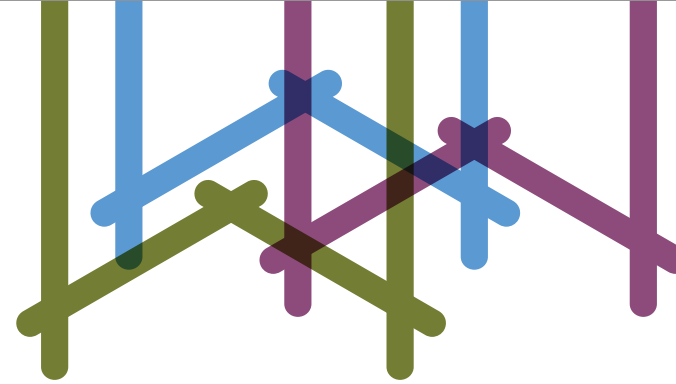
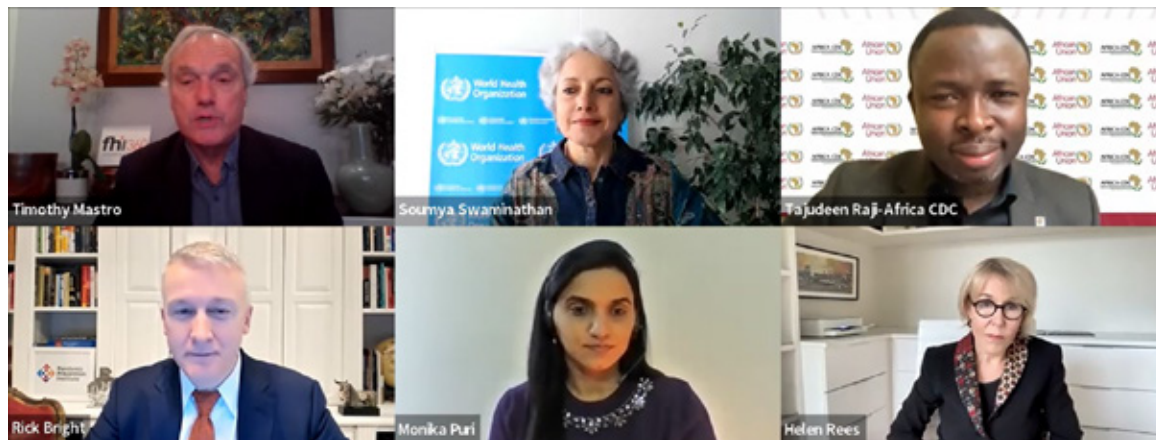




**"COVID-19 has shown what is possible for partnerships. Never before those partnerships have come together so quickly with so much effect."**

**"Profit for the company is the investment to meet the need of patients not just for today but for tomorrow."**

Monika Puri



Watch S7 Video



## SESSION 7

Capacity to Contain Future Pandemics in Communities



**"We can't always rely on the government to be able to do in the emergency and we have to pool all of the resources that we can together."**

Jonna Mazet



**".. the muscle of community surveillance, community messaging, community education, ... We've built it during the Ebola period and now using it again during the pandemic."**

Discussed by Raj Panjabi from the words of James Bangura



**"..instead of spending a lot of money in buying drugs to offer to people let's spend a lot of money to sensitize people to raise their awareness."**

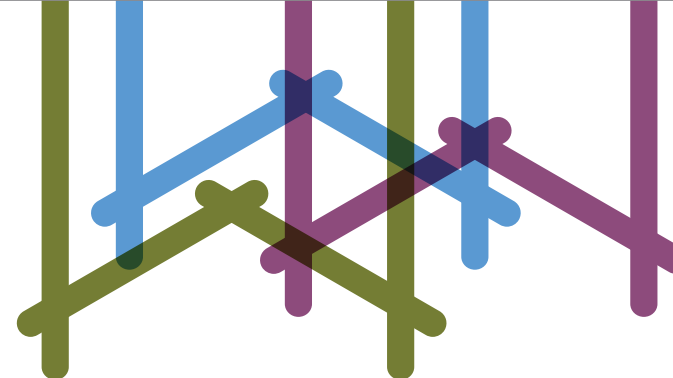
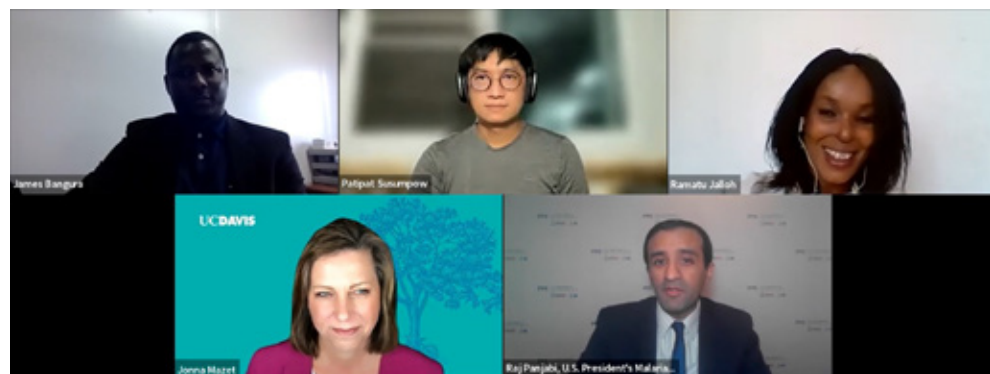
**"Stop thinking of community as simply as recipients of our services from the health system but actually as agents as a part of the team."**

Recapped by Raj Panjabi from the words of Ramatu Jalloh



**"Let's put the public back in public health"**

Patipat Susumpow



Watch Video



## CLOSING SESSION

– Armchair Conversation



**"Young people must speak out to the leaders to make sure that this is the world where your generation will live"**

**"We are all global citizens and able to be working together. Otherwise, we will never be able to claim that we are living in a sustainable world."**

**"Secretary-General Kofi Anan said - You are never old to learn and never too young to lead."**

Ban Ki-Moon



**"I want world leaders not only to talk about the challenges but also to do something on the ground."**

**"I wish to see more unity among us to make our world a peaceful, not a scary world."**

**"Without education, we cannot solve other problems and crisis."**

**"Youth needs the courage to speak up. (Leaders of the world) need to listen up, and we need to speak up."**

**"A world we want is to see justice everywhere from everyone, to see a world free of suffering, especially children."**

Muzoon Almellehan





# Conference Synthesis

Since 2007, Prince Mahidol Award Conference (PMAC) has been organized as an annual conference focusing on public health issues of global significance. The 2022 PMAC theme – “The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society”, aims to take a far sight view toward the end of the 21st century, by focusing on the impacts of ‘megatrends’ on the world, the society and the people, that have shaped and continue to shape through the rest of 21st century. The conference reviews its impacts on global health landscape and how actions needed to reshape towards the world we want in particular a sustainable, fairer, and healthier society.

The PMAC 2022 proceeding consists of four sections: a summary of the main conference, reviews of global challenges from key megatrends of the 21st century, suggested solutions deliberated by the conference speakers, and the way forwards.

## 1. SUMMARY OF MAIN CONFERENCE'S SESSION

This year's conference was held virtually due to the continued COVID-19 pandemic situation in 2021 and 2022, in particular from the Omicron variant. The conference held between 25 and 29 January 2022 is composed of 2 parts; (1) pre-conferences activities and sessions including four webcasts and podcasts, one workshop, 19 side meetings, 24 commission papers, two virtual field trips, and Armchair Conversation with Prince Mahidol Award Laureates 2021 and (2) the main conference including nine sessions with 61 speakers (34 male, 26 female, and one non-specified gender). Speakers from 23 countries contributed to these nine sessions, and a total of 681 participants from 57 countries attended virtually.

The main conference opened with a memorable video contributed by children around the world talking about the megatrends that are happening and how these trends can affect someone they love and the children's own future. This video very well introduces the conference as these children request the PMAC 2022 to share with them how stakeholders should do for creating the world that, as they said “Every day, is the Best Day for All of Us” and take necessary actions to achieve that future together.

PMAC 2022 had extensively deliberated on the global devastating impacts of COVID-19 pandemic on health, society and economy; it further widens the existing social inequity. There are ineffective international collaborations and lack of solidarity in response to COVID pandemic such as inequitable access to vaccine across countries. The lack of trust in government institutions and denial of science and politicizing COVID-19 responses hamper effective containment seen in high income countries.

We are living in a time of "Anthropocene"; where human is the single most influential species on this planet which cause significant global warming and ecological changes to land, environment, water, organisms, loss of biodiversity and the atmosphere—that threaten all life on Earth .

The COVID-19 pandemic has demonstrated the interlinks and interaction of disease and the social, economic, and environmental factors that synergistically worsen disease outcomes among the vulnerable population.

Actions towards a sustainable, fairer, and healthier society are determined by investing in human capital, science and technology, building a resilient health system and empowering the inclusive community, re-dressing the social divides, and ensuring global solidarity. Moreover, vulnerable groups must be the main targets for an inclusive recovery from the acute phase of COVID-19 pandemic. Voices of the women, the underprivileged, the local communities, and the youth need to be heard and respected in decision-making.



## 2. GLOBAL CHALLENGES FOR THE 21<sup>ST</sup> CENTURY

This section was drawn from various sessions of the Conference highlighting the global challenges for the 21<sup>st</sup> century which have major impacts on health of the population.

### *COVID-19 and other health threats*

The COVID-19 pandemic has created a devastating impact on public health, societies, and economies around the world. After two years of different national response, the world is learning to live with COVID-19 which can gradually become an endemic infectious disease. Countries in the world have to learn how to adjust themselves to live with COVID-19.

Increasingly, the world is facing continuous threats from emerging and re-emerging diseases. In parallel, it also faces multiple global problems such as rapid urbanization and unplanned infrastructure and health service provision, environmental degradation, and food insecurity due to the population growth and climate changes. Population growth will be contracted in almost all countries in Asia though scientists predict to witness significant population growth in African countries by 2100, see Figure 1.

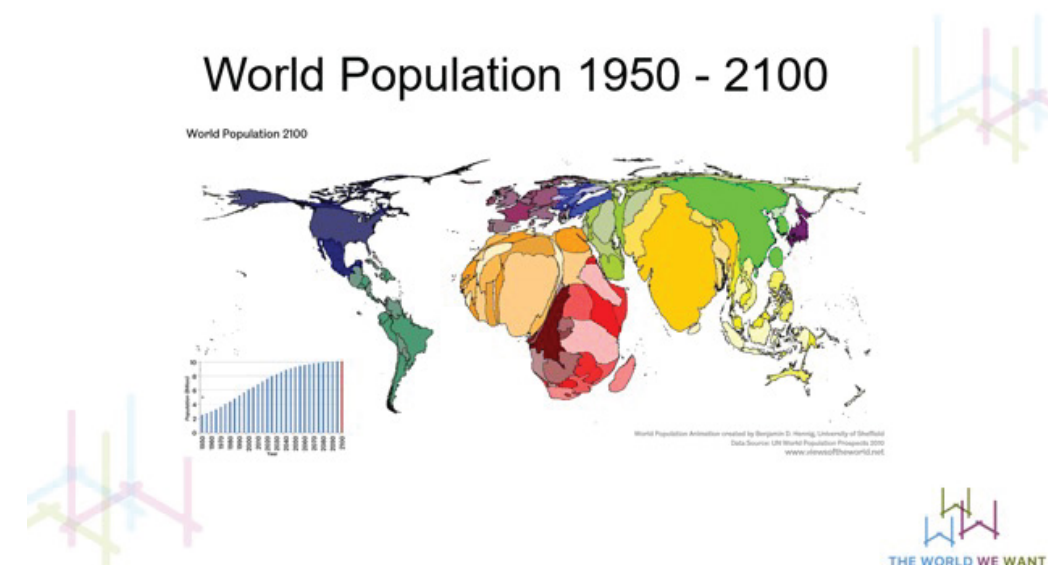


Figure 1 World Population between 1950 and 2100, projection to in 2100  
Source: Slide from S1, Understanding the Megatrends of the 21st Century, Dennis Carroll

The pollution in urban cities, especially foreseeing more megacities to emerge in Africa in the future, leads to the rise of premature mortality. Globally, the world population will be aged with a rapid epidemiological transition from infectious to non-communicable diseases (NCDs). A study shows that zoonotic EID risk increased in forested tropical regions experiencing land-use changes and where wildlife biodiversity (mammal species richness) is high. This study concludes that changes in land use is the major predictor of future EID . See Figure 2.

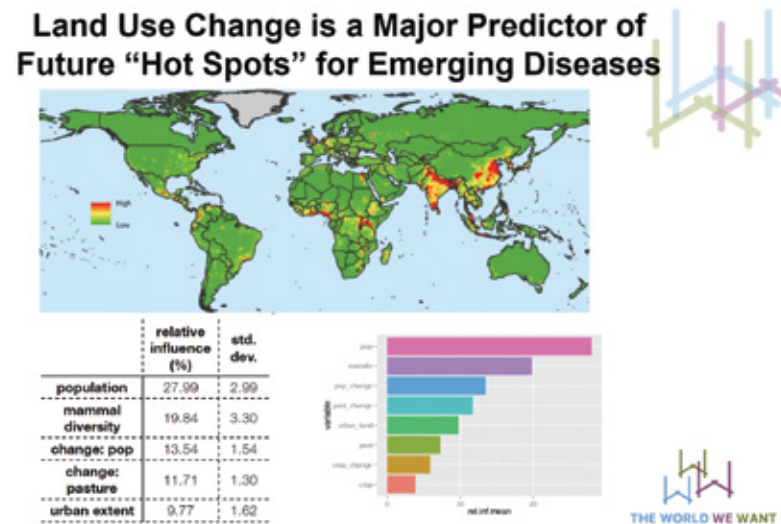


Figure 2 Land use change is a major predictor of future 'Hot Spots' for emerging diseases. Source: Slide from S1, Understanding the Megatrends of the 21st Century, Dennis Carroll

### Social inequities exacerbate during COVID-19 pandemic

Though ethnic minorities had greater risk of infection from corona virus and mortality , poverty is the key risk factor in explaining high mortality among US ethnic minorities . UK also reports similar findings. The long-standing structural and societal inequality, living and working conditions predispose US minorities to worse outcomes from pandemic. Evidence also confirms that non-Hispanic native Hawaiian and Pacific Islander have higher incidence of COVID-19 than White American. The pandemic had exposed the existing structural inequity in various society; warrant serious and concerted corrective actions.

Children are one of the most vulnerable groups who are affected directly and indirectly from the pandemic. They are the last group being vaccinated of COVID-19 vaccines. The disruption in the provision of immunization programs and other essential maternal and child health services, high risk of malnutrition, loss of their education performance from prolonged school closures, and increase risk of domestic violence; all of which can detail child health achievement in the Sustainable Development Goals. In 2020, an estimated five million children under five have died, mostly from preventable and treatable causes other than COVID-19. Children in sub-Saharan continued to have the highest rates of mortality in the World, they were 14 times higher mortality rate than children living in Europe and North America . During the lock-down periods, women and girls are more vulnerable to sexual and gender-based violence.

The COVID-19 pandemic highlighted inequality across nations. Pandemic results in profound negative impact on public health, economic growth, and social cohesion, making the world a 'more unequal and divided society' which poses grave danger for the future. Inequitable access and distribution of vaccines and testing are hampering global recovery. Nowhere have those inequalities been demonstrated more clearly than in access to vaccines against COVID-19. The R&D of safe and effective vaccines getting WHO Emergency Use Listing in less than a year is a remarkable scientific achievement, but successful protection of populations relies on equitable access to vaccines in all countries . About 72% of total global doses have been administered in high- and upper-middle-income countries, while only 0.9% of doses have been given to people in low-income countries. In early 2022, only 19% of African people have had at least one vaccine dose compared with around 78% in the US and Canada. Vaccine nationalism is a predicament in ending the COVID-19 pandemic , calling for effective engagement of global citizens .

Uneven economic recovery across nations was noted. Recovery is incomplete and uneven within countries; the employment among those who suffered larger initial shocks such as women, non-college-educated and urban workers was not sufficient to significantly reduce the initial disparities in losses .

### *Failure of international collaboration and solidarity*

The COVID-19 pandemic revealed nationalism responses among some of WHO member states, hampering the global solidarity; which means in the context of globalization and inter-connected global village, “no one is safe until everyone is safe”. This has further exposed the weakness of multilateralism, less attention to global interests but more on local and national ones. The resulting fragmented and polarised world and the rise of populism cause the world to act less as a global community, and the weakness of the global systems, particularly the global health systems.

Even with the global initiative of COVID-19 Vaccines Global Access (COVAX) to ensure equitable distribution of vaccines to low-middle income countries, the COVAX was less prioritized in vaccine allocation from pharmaceutical companies as most of the initial doses were fully occupied by high income countries and European Union through bilateral advanced market commitment; and some countries ban export of vaccines to COVAX facility . The global agency as World Health Organization (WHO) was politicized for their slow response and inability to mobilize global solidarity. As a result, there is a question for the WHO about its future position and responses to the future threats.

Multi-sectoral partnership, such as a triangle consisting of government, civil society, and the private sector, is not applied. It requires more the private sector to be involved– to provide resources, innovations, etc. at all levels from global to local. The reality of public health challenges is at the local level (i.e., local communities, cities, states), with their own specific contexts with varying socio-economic conditions, but public health interventions are usually prescribed top-down and subject to one-size-fits-all solutions. There is a need to listen to local voices and remedial actions are taken.

### *Mistrust in government and denial of sciences*

In some countries, the COVID-19 pandemic has highlighted the mistrust of population on the government institutions. The growing lack of trust in the public institutions together with massive misinformation in social media such as anti-vaccine conspiracies and fake news about quality and efficacy of COVID-19 vaccines had undermined and threaten public health and social measures; increased vaccine hesitancy and hamper rapid vaccine roll out in various countries .

Additionally, information overload creates an impossible environment for people to search for truth. Many people still lack health literacy and cannot correctly respond to health-related circumstances. While the population consumed the misinformation that was easier to digest, leaders faced a lack of sufficient qualified information to timely make the decision and actions, fueling the rising of public mistrust.

Fostering trust within communities, especially during pandemic is impossible. Trust has to be created and long-term nurturing. Trust and trustworthiness are reciprocal process between population and the society and public institutions. This means the trustor (citizens) have positive expectations regarding the competence of the trustee (in this case can be the government), and must regard the trustee as being concerned about, and willing to act in, the best interest of the trustee for trust to be possible . Countries with citizens’ trust in their public institutions better performed in pandemic containment such as adherence to public health and social measures than citizens’ low trust in the government . In the US, trust is decaying .

To ensure collaboration by the citizens; the community as recipients of services are active agents of change. Communicating and explaining the health risks of pandemic and benefits of vaccination, for instance, does not need to be restricted to clinics and hospitals. This can also happen door-to-door among the community. There is a dire need to bring health services to the people —not waiting for people to come to health services.

### *The growing impact of climate change*

The impact of climate crisis such as severe heatwaves, floods, wildfires, and tropical cyclones has been visible across the world. With human influence contributing to many changes in weather and climate extremes, it also has a range of negative impacts on health and well-being - heat, floods, droughts and impacts to food systems, as well as effects on emerging climate-sensitive infectious diseases, mental health, NCDs, poverty, migration and conflict. Climate change has played an essential role in reducing average incomes, particularly in low-income countries, increasing a number of people with extreme poverty and experiencing hunger.

Even though there is a struggle for cross-sectoral initiatives between health and climate; health professionals are talking to each other rather than negotiating with the broader environmental community for sustainable solution as well as mitigations. Climate change negotiations by leaders often deal with benefits for their own countries rather than for collective action with respect to global solidarity in order to save this "planet and humanity". Many countries do not yet realize the capital gain on health benefits and fail to include health outcomes in their climate action plans.

Climate change is one of humanity's most serious threats; it threatens the functioning of the natural systems that sustain the health of human civilization,. In the Anthropocene era, human activities have significantly altered the Earth through global warming, habitat loss, changes atmosphere and threatened animal extinctions .

The food production and processing, retail and distribution and consumption and food waste , contribute to climate change through the emissions of greenhouse gas. In turn, climate change deteriorates food production and diversity , increases food insecurity, leading to overnutrition, undernutrition and micronutrients deficiencies, particularly among children and the vulnerable population .

Increased temperature, change in rail fall and frequent natural disasters are major factors of increased biodiversity loss. Meat production, intensive land use for agriculture and climate change explain the biodiversity declines .

**Urbanization and the effect of future ambient air pollution on human premature mortality**

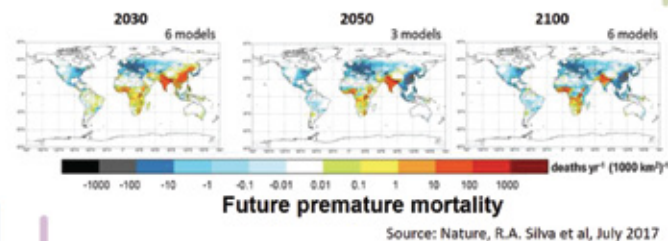


Figure 3 Urbanization and effect of future ambient air pollution on human premature mortality  
Source: Slide from S1, Understanding the Megatrends of the 21st Century, Dennis Carroll

To prevent the next pandemic, climate action needs to be considered. For example, preventing deforestation can delay the loss of biodiversity and slow animal migration that can increase risk of emergence and spread of infectious disease. Rethinking agricultural practices, including intensive production, can prevent transmissions between animals and spill over into human population. Reducing air pollution caused by burning fossil fuels use in power generation, transportation and energy can protect people from respiratory infections like coronavirus.

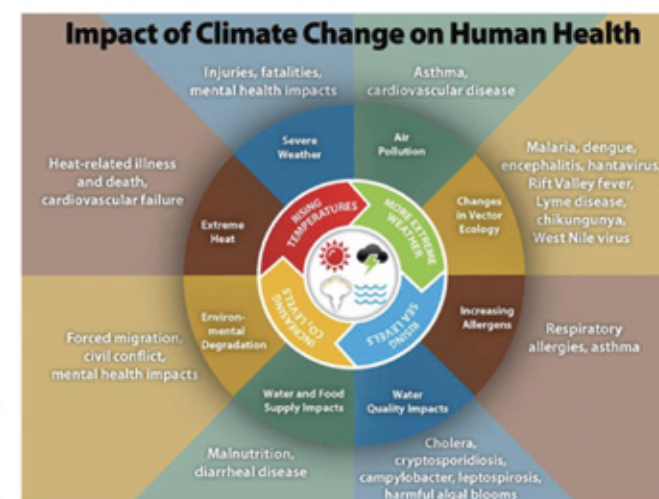


Figure 4 Impact of climate change on human health  
Source: Slide from S1, Understanding the Megatrends of the 21st Century, Dennis Carroll



### 3. SUGGESTED SOLUTION: ACTIONS TOWARDS A SUSTAINABLE, FAIRER AND HEALTHIER SOCIETY

#### 3.1 Rebuilding resilient health systems

Health systems should support equitable access, accountable, efficient, and transparent, in preparation for the transition from segmented and fragmented systems to structural pluralism. The COVID-19 pandemic demonstrates the need to engage all stakeholders including private sectors, international organizations, and academia to speed up research and development of medical counter-measures notably diagnostic, medicines and vaccines. A vision of Universal Health Coverage by 2030 will only be possible with people-centered primary health care (PHC) within resilient health systems.

Capitalizing the widespread use of internet and mobile phone, health sector should maximize use for telemedicine and telehealth. Digital health had expanded significantly during COVID 19 pandemic. The pandemic had increased the proliferation and utilization of telehealth services, providing important access to care for certain populations and replacing hospital based to PHC based services. Policymakers must 1) ascertain which elements of the new telehealth landscape will be retained to health workforce, 2) modernize the regulatory, accreditation and framework linking with UHC to support care model innovation and 3) address disparities in access to broadband connectivity with a particular focus on rural and underserved communities. A fairer and equitable access to tele-education requires policy which address the digital divide.

#### 3.2 Economic recovery and ending acute phase of pandemic

World Bank reports that vaccine access and early policy support are the principal drivers of the gaps in economic recovery across nations. Continue infection in 2022 and the threat of new variants have increased uncertainty about how quickly the pandemic can be overcome in 2022. Policy choices are more difficult, confronting multidimensional challenges—such as subdued employment growth, rising inflation, food insecurity, the setback to human capital accumulation, and climate change—with limited room to maneuver. At global level, ending the acute phase of pandemic demands multilateral efforts to speed up global vaccine access to achieve 70% population coverage worldwide; provide liquidity and debt relief to constrained economies,

and mitigate and adapt to climate change. At country level, the policy mix should tailor to local pandemic and economic conditions, aiming for maximum sustainable employment while protecting the credibility of policy frameworks .

Pandemic derails the SDG achievement; reverse the maternal mortality ratio. Maternal Mortality Ratio in Mexico increased over 60% in one year during the pandemic for which COVID-19 was linked to 25.4% of maternal deaths. Measures are needed to improve access to coordinated well-organized healthcare to reduce maternal deaths related to COVID-19 and pandemic collateral effects .

#### 3.3 Ensuring global solidarity

Health is considered as a unifying issue and can illustrate how inter-dependent human are across the world. COVID-19 reveals how everything is interwoven. Lives everywhere are equally valuable. The world must revive the sense of global community while the new social contract should be about restoring trust and building societies that equitably share power, resources, and opportunities.

The COVID-19 pandemic has revealed the weakness of existing systems. It needs increased global solidarity and partnerships among member states, international organizations, civil society, and the private sector. People in each discipline working within their expertise is not enough to solve global challenges; whereby multi-disciplinary and multi-sectoral collaboration are critically important for success. We are facing multifactorial issues, multidisciplinary research and integrated solutions are needed to achieve better outcomes for people. Sustainable Development Goals are tangible all-rounded interlink goals that guide human development in all nations.

Trust, collaboration, rapid epidemiological and genetic sequencing data sharing across borders are keys to trigger alerts and rapid response and prevent future pandemics and global crises. Global Health architecture should be reformed both at regional and global levels focusing on regional interests and inter-regional sharing of vision towards mutual survival of all nations.

To ensure global solidarity and fair distribution across the globe and within the country, political will and commitment from leaders must take place. World leaders must restore and strengthen the 'multilateral system' through the function of UN. This requires the world's leading powers to work together and reject the 'politics of nationalism'. The leadership role of a regional organization such as the African Union has shown its importance in the COVID-19 response to advocate, collaborate, coordinate, and support countries with low capacity to respond to the pandemic as a regional movement. To name a few, the African Union launched the African Vaccine Acquisition Trust (AVAT) which aims to secure vaccine doses to complement initiatives such as COVAX and attain a target immunization of 60% of Africa's population. CEPI, an innovative global partnership between public, private, philanthropic, and civil society organisations, aims to accelerate the development of vaccines against emerging infectious diseases and enable equitable access to these vaccines for people during outbreaks.

Global networks can be considered one of the most important platforms for pandemic preparedness and communication. In order to respond to the next global crisis effectively, we need an effective international mechanism and instruments and apply them globally. A Global Fund, can be one of the most successful financial initiatives in respond to pandemic such as strengthen preparedness capacity, sharing of virus and genetic material and strengthen laboratory capacity.

### **3.4 Investing in human capital**

Global solidarity is the key to human prosperity. COVID-19 reveals how countries and sectors in each country are interconnected. Sustainable Development Goals are a tangible all-rounded goal that every nation should utilize as its compass to direct their investment in human capital. Investment in health is the most important priority for human capital; the return is high both in short and longer terms; hence investment in human capital is not an expenditure. The government should review and improve the taxation performance; fiscal space should prioritize health sector investment. An individual capacity must be strengthened to ensure that people have adequate

### **3.5 Establishing science and technology capacity**

Scientific community can contribute to support pandemic control; however, we need to ensure equitable access to the product of science. The 4th industrial revolution creates a great opportunity never once imaginable. However, technology can be an equalizer or divider depending on how countries and local communities utilize this technological opportunity wisely. Data sharing platforms since data generation, analysis, and sharing at the local level are essential. It is important to address this limitation by building capacity and training at the local level. Strengthening data sharing and analytic skills should be emphasized to prepare for a future pandemic and global health threat.

Funding should not be only for biomedical research, other areas such as public health communication and health systems research are equally important. Additionally, an enabling environment such as regulation or collaboration across disciplines maximize use of capacity in different disciplines. To communicate effectively, truly understanding of the people and community is crucial. Multiple tools can be used, surveys at a general level to get an overall understanding of the issues, focus group discussions, or sometimes even a one-on-one conversation is necessary. This suggested solution is not only for pandemics but also for any public health crises.

### **3.6 Tackling climate change and health problems**

There are numerous co-benefits of tackling health and environmental problems. For instance, equitable eco-friendly consumption of natural resources and transforming capitalism will protect both human and planetary health. Global capitalism has entered a new phase: tertiarisation and internationalisation of economies, weakening of the state's regulatory role, deregulation and privatisation, increased role of financial actors, corporate concentration, intensified competition, acceleration of technical progress, growing importance of information and knowledge as factors of production, upheavals associated with the development of the digital economy, increased separation between labour and capital ownership, between execution and design. The weakness of capitalism requires significant transformation

Countries are now committed to building a climate-resilient health system and aim for near-zero carbon emission by 2050. All countries should continue their commitments to invest more in carbon emission reduction, natural regeneration, restoration, and renewable energy. After the pandemic, health is now held at the center of discussion in climate action. To do that all countries need political drive and mobilization of resources.

The role of sub-national governance is equally important; effective working with governments in cities and provinces and not just at the national level; and empower women, children, and youth, indigenous communities to lead the climate actions. There should be reliable surveillance or monitoring systems. Citizens should be able to monitor their local environment and hold their authorities accountable, influencing them to make climate-sensitive decisions.

To summarize, participants and speakers at the PMAC 2022 had thoroughly explored the global catastrophic risks from COVID-19 pandemic and how to prepare better for the future pandemic; identified the social divide and inequities, ineffective international collaboration and partnership, lack of multi-sectoral partnership at all levels, lack of trust in government and science, and climate change.

#### 4. THE WAY FORWARDS

The COVID-19 consequences have shown the interaction of disease and the social, economic, and environmental factors that promote interactions and ultimately worsen disease outcomes. Actions towards a sustainable, fairer, and healthier society are determined by rebuilding resilient health systems, investing in human capital and protecting human rights, ensuring global solidarity, establishing science and technology capacity, and synergistic tackling climate change and health problems. These actions need political will from the local community and commitment from world leaders. Moreover, vulnerable groups must be the main targets of inclusive recovery from the COVID-19 pandemic. Voices of the women, the underprivileged, the local communities, and the youth need to be counted and respected in decision-making. Figure 5 identifies enabling (on the right box) and hampering factors (on the left box) towards the future we want. These barriers need to be overcome, and enabling factors are to be enriched.

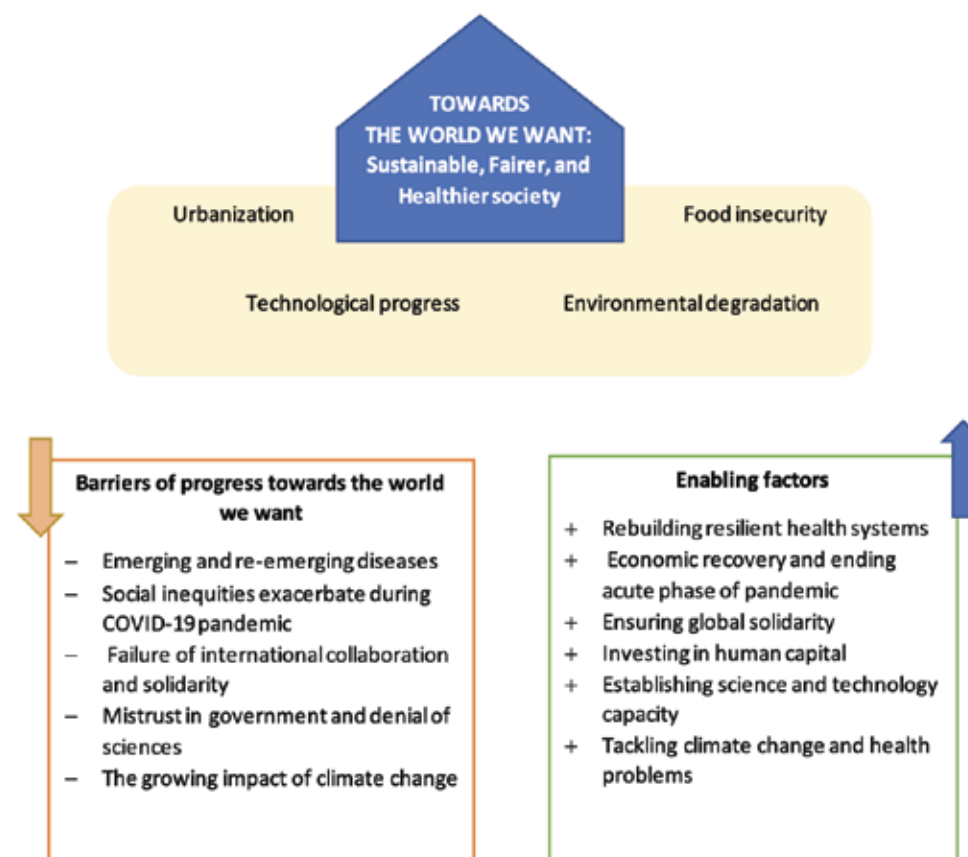


Figure 5 Framework of PMAC 2022: The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society summary



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# Field Trips

25 JANUARY 2022

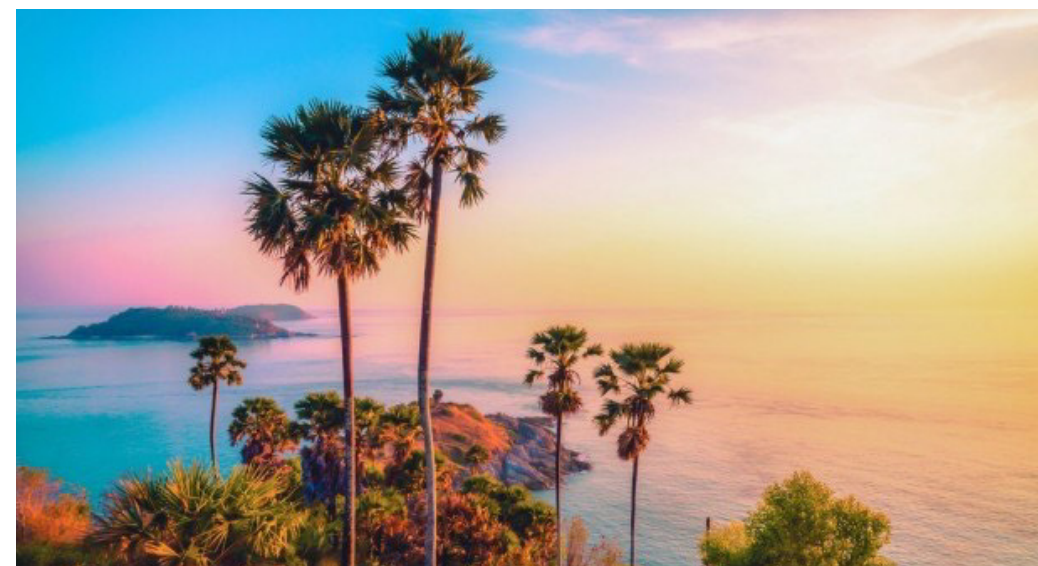
Thailand was the first country outside China to detect the first case of COVID-19 in the country on 13 January 2020. However, after the first detected case was reported in Thailand, the relevant stakeholders managed to keep the pandemic under control. Collaboration and seamless integration of all involved sectors and strong leadership in all levels were important and effective for COVID-19 management because the novel outbreak causes high impact to people in the whole country. Quick detection, medication and personal protection are the three essential keys in controlling the outbreak. Our implementation stem from a combination of public health measures, social measures and Universal Health Coverage or UHC.

Thailand's policy on Universal Health Coverage (UHC) has made progress since its inception in 2002. Every Thai citizen is now entitled to essential health services at all life stages. UHC is the key in providing a timely response to health emergencies. Dealing with the COVID-19 pandemic, like many other countries, Thailand has introduced strategic measures for controlling the contagious situation as quickly as possible for the benefit of the people. Everyone in Thailand will be able to access the COVID-19 related health services both for Thais and foreigners. The services include free active screening and surveillance, testing, tracing, quarantine, treatment in hospital, hospitel, home isolation and community isolation. The UHC made a more significant success stems from a combination of public health and social measures, including effective communication strategies, enhanced social safety nets, and awareness-raising campaigns based on these three principles of equity, efficiency, and participation.

The Prince Mahidol Award Conference 2022 (PMAC 2022) will organize field trips under the topic of "The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society" in Phuket province, which is known as "the Pearl of the Andaman". Before the crisis, Phuket used to be a dream destination of both Thai and overseas tourists for its spectacular scenery, world recognized magnificent beaches, eco adventure and typical culture. It is considered an important tourism city of Thailand. Tourism accounts for 90% of the income within the province, with over 14 million tourists from overseas each year and an estimated annual income of over 470,000 million THB (16,000 million USD) mainly derived from tourism.

Phuket was selected as one of the PMAC field trip sites last year as it is the greatest economic zone that was suddenly affected by COVID-19 in March 2020. The outbreak has affected not only people's related health issues but also the economic tragedy when the income relies on tourism.

The field trip this year will show how the experience of the COVID-19 pandemic is impacting the geopolitics of health, implications of key shifts in the makeup of the local population, the opportunity gains and threats of exponential technological change, and evolving threats to global health and wellbeing posed by climate change.



## **SITE 1:**

### **Integrative, Seamless and Participation Management towards Sustainable Health and Wellness Tourism at Tourism Area Location: Phuket, Thailand**

Dealing with the COVID-19 pandemic in Phuket was extremely challenging as there were a large number of tourists from all over the world during the peak time of infection. Nevertheless, with integrative, seamless and participation of public organizations, the private sector, and communities, along with the experiences in dealing with the past emerging infectious diseases such as SARS and MERS, Phuket was able to control the outbreak of COVID-19 within a couple of months. The strategies that lead to this success include a super lockdown measure, lockdown at a district level and village level in some areas, collaboration of all sectors for screening, local quarantine supported by the hotel industry, and establishment of a field hospital which had the highest number of beds in the country for COVID-19 patients. However, there were many damages. The hotel and tourism industry, the main business of Phuket, had to close down and laid off their staff. This has had impact on the household income chain





It is a big challenge to revitalize and recover Phuket's economy. With the synergy of all sectors, Phuket has been able to efficiently manage for controlling the outbreak as well as high coverage of COVID-19 vaccination. Tourism was reopened since 1 July 2021 under the "Phuket Sandbox program" that allows vaccinated foreign tourists with a special tourist visa (STV) to enter Phuket and do not need to quarantine, but they must stay with freely travelling in Phuket and make all tourists believe that Phuket is a safe haven.



The field trip will cover the issue of this program management which needs integrative, seamless and participation management and what is a "new normal" were agile and adaptable towards sustainable medical and wellness tourism.



## SITE 2:

### Regeneration of the Environment: Impact of COVID-19 and Human Behaviors in a Tourist Area Location: Phuket, Thailand

Phuket is a world tourist destination because of its renowned nature. However, "every coin has two sides". The more tourists come, the more natural resources are consumed. Environmental conservation has been a challenge for Phuket. Many efforts and approaches have been made to balance the environment and tourists for a long time. When COVID-19 rapidly spread across the globe and was declared a pandemic by the World Health Organization on January 30, 2020, it has generated unprecedented impacts on the whole world, including Thailand. The outbreak has led to a global catastrophic situation resulting in a high number of deaths and infections. It has also caused significant socioeconomic losses, especially in Phuket due to national and international travel restrictions. COVID-19 prevention and control measures increase the amount of infectious waste and sewage. This requires proper waste management.



The impacts of the crisis have also shown a positive side. When the country was locked down, the restriction was applied to the entire country. The number of passengers visiting Phuket declined dramatically. Tourism business and sightseeing had to shut down and caused many effects on people, but it has imparted many positive changes on the environment because nature has time to rest and recover. The water quality of the sea has improved. Endangered marine animals such as dolphins, omura's whales, and whale sharks have been sighted and reported in the Andaman Sea.

This field trip will highlight two places: the Phuket Marine Biological Center and Ban Laem Tukkae, a community of an indigenous marine community called "Chao Lay or Urak Lawoi". Examples of strategies for conserving and restoring the environment and nature to balance the marine and coastal ecological system, health of people, and economy and tourism of Phuket will be presented. The future plan and actions will also be discussed.

#### Virtual Field Trips





PMAC 2022

# World Art Contest

Since 2013, a unique activity called the "Art Contest" was introduced to the Prince Mahidol Award Conference (PMAC) which not only crossed over two different sides of knowledge, art and science, but also brought the public audience, the community, closer to the PMAC concept.

The Art Contest project was initiated as an instrument to communicate the idea of the conference theme to the public audience. The contest was open to everyone, with the aim of raising the awareness of the young generation in how their health is connected to their little families and through the entire World. Vice versa, the various new perspectives of a successful world where all people live better, happy, healthy and equitably from the young generation have been presented to our prestigious participants.

This year, the Prince Mahidol Award Conference invited students and all people to take part in the PMAC 2022 World Art Contest under the topic "The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society" through Drawings & Paintings and Short Video Clips. The key topics for the artists to create their artwork include:

1. The World We Want: Megatrends and Futuristic Point of Views
2. Climate Crisis: Building Forward Cleaner/Greener
3. Learning from the COVID-19 Pandemic to Better Prepare for Tomorrow's Challenges

The project has received positive response nationally and internationally from young people, parents and schools. Out of 12 nationalities that participated, 370 entries were sent in, 31 artists won the prizes (31 prizes worth over 253,500 Baht). All the artwork entries were displayed online through PMAC 2022 website at the page of PMAC 2022 World Art Contest (<https://pmac2022.com/artcontest>).



# Drawings & Paintings

## Under 9 Years Old



1<sup>st</sup>  
Prize

**NATHAPOHN SENTHONG**  
**THAILAND**

COLOR OF THE FUTURE WORLD



2<sup>nd</sup>  
Prize

**METHA SANOA**  
**THAILAND**

THE COVID-19

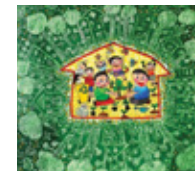


3<sup>rd</sup>  
Prize

**THINNAKORN PINAKASANG**  
**THAILAND**

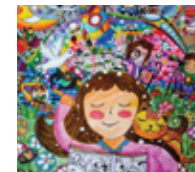
OUR GREEN WORLD

### Honorable Mention



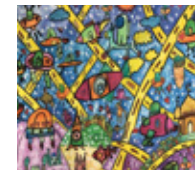
**WACHIRAWIT BOONSAWAT,**  
**THAILAND**

GREEN WORLD WITHOUT POLLUTION  
TO SAFE LIFE



**CHANSIRI SUKSAMRANCHIT**  
**THAILAND**

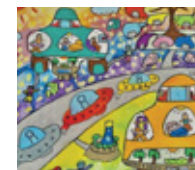
MY FANTASTIC WORLD



**ABDULLOH INDE**  
**THAILAND**

MY HAPPY WORLD

### Popular Vote



**SARUNYAPONG TANGWITDECHA**  
**THAILAND**

THE BEAUTIFUL FUTURE WORLD

9 – 13 Years Old



1st  
Prize

**ACHIRAYA UTTASATR  
THAILAND**  
CHANGING



2nd  
Prize

**CHANYAMON MEESAMRAN  
THAILAND**  
OUR VILLAGE



3rd  
Prize

**KANOKRAT REUNGRAT  
THAILAND**  
A BALANCED WORLD

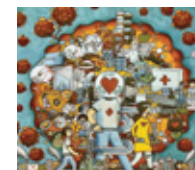
Honorable Mention



**PASUTA SIRIPAN  
THAILAND**  
SUNFLOWERS MUST BEAT COVID-19



**ARACHAPORN JONGSUK  
THAILAND**  
OUR HANDS CAN CHANGE THE WORLD



**PIMWAREE DOUNGDANG  
THAILAND**  
HEAL THE WORLD

Popular Vote



**SUVIMON NAMO  
THAILAND**  
WHEEL OF HEALTH

14 – 18 Years Old



**1<sup>st</sup>**  
Prize

**PHATTRAYUT PAKUN  
THAILAND**

LETS CREATE A FUTURE THAT  
CAN BE DESIGNED



**2<sup>nd</sup>**  
Prize

**DARADAI JONGJIRA  
THAILAND**

PLANT A TREE OF HAPPINESS

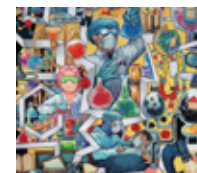


**3<sup>rd</sup>**  
Prize

**KUNANON  
YOTHINRATTANAKAMTHORN  
THAILAND**

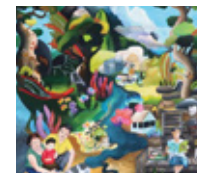
BREATH OF MANKIND IS  
THE ABUNDANCE

**Honorable Mention**



**CHAPPANNARANGSI SUWANNACHART  
THAILAND**

MEDICAL KNOWLEDGE



**KORAWAN MOKPHA**

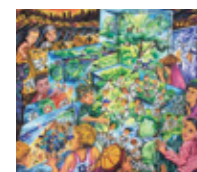
LIFE AND NATURE



**PAPITCHAYA SANGNAK  
THAILAND**

THE WORLD WE WANT, MEGATRENDS AND  
FUTURISTIC POINT OF VIEW

**Popular Vote**



**WATCHAREEWAN SANGUANSIN  
THAILAND**

JOINING FORCES TO CREATE A GREEN

## Above 18 Years Old



1<sup>st</sup>  
Prize

**SUBAH AMIN  
BANGLADESH**

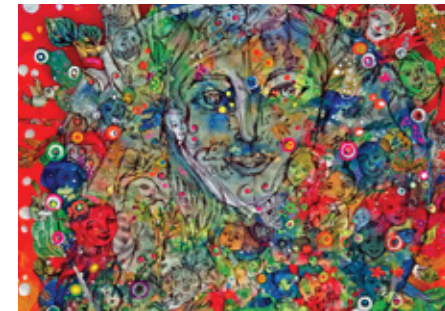
THE WORLD WE WANT



2<sup>nd</sup>  
Prize

**UNCHALIKA KAEWJAN  
THAILAND**

LIFE

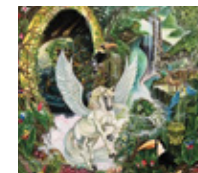


3<sup>rd</sup>  
Prize

**JESUS RAMOS TEJADA  
BAHRAIN**

METAMORPHOSIS THE BATTLE  
OF LOVE, RESPECT, AND RESTORATION  
OF OUR WORLD

### Honorable Mention



**KITTACHAPHOL WATCHARACHAISAKUL  
THAILAND**

GIFT TECHNIQUE/PAINTING AND PAPER CUT



**WIGAVEE RATTAMANEE  
THAILAND**

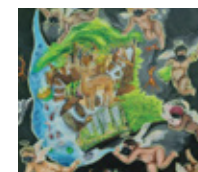
OUR HANDS CAN CHANGE THE WORLD



**PHANUWAT CHAIROT  
THAILAND**

SAFE WORLD

### Popular Vote



**WILASINEE GAORAM  
THAILAND**

BUT JUST PAY ATTENTION

# Short Video Clips

## 18 Years Old and Under

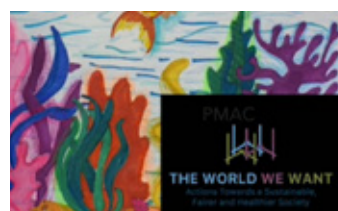
### Honorable Mention



**ALEXANDER CLAXTON  
IRELAND**

WATER RUNNER

### Popular Vote



**PINPAIROH JUNVERANONG  
THAILAND**

THE PERFECT DIVERSITY

## 18 Years Old

### Popular Vote



**MAI CU HOANG PHOUNG  
VIETNAM**

THE WAYS TO BUILD BACK A GREENER  
WORLD



**Conference  
Activities  
at a Glance**







## PODCAST

### The World We Want: Youth Voices on Climate and Health, Part I and II

Listen to what global youth leaders really think about the handling of our intensifying Climate and Health Emergency.

This podcast series are brought to you by the Prince Mahidol Award Conference in collaboration with the Swedish Institute for Global Health Transformation (SIGHT), FHI 360, The World Health Organization, The World Bank, The British Medical Journal, USAID, and Foster Media.

## Scan to Listen



Ep.01 Youth Voices



Ep.02 Máximo Mazzocco



Ep.03 Komal Kumar



Ep.04 Good Cop Bad Cop



## WEBCAST

A Short-film Trilogy, produced by People's Health Movement (PHM), Part I, II and III



### I. Building Equitable Health Systems

Scan to Listen Part 1



### II. Rethinking the SDGs, in the Pandemic Aftermath...

Scan to Listen Part 2



### III. Post-Pandemic Global Economics: Re-structure, Reform or just Re-vitalize

Scan to Listen Part 3





## WORKSHOP

### Creating a World Where Concern for NCDs was Paramount: A Futures Workshop

This workshop will be the first time for PMAC to bring together high level multi-stakeholders related to NCDs to discuss the future of NCDs to be facilitated by Prof. Sohail Inayatullah, UNESCO Chair in Futures Studies. Prof. Inayatullah, who was awarded the Laurel Award for all-time best futurist by the Shaping Tomorrow Foresight Network, will facilitate an interactive session with a diverse group of participants representing multi-sectors (academia, social activists, policymakers, private sectors, etc.) from low-middle to high-income countries.

#### Organizers

Thai Health Promotion Foundation (ThaiHealth)  
 International Health Policy Program (IHPP)  
 China Medical Board (CMB)  
 United Nations Population Fund (UNFPA)  
 World Health Organization (WHO)

Scan for More Details



## SCIENTIA

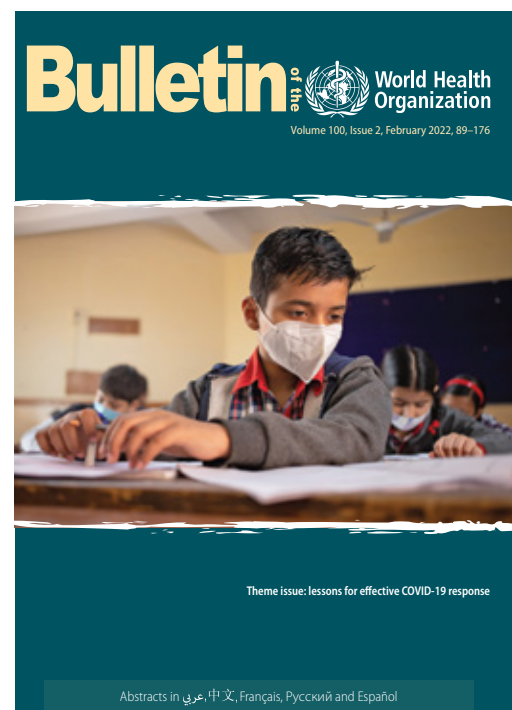
### PMAC 2022 Moving Towards The World We Want

This article highlights some of the main global issues and megatrends discussed at the conference.

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# PUBLICATIONS



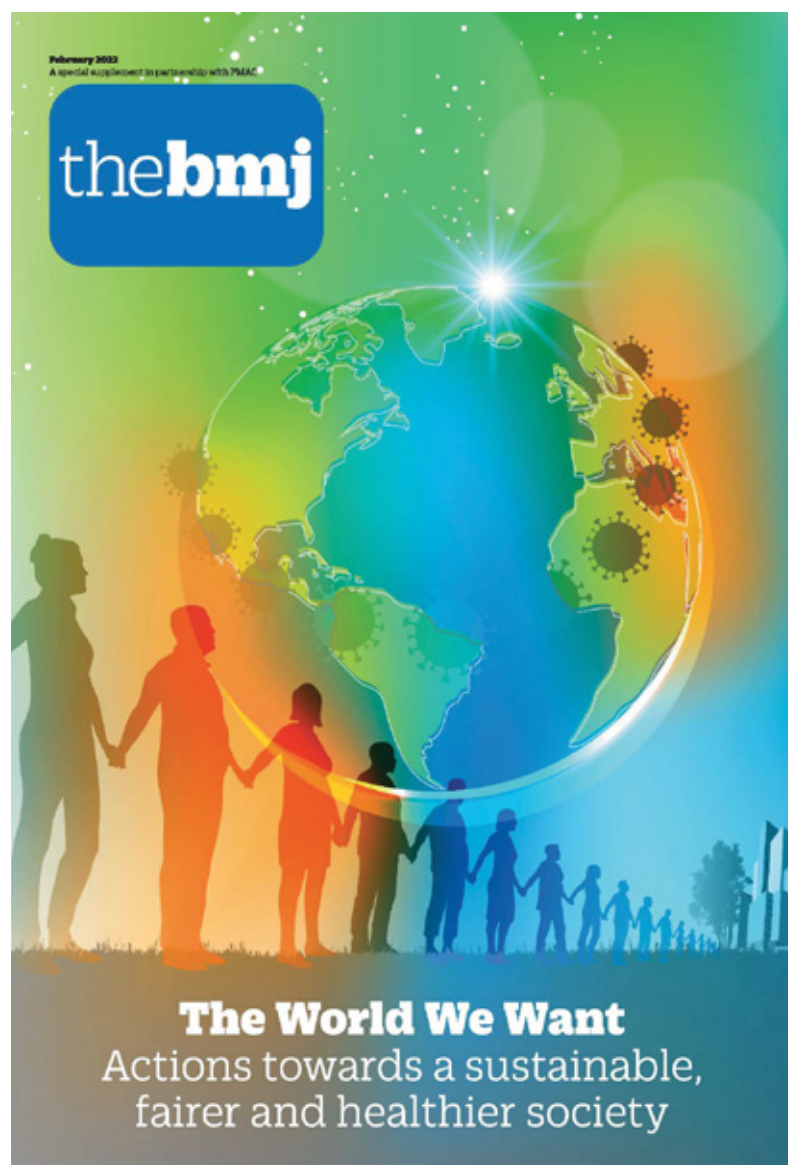
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## SPECIAL ISSUE FOR The Bulletin of the World Health Organization for PMAC 2022

Title	Author
Health and Nutritional Status of Children Hospitalized During the COVID-19 Pandemic, Bangladesh	Sharika Nuzhat, S.M. Tafsir Hasan, Parag Palit, Farzana Afroze, Rukaeya Amin, Md. Ashrafal Alam, Baharul Alam, Mohammad J. Chisti and Tahmeed Ahmed
Training Community Health Workers for the COVID-19 Response, India	Sachin S. Singh and Lal Bahadur Singh
Childhood Immunization During the COVID-19 Pandemic: Experiences in Haiti, Lesotho, Liberia and Malawi	Emilia Connolly, Emma J. Boley, Donald Luke Fejfar, Prince F. Varney, Moses B. Aron, Isabel R. Fulcher, Wesler Lambert, Melino Ndayizigiye, Michael R. Law, Jean-Claude Mugunga and Bethany Hedt-Gauthier, on behalf of the Cross-site COVID-19 Syndromic Surveillance Working Group

Title	Author
Maintaining Essential Tuberculosis Services during the COVID-19 Pandemic, Philippines	Marianne Calnan, Alexander Moran and Hala Jassim AlMossawi
Access to Eye Care during the COVID-19 Pandemic, India	Janani Muralikrishnan, Josephine S. Christy, Kavitha Srinivasan, Ganesh-Babu B. Subburaman, Aakriti Garg Shukla, Rengaraj Venkatesh and Thulasiraj D. Ravilla
Monitoring Continuity of Maternal and Child Health Services, Indonesia	Siti Helmyati, Dhian P. Dipo, Insan Rekso Adiwibowo, Maria Wigati, Erri Larene Safika, Muhammad Hafizh Hariawan, Monita Destiwi, Yoga Prajanta, Mirza H.S.T. Penggalih, Toto Sudargo, Dewi M.D. Herawati, Tiara Marthias, Masrul Masrul and Laksono Trisnantoro
Peritoneal Dialysis Care during the COVID-19 Pandemic, Thailand	Talerngsak Kanjanabuch and Krit Pongpirul
COVID-19 Response: Effectiveness of Weekly Rapid Risk Assessments, Italy	Flavia Riccardo, Giorgio Guzzetta, Alberto Mateo Urdiales, Martina Del Manso, Xanthi D Andrianou, Antonino Bella, Patrizio Pezzotti, Simona Carbone, Tiziana De Vito, Francesco Maraglino, Vittorio Demicheli, Claudio Dario, Enrico Coscioni, Giovanni Rezza, Andrea Urbani, Stefano Merler and Silvio Brusaferro on behalf of the Italian COVID-19 Monitoring Group
National Policy Responses to Maintain Essential Health Services during the COVID-19 Pandemic	Nikki Gurley, Elan Ebeling, Ashley Bennett, Jean-Jacques Kayembe Kashondo, Victoria Ayano Ogawa, Clemence Couteau, Claire Felten, Naakesh Gomanie, Pauline Irungu, Katharine D. Shelley and Jessica C Shearer
Promoting Health Equity during the COVID-19 Pandemic, United States	Jazmyn T. Moore, Carolina Luna-Pinto, Heidi Cox, Sima Razi, Michael E. St. Louis, Jessica N. Ricaldi and Leandris Liburd
Building Resilient Health-care Supply Chains to Manage Pandemics in Low- and Middle-income Countries	Genevieve Fernandes, Ines Hassan and Devi Sridha



## BMJ/PMAC 2022

**COLLECTION –The World We Want:  
Actions Towards a Sustainable,  
Fairer and Healthier Society**

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Title	Author
Resilient and Equitable Recovery from the COVID-19 Pandemic	Viroj Tangcharoensathien, Dennis Carroll and Angkana Lekagul
A Post-COVID Economy for Health: from the Great Reset to Build Back Differently	Ronald Labonté
PMTackling the Politics of Intersectoral Action for the Health of People and Planet	Kent Buse, Göran Tomson, Shyama Kuruvilla, emilah Mahmood, Maarinke van der Meulen, Ole Petter Ottersen and Andy Haines
COVID-19 as a Long Multiwave Event: Implications for Responses to Safeguard Younger Generations	Mandeep Dhaliwal, Roy Small, Douglas Webb, Lucie Cluver, Mona Ibrahim, Ludo Bok, Collin Nascimento, Cheng Wang, Aidan Garagic and Lars Jensen
A Lack of Climate Finance is Harming Population Health	Paul Watkiss and Kristie L. Ebi
Stronger efforts are needed to safeguard the nutrition of school aged children	Maria Nilsson, Cecilia Emilsson, Annie Jonsson, Göran Tomson, Sebastiaan Meijer, Leif Östman and Ulf Magnusson



## Annexes

# Annex I Conference Overview

The World We Want:  
Actions Towards a Sustainable,  
Fairer and Healthier Society

As we enter the third decade of the 21st century the world has been shaken at its economic, political, and social core by a series of convergent and interrelated events - the COVID-19 pandemic, the growing impact of climate change, and the rapidly growing economic inequalities between and within nations. They have led to calls for re-thinking the future of human societies in ways that will result in a fairer, healthier, and more sustainable world.

The 2022 PMAC theme – “The World We Want: Actions Towards a Sustainable, Fairer and Healthier Society”, aims to take a long view by focusing on the ‘mega trends’ that will shape the rest of this century and the complex interplay between them, including how they are already reshaping our global health landscape. PMAC 2022 will consider how the experience of the COVID-19 pandemic is impacting the geopolitics of global health, implications of key shifts in the makeup of the world’s population, the opportunity gains and threats of exponential technological change, and that most urgent of ticking clocks the imminent and evolving threats to global health and wellbeing posed by climate change.

### **Preparing for Future Pandemics**

While in the summer of 2021 some rich countries have had access to vaccines with robust immunization programs and are near to achieving herd immunity (Israel, Canada, UK, US), the story is completely different for the vast majority of the world’s population. In low- and middle-income countries (LMIC), fewer than 1 percent have been vaccinated with little expectation that vaccine coverage will be widely available through 2022. In the absence of widespread vaccination coverage SARS-CoV-2 variants will remain a significant threat to those gains already achieved. The issue of equitable access to COVID-19 vaccines and treatment technologies is crucial and poses massive questions for the global community about equitable provision of access to health care and the conditions for health and wellbeing.

The role of political leadership has emerged as vital in determining pandemic responses. COVID-19 is unlikely to be the last pandemic or health crisis that the world faces, especially as deforestation, biodiversity loss, and climate change increase the risk of further spillover of zoonotic diseases. Therefore, this pandemic should serve as an inflection point for the international community to cast aside what the World Health Organization (WHO) has called the “the panic then forget” cycle, which has been emblematic of previous international responses to global health emergencies. Preparing for the next pandemic requires building the systems, capacities and partnerships that can better anticipate, prevent and respond to emergent threats.

Ultimately, multi-sectoral approaches are needed to address the challenges of epidemics and pandemics. These should include addressing the root causes of spill-overs and spread – inclusive of environmental degradation and sustainable agriculture, and in parallel intensifying investments in robust and resilient health systems and conditions of everyday that support health.

### **Environmental Degradation, Global Warming and the Ensuing Climate Crisis**

The human-created and destructive impacts on many of the environmental systems on which human health and life depend can be characterized by ecological ‘overshoot’, in which population demands on ecosystem resources exceeds the capacity for resource regeneration, with climate change posing the most immediately critical health-related threat. As one example, particulate air pollution (associated with fossil fuel consumption and greenhouse gas emissions) is responsible for three times as many deaths annually as HIV, malaria, and tuberculosis combined. Despite 25 years of efforts to implement the United Nations Framework Convention on Climate Change (UNFCCC), through its two agreements and one protocol, CO2 emissions continue to increase rather than stabilize or decline. The election of US President Biden has given a boost to efforts to establish more ambitious carbon reduction targets but a secure climate future is far from assured. Unless the UN Climate Change conference in Glasgow in October-November 2021 (COP26) leads to a global agreement to reduce global warming to 1.5 degree in order to reach global zero emissions by 2050, the climate scientists are warning of the high probability of a planet that is increasing inhospitable for human and most eco-systems. Given the urgency of action on climate change, a quarter century of slow or no substantial prevention or mitigation attests to crises in effective global governance, with concern that the slow decline in multilateralism will worsen the situation.

### **The Way Forward**

Over the course of the remainder of this century, the dual threats posed by emerging infectious diseases and climate change will continue to increase, driven to a large extent by ongoing demographic trends and their impact on global ecosystems. Further exacerbating the consequences of these trends are persistent social and economic inequalities that shift the burden of their impact on the economically disenfranchised, displaced populations and people living with pre-existing conditions.

Complicating the ability of nations to mount an effective response to COVID-19 pandemic and climate change has been the erosion of support over the past decade for multilateral institutions and partnerships, a growing mistrust between citizens and their leaders, and the rise of “anti-science”. We need to thoughtfully examine the causes underlying these trends, including the expanding impact of social media, if we are to develop new strategies to re-invigorate our commitment to multilateral partnerships, build more trustful relationships between governments and their citizens, and re-affirm the centrality of evidence-based solutions to future threats.

## PMAC 2022: The World We Want

There are competing views of what our world could look like in 2100. Should the ambitious Sustainable Development Goals and the Paris Climate Accords be achieved, some predict a world in which we are; already winning the battle against climate change by reducing CO2 levels down, where embracing sustainable agriculture and renewable energy reverses the disruptive impact on the ecosystem reducing the threats of future pandemics, where urban design favors cities that are walkable ensuring air pollution levels are under control and where alternative environment friendly transit public transit is available. A world where a circular economy is flourishing, reducing the burden on global resources, and a new kind of global economy takes root, with an overhaul of economic policy to consider broader societal impacts rather than GDP alone. A world where old age care starts when you’re young with a life-course perspective and precision medicine is accessible to everyone, not just the rich. A world where citizen participation in policy making and institutional governance is enhanced and welcomed as an essential step to more democratic and representative governance in local, national and global fora and institutions. Where the ubiquity of technology empowers human minds across the globe, where digitech helps close the gender and wealth gap.

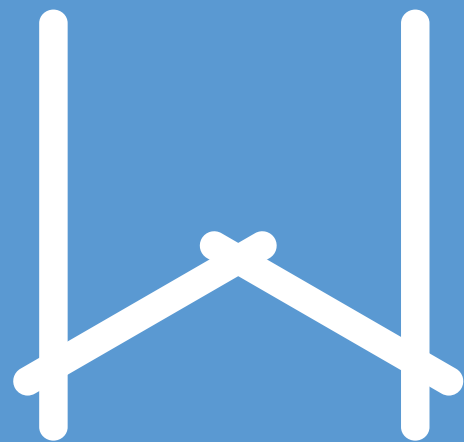
Across most of these alternatives of a virtuous future is an acknowledgment that global governance and favorable geopolitics is a crucial enabler – that the global challenges facing humanity are transnational in nature and trans institutional in solution, where no single government or international

organization or other form of institution acting alone can solve the problems described. Global foresight needs to inform global-scale decision-making in order for global governance to keep up with global interdependence.

In that spirit, and in the race to identify ever-increasing ways to improve the human condition despite the ever-increasing complexity and scale of global challenges, PMAC 2022 aims to convene futurists, academics and experts from the fields of global governance, international relations, demography, nutrition, political economy, climate, and technology alongside private sector and global health experts, to take a long view. In so doing, PMAC 2022 is a curtain raiser for future years and future PMACs, that will delve more singularly into megatrends raised here, to ensure the global health vision and global health community use these megatrends to inform and shape possible alternatives for global transformation for health and equity through the 21st century – for **The World We Want**.







Sub-theme 1

# The World We Want:

Megatrends and Futuristic Point of Views

The world has been shaken at its economic, political, and social core by the COVID-19 pandemic. The impact of the pandemic has led to calls for re-thinking the future of human societies in ways that will result in a fairer, healthier, and more sustainable world. Recognizing that the pandemic is not the only crisis facing humankind, other mega trends equally as important to consider in any rethinking of future directions are:

- Rapidly growing economic inequities within and between countries
- A pandemic of non-communicable diseases
- Population, migration and refugees
- Advocacy of new approaches to economics
- Changing geopolitical relations, decline of multilateralism, and increased risks of regional and international conflicts
- Growing technology inequalities
- The need for strengthened health systems

Together these mega-trends have created an unstable world which is more open to health and other crises

## Agreed Goals for the Future

The world has also adopted seventeen goals – The Sustainable Development Goals (SDGs) – which have given us a vision of where the world should be by 2030. The 17 SDGs are:

- 1) No poverty
- 2) Zero Hunger
- 3) Good Health and wellbeing
- 4) Quality Education
- 5) Gender Equality
- 6) Clean Water and Sanitation
- 7) Affordable and Clean Energy
- 8) Decent work and Economic Growth
- 9) Industry Innovation and Infrastructure
- 10) Reducing Inequality
- 11) Sustainable Cities and Communities
- 12) Responsible consumption
- 13) Climate Action
- 14) Life below Water
- 15) Life on Land
- 16) Peace, Justice and Strong Institutions
- 17) Partnerships for the Goals

Further to these goals the United Nations has also endorsed the goal of Universal Health Coverage (UHC) which include:

- equity in access to health services – those who need the services should get them, not only those who can pay for them;
- that the quality of health services is good enough to improve the health of those receiving services; and
- financial-risk protection – ensuring that the cost of using care does not put people at risk of financial hardship.

Many also envisage that UHC will only be achieved through the provision of public services based on comprehensive primary health care<sup>1</sup>. In addition, there is some agreement (the Paris Accord) that global warming must be kept below two degrees Celsius compared to pre-industrial levels. While there is some denialism regarding climate change there is primarily a strong and growing consensus on the target and the need for strong action to achieve it.

#### Background to the megatrends that will be covered in this sub-theme

This section summarizes the relevance of sub-themes 2 & 3 as they are an important backdrops to envisaging the world we want in the future.

##### *Handling Future Pandemics*

While in May 2021 some rich countries have had access to vaccines with robust immunization programs and are near to achieving herd immunity (Israel, Canada, UK, US) the story is completely different in many LMIC. In India, Brazil and the Philippines in May 2021 the pandemic was raging and new variants emerging. The issue of equitable access to COVID-19 vaccines and treatment technologies is crucial and poses massive questions for the global community about equitable provision of access to health care. The role of political leadership has emerged as vital in determining pandemic responses. There is also evidence that the pandemic has led to an increase in gender-based violence. The pandemic has underlined the importance of strong public health systems which are free at the point of use

##### *Environmental degradation, Global warming and the ensuing climate crisis Increased risk of pandemics*

A trend that underpins all the others is the human-created and destructive impacts on many of the environmental systems on which human health and life depend.



This is characterized by ecological ‘overshoot’, in which population demand on ecosystem resources exceeds the capacity for resource regeneration, with climate change posing the most immediately critical health-related issue. As one example, particulate air pollution (associated with fossil fuel consumption and greenhouse gas emissions) is responsible for three times as many deaths annually as HIV, malaria, and tuberculosis combined. Despite 25 years of efforts to implement the United Nations Framework Convention on Climate Change (UNFCCC), through its two agreements and one protocol, CO<sub>2</sub> emissions continue to increase rather than stabilize or decline. The commitment of the European Union and election of US President Biden has given a boost to efforts to establish more ambitious carbon reduction targets, but a secure climate future is far from assured. Given the urgency of action on climate change, a quarter century of slow or no substantial prevention or mitigation attests to crises in effective global governance, with concern that the slow decline in multilateralism will worsen the situation. The recent G7 meeting in the UK did make some commitments to climate action but commentators<sup>2</sup> have seen the commitments as not going far enough. Other multilateral meetings happening in 2021 are G20 (Saudi Arabia, November 2021), and OECD (tax reform) and the COP26 in Glasgow (November 2021). While Climate change is the focus of sub-theme 2 addressing this crisis is critical to the ability to achieve the vision in this sub-theme.

## Mega Trends that will be the focus on sub-theme 1

### *Rising economic (including wealth) inequities*

The first mega trend we will examine is the continued rise in economic and wealth inequities, first noted in the 1980s and early 1990s and which has accelerated since. Not only are such inequities associated with slowing, stagnating, or inequitably distributed health risks; their impact on social stability and potential to create national and regional conflict is now widely accepted as one of the major concerns facing humanity. The issue of rising inequity is a cross-cutting issue and relevant to most of the other issues PMAC 2022 will be considering including climate change, income security, working conditions and health. World Bank data indicate that in most countries in the world wealth distribution as measured by the Gini co-efficient are becoming less equal<sup>3</sup>.

There are many reasons for this dramatic rise in wealth/income inequities but most of them pertain to policy decisions governments have made over the past four decades in which neoliberal economic theory predominated. Since the 1980s the share of global economic product going to labour has declined substantially while the share to capital (investors, TNCs, etc.) has increased so contributing to the widening inequities. A further reason has been the declining share of GNI within countries being captured by taxation for redistribution through cash transfers and/or investment in public programs, including health and social protection. Some countries, notably in LMICs, are now increasing taxation (measured as a portion of GNI) that could sustain or improve financing for health and other social protection programs. Their low levels of economic output (GNI), however, means that even with improved and progressive taxation many LMICs will be unable to finance adequate social safety nets in keeping with the SDG targets without external forms of financial assistance. Moreover, the impacts of the pandemic on the global economy will reduce considerably growth and taxation potential for many of these countries.

At the same time, countries' tax/transfer capacities remain constrained by the hypermobility of capital, continued international tax competition, and a growth rather than reduction in offshore financial centres ('tax havens'). Huge amounts of wealth and income continue to avoid or evade taxation and redistribution or public investment for public good purposes. There have, however, been considerable efforts to reduce these practices in recent years since the publication of the Panama Papers which revealed the extent of tax evasion.

During the COVID-19 pandemic the wealth of the world's richest individuals increased dramatically. The wealth of the richest people in the world have boosted their already vast wealth by more than \$400bn (£296bn) since the coronavirus pandemic began as their businesses benefited from lockdowns and financial crises across the globe. –Some transnational pharmaceutical companies are making large profits from the sale of vaccines. Pfizer announced that it expects \$26 billion in COVID vaccine sales this year while also refusing to share any significant vaccines with low and middle incomes countries<sup>4,5</sup>. Reversing the trend towards increasing inequities is vital to a healthy and fairer future

### *Rising economic (including wealth) inequities*

The rise in non-communicable disease in all countries regardless of income has reached the proportions of a pandemic<sup>6</sup>. WHO reports that 71% of all deaths are a result of NCDs. The vectors of NCDs concern social and commercial determinants of health. NCDs have increased as the marketing of products such as high sugar content drinks and the design of cities which encourage low exercise. This means we have car dominated cities, unwalkable neighborhoods, marketing and consumption of fast foods and weak social ties. While NCDs have been called "lifestyle" diseases, putting the onus for change on individuals, these "lifestyle" choices" have deep roots in unhealthy systems. Thus, reducing their impact will require system change. These changes would include the on-going struggle to establish effective public health systems which are based in comprehensive primary health care. Such community-based care would be able to work to reduce NCDs in communities including by identifying and advocating for change to the social and commercial determinants. These systems would also be helpful in handling future epidemics of infectious diseases.

The cost-effective health promotions and disease prevention should be addressed in the future plan to tackle NCDs. Effective health promotion and disease prevention interventions should also address both proximal and distal determinants of ill health of the population in terms of both issue based and setting based determinants (such as, for issue based, sedentary life style, unhealthy eating, tobacco and alcohol uses<sup>7</sup>, along with setting based, such as, aging society and vulnerable population).

### *Population, migration and refugees*

Global life expectancy has risen by more than a decade over the last 40 years to reach 73.2 years. It is also projected to increase in every country over the next 40 years, according to the United Nations, as mortality improvements shift from childhood to later ages. However, in some high income countries including the US and UK life expectancy is stalling and has declined for some low socio-economic groups<sup>8,9</sup>. Population ageing and fertility decline are key trends when considering how to make the world sustainable in the context of COVID-19. Older people constitute the large majority of deaths due to COVID -19. The pandemic has also powerfully revealed the importance of public health and the value of preventive medicine. It has dramatically exposed the social determinants of health and the stark inequities of those most impacted by disease, from health, social, and financial perspectives. Highlighting the importance and urgency of investing in healthy ageing. The pandemic has also had significant and substantial impacts on fertility behaviours including substantial fertility decline in high-income settings, and increased numbers of unwanted pregnancies in low-income settings. Planetary overpopulation continues to threaten ecological sustainability.

More people are on the move than at any previous point in human history. Much of this movement is internal migration, often rural to urban or internal displacement. Some is facilitated international migration, but an increasing amount is forced migration (in response to conflict, environmental degradation, and threats to livelihoods), while some involves asylum seeking or refugee claimants as defined under international law<sup>10</sup>. The rise in forced (informal) migration has increased its criminalization and dangers, the erection of border barriers (including armed walls), the creation of huge settlement camps (particularly in LICs where most forced migrants are located), and politically motivated racist rhetoric by some of the world's most powerful leaders fomenting increased xenophobia and hate crimes. There are a declining number of countries willing to take refugees. Some countries cautiously accept refugee claimants and asylum seekers. But over 65 nations are taking measures to exclude refugees, those 66 million international migrants whose flights from their homelands are considered to be 'forced' by immiseration, drought, conflict, or all three. Tens of millions more become internally displaced, housed in massive refugee camps located in LMICs that lack the resources to provide for them. The conditions in these camps makes the pandemic spread more likely: crowded conditions, limited water or sanitation facilities, and no intensive care for those with severe COVID. With wealthier donor countries are reducing foreign aid

budgets to cope with their own domestic pandemic bailouts or recoveries, cuts to food aid are leading to extreme hunger for those trapped within refugee camps<sup>11</sup>. The threats to the health of these migrants are clear.

HICs with an aging population are sometimes urged to accept more migrants from LICs with a youthful population based on a 'win/win' argument: reduced population pressures and poverty in LICs and a replenished working age portion of the demographic pyramid in HICs. This argument is based on conventional economic modelling of dependency ratios (the number of older people [aged > 60 or > 65] / the number of working-age adults [aged 15–64]). The WHO Global Report on Ageing<sup>12</sup> notes this conventional modeling is ageist as it assumes that all older people are dependent. In low-income countries, for instance, approximately 50% of those aged 65 years and over are in the labour force. In the G7 countries, in the decade before COVID-19, people aged 50 years and over drove 100% of employment growth

Declining employment options and the requirement for a continuous growth in working age population to sustain an expanding older population question its longer-term relevance or ecological sustainability. UN-led efforts to seek agreement on a 'managed migration' compact remain tenuous<sup>13</sup>. Post-COVID-19, when growth will be needed, a focus on healthy ageing to achieve a longevity dividend needs to be a priority. The UN has declared the decade from 2021- 2030 The Decade of Healthy Ageing<sup>14</sup>

### *New economic paradigms*

Challenges to the dominant 'growth' oriented global economy are not new but are gaining a new urgency in the face of unsustainable patterns of growth. Some of the alternative models that have been proposed include: steady state economics<sup>15</sup> 'doughnut' economics<sup>16</sup>, in which financial policies and practices should be assessed for their human socio-health and ecological 'overshoot' impacts (similar to a Health in All Policies approach); policies to promote circular economies<sup>17</sup>, in which waste is reduced and resources continually reused to minimize environmental impacts; and 'glocalization', a concept that emphasizes forms of local production/consumption, local exchange currencies, and producer

cooperatives to improve democratic accountabilities and lessen environmental damages. Modern Monetary Theory has also challenged the idea that government debt is necessarily bad and in fact is important to nation-building activities. Collectively, such ideas are sometimes referred to as 'degrowth' economics, and often include incorporation of new national account measures based on human wellbeing, 'prosperity', and/or a sustainability development index rather than on GNI growth per se. The health impacts of different economic systems need to be assessed as a part of their value<sup>18</sup>.

### *Changing geo-political relations and decline of multilateralism*

Shifts in the distributions of political and economic powers amongst countries and regions are outcomes of post-1980s globalization. Enabled by trade and investment liberalization agreements originally led by the World Trade Organization (WTO), economic interdependencies between countries increased. The 1990s through the early 2000s were characterized by the creation of global production chains, increasing employment and economic growth in many low- and middle-income countries (albeit unequally distributed) while decreasing manufacturing and services employment in many high-income countries. Increased liberalized financial flows and under-regulated derivative investments and banking rules increased macroeconomic instabilities, culminating in the 2008 global financial crisis. Concerns with rising government debt partly consequent to the 2008 crisis led to widespread fiscal austerity that replicated many of the requirements of earlier IMF/World Bank structural adjustment programs. Past and present fiscal austerity measures, either as conditions on new IMF loans to governments or undertaken voluntarily, have negative health impacts, particularly in low- and middle-income countries (LMICs), but also in high-income countries (HICs), and for poorer populations within countries. Economic growth globally, and in most countries, has slowed considerably since 2008, creating economic and political uncertainties. The COVID-19 pandemic has created new threats to prosperity and threatens to see countries going backwards in terms of meeting the SDGs by 2030. The rate and direction of economic change has led to a rapidly growing area of enquiry – the commercial determinants of health which examines the ways in which business interest, especially trans-national corporations have a negative impact on health. The size and power of transnational corporations also continues to increase; 78 of the top 100 economic entities are now TNCs.

The first, and most notable, outcome of geopolitical shifts in economic and political power and influence has been a slow erosion in the

multilateralism that has characterized global governance. In the face of sluggish economic growth and increasing competition for consumer markets, multilateral trade rules are being supplanted by bilateral and regional trade and investment agreements in which more powerful states are able to negotiate rules that favour their economic or political interests. Regional agreements, such as the new African Continental Free Trade Agreement (AfCFTA), could lead to more equitable development outcomes, although much will depend on the extent to which such agreements emphasize social and political development and not just commercial/economic growth. A further issue is extent to which the asymmetries in power and size between countries in regional agreements are explicitly managed in the texts of such agreements. An on-again/off-again trade war between the USA and China is becoming a defining geopolitical feature with implications for the economic stability (or instability) of many of the world's countries, and how this might 'trickle down' to affect health and health systems.

### *Growing Technology Inequalities*

Past history shows that global disasters on the scale of the COVID-19 pandemic bring a huge imperative for innovation<sup>19</sup>. This pandemic was the first where the rapid deployment of technology, and specifically digital technology, became a core component of the race to understand, contain and deliver a potential solution.

It was an artificial intelligence (AI) algorithm that first alerted much of the world to COVID-19 on 31 December 2019 and went on to successfully predict 10 of the first 12 cities to be impacted.<sup>20</sup> Primary care and outpatient hospital care had long held the promise that they could largely be delivered digitally but COVID-19 precipitated this with many countries forced to adopt a digital-first approach. The vaccine industry underwent a paradigm shift in technology delivering a viable mRNA vaccine within one year when previously timelines had been closer to one decade.

Some of these technologies are likely to evolve to play a permanent role in health beyond COVID-19. New vaccine technologies have the potential to revolutionise how humans fight infectious disease and offer potential solutions for other huge killers, such as malaria, which have so far eluded us.

Telehealth can make care more efficient and coordinated and has the potential to bring expert care to underserved areas of the world. AI can help us prevent the next pandemic and develop new and more effective treatments.

Despite the progress, almost most half of WHO member countries do not have a health technology policy and lack of standards for data protection, privacy and security as well as the conditions for data sharing risk slowing or reversing progress.<sup>21</sup> Whether the technology trend from COVID continues depends on the role of governments in leading, empowering and regulating technologies.

Ultimately, these technologies have the potential to accelerate the achievement of the SDGs and the world we want for many but also risk driving further health inequity by excluding those who don't have access to them, either due to cost, access or knowledge.

#### *The need for strengthen health systems*

Increasing the ability for a health system to withstand and effectively respond to shocks and stressors is critical to achieving a position from which to address effectively to future pandemics and to maintaining progress to date on the world's global health goals. To be resilient, health systems must be flexible enough to adjust resources, policy, and focus in response to constantly emerging challenges. USAID<sup>22</sup> recognizes the need to build resilience to acute, time-bound events such as disease outbreaks, as well as to longer-term dynamics such as protracted population displacements, weak government authority or legitimacy, population pressure, social exclusion, and climate variability. The type, intensity, and number of overlapping shocks and stressors cannot always be predicted, but the fact that there will be shocks and stressors can. In many countries, health systems are unprepared for these inevitable events, whether unexpected external crises or internal governance challenges such as shortages, or payment delays.

Primary Health Care (PHC) is vital to the task of building strong health systems. The exact nature of PHC is a matter of debate. WHO has recently revitalized its support for PHC<sup>23</sup> and while this was widely welcomed some flaws have been highlighted <sup>24</sup>as the Astana Declaration does not see PHC as an organizing principle for a health system and as having a role

in supporting and advocating for intersectoral action. Further the critique noted that the positioning of PHC as part of Universal Health Coverage it supported private sector activity which was often likely to be too the detriment of a strong public health system. The importance of strong public health systems has been shown in many ways during the COVID-9 pandemic<sup>25</sup>.

UNAIDS' recent paper on health systems in 2030 has describing them as having to be absorptive, adaptive, and transformative in order to cope with times of crisis Absorptive capacity relates to the existing ability of a health system to take intentional protective action and to maintain stability in the face of known shocks and stressors to prevent or limit negative impacts. Adaptive capacity is the capacity of the health system to make incremental and flexible adjustments in order to better manage a changing environment while improving overall system performance. Finally, transformative capacity refers to the ability of the health system to make fundamental functional and structural changes that address underlying challenges and contextual dynamics which impact performance and progress toward health outcomes. Other work has stressed the importance of effective community participation in the design of health systems<sup>26</sup> and the need to build strong public systems that are most effective at ensuring equitable access and outcomes. The importance of community health workers<sup>27,28</sup> is also evident.

#### **Objectives**

- Examine- from different perspectives – how the vision of a healthy, fair and sustainable world can be achieved for current and future generations
- Examine the varying theoretical and ideological base underpinning these perspectives
- Outline the most likely pathways to achieving the vision over the next decades

## Issues to be addressed

Nearly everyone and most organisations agree with the SDGs and the Paris targets on global warming. They offer a comprehensive vision for the world. However, there is considerable disagreement about how these goals are to be achieved. These disagreements are likely to have shifted over the course of the COVID19 pandemic. The pandemic has opened up a bigger space in which to envision different ways of achieving the SDG and climate goals. Broadly speaking there are three categories of responses to the question of how to achieve the SDGs which are evident in national and global debates. These can be represented on a continuum.



Figure 1: Continuum of responses to Pandemic recovery

On the left there are increasingly vocal calls for a rethink of the capitalist world which relies on historical and contemporary extraction of resources and their use to benefit a small number of increasingly rich people and corporations. This view points to alarmingly growing levels of inequities in wealth both within and between countries. Rather than trickle down to help the many, see a concentration of wealth at the top. The vision is based on degrowth and non-consumerist models of economic activity, taking into account the need to improve healthful levels of consumption for the world's (still too many) poor via global redistributive systems while dramatically reducing consumption levers of higher-income countries and individuals. This vision is associated with calls for gender equity and recognition of the rights of all citizens to a healthy and adequate livelihood. It also offers a variety of visions for alternative economic systems which are typically decentralized and democratic.

Transnational corporations are seen to have prospered and grown under capitalism to the extent that their power and wealth is a rival to democratic government. This perspective also points to the failure of privatized systems to cope with the pandemic especially in regard to health systems. This view promotes democratic political system which are responsive to the needs of people.

On the right there are calls to support the existing model of capitalism and maintain it by giving subsidies to industry and continue the privatization of functions that were previously those of the state. This view continues to see the value of market economics and argues they are the best basis for democracy. It sees continued growth as desirable and possible. This view regards taxation as an impediment to business and so favours very low taxation. The aim of this model is to whittle away welfare states where they exist and oppose their development where they don't. Extreme versions of this view see the state itself withering away and social organization being left to markets. Transnational corporations, including those based on high carbon emissions, are viewed favorably and seen as valuable as they provide the goods and services people desire.

The responses in the middle of the continuum accept the capitalist model but also believe it needs to be tempered by measures which will make it less likely to contribute to global warming and environmental destruction. It also believes that redistributive measures are required. This view will support measures to encourage renewable energy, recycling schemes and promote business adopting carbon targets. This response would support the welfare state and some universal public sector functions including education and basic health services provision. During the pandemic many high-income governments did extend more generous welfare schemes to either keep people in jobs or increase the support they received.

Much debate in global health continues without recognition of the values and beliefs that undermine different visions of how societies should be organized to promote health and wellbeing. Our aim in this session is to examine the different assumptions underpinning the ways in which countries should build back from the COVID-19 pandemic.

## Issues to be addressed

Any approach to improving health and health equity in the future will be based on a multi-sectoral approach and envisaging such a future will require engaging people from different sectors including urban planning, transport, communications, energy, trade and foreign affairs, finance (treasury), food and agriculture and technology

The consideration of the future in this sub-theme will be concerned with national and supra-national levels:

1. How countries can build fairer, healthier and more ecologically sustainable societies
2. Supra-national: governance for health, international co-operation outside of country boundaries with the aim of minimizing unhealthy nationalism

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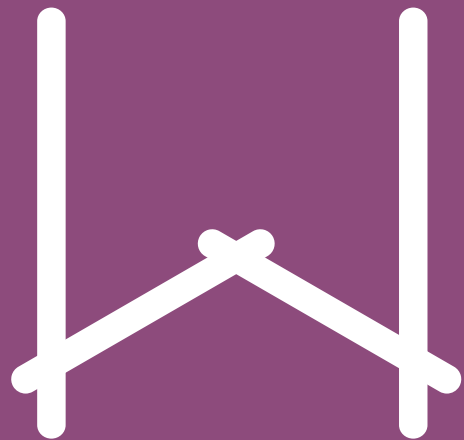
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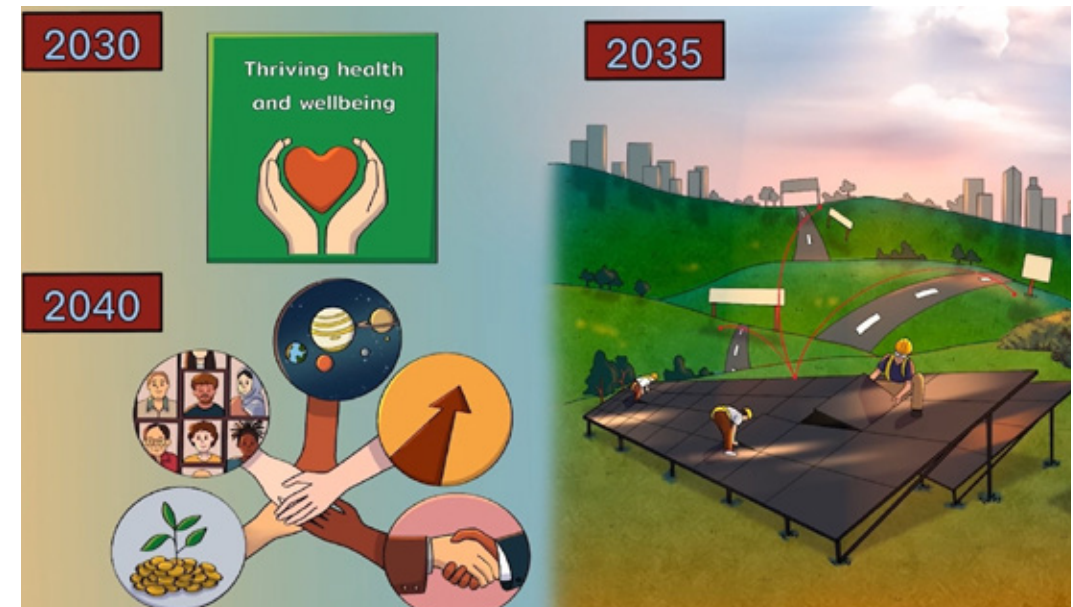
Sub-theme 2

# The World We Want:

Scaling up Efforts to Address Climate Crisis  
and Building Forward Greener

## Concept: The converging crises of climate, environment and health

The converging crises of climate, environment and health are megatrends that present current and future threats to our planet and population. There is a need for multisectoral and interdisciplinary collaboration between countries and actors to unite in political solutions. Joint accelerated efforts to tackle the climate crisis and recover from the COVID-19 pandemic are crucial. Measures taken to address both of these public health crises must be examined carefully, given their strong connection.



*“The pandemic is a reminder of the intimate and delicate relationship between people and planet. Any efforts to make our world safer are doomed to fail unless they address the critical interface between people and pathogens and the existential threat of climate change, that is making our Earth less habitable”*

**WHO (2020)**  
**Manifesto for a healthy  
recovery from COVID-19**

However, not all actors contribute to these converging crises similarly, and inequality remains a core issue. The top 10% of the emitters generate around 45% of global greenhouse gas emissions, while the bottom 50% only generate 13%. According to numbers from 2017, 100 companies are accountable for 71% of the world's total greenhouse gas emissions. Only a handful of transnational companies dominate areas that are significant drivers of environmental change and biodiversity loss, such as agriculture, forestry and fisheries. Notably, food consumption is the single most significant driver of environmental pressure load accounting for 80% of land conversion and biodiversity loss, contamination of freshwater and coastal ecosystem, 80% of freshwater consumption and contributing 20-30% of global greenhouse emissions. How can we create rights-based systems of equal distribution that, at the same time, battle the converging crises of climate, environment and health?

### **The need for strengthen health systems**

The COVID-19 pandemic has hit the world severely, causing death and suffering to millions of people. And while the world is trying to tackle the pandemic, global warming continues, often interacting with other megatrends . According to the WMO's State of the Global Climate, 2020 was one of the three warmest years on record, with indicators such as greenhouse gas concentrations, increasing land and ocean temperatures, sea-level rise, melting ice and glacier retreat and extreme weather. Climate change affects socio-economic development globally (according to EU numbers, this implies a loss of more than 12bn Euro per year within the Union only), land and marine ecosystems, economy, food, security, trade, migration, health and wellbeing. According to the planetary boundaries framework, we have already transgressed at least four boundaries: climate change, land conversion, nitrogen and phosphorous loading, and biodiversity loss. The human population has driven the planet into the Anthropocene: the first geological epoch shaped by human activity.

It is estimated that an average of 26.4 million people worldwide have been displaced by weather events every year since 2008. There could be as many as 1 billion climate migrants by 2050, thus reinforcing inequalities and complicating access to basic services for a large part of the global population. In addition to this, displacements

and migration due to climate change and weather events interact with other issues, often leading to geopolitical tensions, consequently posing threats to international security. We know that battling the climate, environment and health crises would reduce the risk of existing and new health threats, such as emerging zoonotic diseases, respiratory diseases and heat exposure, creating a more promising, healthy and equal future for coming generations – not leaving the most vulnerable groups behind.

### **Build Forward Better and Greener**

As an imminent consequence of the pandemic there is increasing attention and investment on Building Forward Better towards greener, more sustainable, and equal recovery using systematic approaches and holistic perspectives as the world has now to increase its activities to tackle the ongoing climate, biodiversity and environmental crises. The WHO highlights the need for recovery plans protecting nature, investing in essential services, ensuring quick and healthy energy transitions, promoting sustainable food systems, building healthy cities, and stop subsidising air pollution. An analysis of COVID-19 related recovery efforts led by Oxford's Economic Recovery Project and the UN Environment Programme (UNEP) illustrates selected green policy areas that could optimise economic recovery with global climate and sustainability commitments after COVID-19: green energy, green transport, green building upgrades and energy sufficiency natural capital, and green research and development. They state: "The choice for policymakers is clear: make use of recovery spending to steer away from the worst impacts of climate change and inequality or reinforce existing carbon-intensive systems and lock in a future that is economically, socially, and environmentally unsustainable."

Many governments and actors are already leading the way, with leadership focusing on green transitions. However, more action is urgently needed to assure a more promising outlook. During the first half of 2020, the level of carbon dioxide in the air exceeded 410 ppm, the highest level in 3 million years, as pointed out by a new multi-agency report launched in September by UN Secretary-General. The recently published Oxford's Economic Recovery Project/UNEP report shows that "USD14.6tn in announced spending across the world's largest fifty countries in 2020, of which USD1.9tn (13.0%) was

directed to long-term 'recovery-type' measures and of that, USD341bn (18.0%) to green recovery initiatives. Considering total spending, only USD368bn (2.5%) was announced for green initiatives ".13 The Global Risks report 2021 states that without systematic solutions, emissions will only continue to increase, risking to miss the window of opportunity the pandemic presents, similar to the scenario of the 2008-2009 financial crisis where emissions quickly bounced back after a temporary decrease due to economies shutdowns.

### **Opportunities for Building Forward Greener**

#### *The Paris Agreement and NDCs*

Hamilton et al. state that greater inclusion of health in the Paris Agreement (which is now lacking ) can simultaneously increase health benefits and achieve the "well below 2°C" commitment across various regional and economic contexts. There are substantial health co-benefits to be retrieved from these efforts, but they are not enough embraced in climate policies, the authors argue. In a scenario of meeting the goals of the Paris Agreement and the 2030 Agenda, the same study concludes that this pathway would save many millions of lives due to reduced air pollution, improvement of healthier diets and increased physical activity by 2040 in the nine countries of investigation, compared with the current pathway's scenario.15

The newly published UNFCCC NDC Synthesis Report, covering new or updated NDCs by 75 parties, concludes that most of these countries increased their levels of ambition to reduce emissions in the revised NDCs. Yet, the current levels of climate ambition are not on track to meet Paris Agreement goals. In the report, particularly vulnerable areas of concern were mentioned: agriculture and other aspects of food security, water, biodiversity and ecosystems, health systems, infrastructure (particularly energy) and loss of territory, livelihoods and habitats. Many countries highlighted contextual aspirations and priority areas to maximise synergies between climate commitments and human health. In addition, the report found that health was identified as an adaptation priority in most of the NDC's adaptation components. While the references to health in the NDCs can strengthen the commitment to climate action at a national and global level, they are made in relation to financial and technological resources/assistance needed from wealthy

countries to low-income countries. This makes it evident that the focus on health in the NDCs follows broader patterns of global inequalities. While richer (high emitting) countries focus on non-health sectors (i.e., energy and the economy) and make no reference to health (e.g., Australia, EU member countries, the USA), it is the poorest and most climate-vulnerable countries that aim to address health and strengthen their health systems in their NDCs. This brings to the fore the issue of access to climate finance for climate-resilient health systems. According to the WHO Health and Climate Change Survey Report: Tracking Global Progress (2019), the majority of countries reported only moderate or low levels of implementation of their national health and climate change strategies/plans, citing financing as the most common barrier to implementation. Only 9% of the surveyed countries reported having sufficient national health budgets to implement these strategies in full.

#### *The Paris Agreement and NDCs*

As pointed out by many, and recently by Bill Gates in his new book , the only way to reach a healthy planet and healthy people is the path from current to 0 greenhouse gas emissions. Changing energy production from today's 80% dependence on fossil fuel to 100% clean energy is a gigantic task but necessary for people and planet survival. "The countries that build great zero-carbon companies and industries will be the ones that lead the global economy in the coming decades", says Bill Gates. The private sector taking more significant initiatives in green transitions is a crucial aspect, including innovations and technologies for a green and clean recovery, especially regarding energy, food systems and agriculture.

There is a need for policymaking to enable and stimulate these transformations, as well as the willingness to transform systems and traditional economic models from the private sector. It is time for bold political decisions and more efforts of science and innovations for creating a sustainable and healthy planet from a multisectoral and holistic approach. The youth climate movement have been groundbreaking in their requests for bold policies and action for their future on our planet. Essential questions to ask are: How do we increase accountability of all the world's governments, public, private and third sector actors?

If the aim to Build Back Better historically has proven to merely build back, how can we make use of the window of opportunity the pandemic presents to do better regarding the converging crises of climate, environment and health and align our efforts towards the 2030 Agenda?

Positively, some global actors are picking up the pace. The European Green Deal aims to make Europe climate neutral by 2050, with China by 2060 and Japan by 2050. President Biden has proposed a \$3 trillion climate plan to phase down fossil fuels by expanding renewable energy capacity while creating jobs, reducing pollution and investing in historically disadvantaged communities. The World Bank Group recently launched their new Climate Change Action Plan, including committing to aligning financing flows with the objective of the Paris Agreement and increasing their climate finance with the goal of 35% of World Bank Group financing having climate co-benefits on average over the next five years. As described earlier in this concept note, 100 companies are accountable for 71% of the world's total greenhouse gas emissions, but there are at the same time initiatives such as the World Business Council for Sustainable Development with the aim for accelerating the transformation of major economic systems, in line with Sustainable Development Goals, the Paris Climate Agreement and Vision 2050.

There are multisectoral models and theories developed to improve a more sustainable and healthier planet, to apply at scale. A holistic approach to planetary and human wellbeing is provided by Kate Raworth's "Doughnut Economics" model, combining social and planetary boundaries, taking a systematic approach for future sustainability for human and planetary health, questioning the need for traditional economic growth to re-focus on more sustainable policies for all.<sup>9</sup> Similarly, Tim Jackson argues that "the pursuit of growth at all costs" reinforces inequality, hinders technological innovation and exacerbates financial instability when we instead need to create conditions for an economic system for all, within the planetary boundaries and constraints.

The syndemic approach is a conceptual framework aiming to improve the understanding of co-occurring risk factors, improving prevention and intervention programmes. Mendenhall et al. state that the term syndemic refers to "synergistic health problems that affect the health of a population within

the context of persistent social and economic inequalities", considering social, environmental, political and economic factors – understanding that health is largely affected and determined by all of these factors. The Lancet Commission on the Global Syndemic of Obesity, Undernutrition and Climate Change argues that the three "pandemics" of obesity, undernutrition and climate change represent the global syndemic that affects most people in every country and region worldwide; a synergy of epidemics, interacting with each other, sharing common societal drivers, highlighting the importance of food systems and their unequal distribution and function globally. Richard Horton writes: "COVID-19 is not a pandemic. It is a syndemic. The syndemic nature of the threat we face means that a more nuanced approach is needed if we are to protect the health of our communities", highlighting the prevention of Non-Communicable Diseases (NCDs), understanding social inequalities, and virtually all elements playing into the direct and indirect effects of the pandemic. The syndemic approach provides an integrated lens of the current pandemic, helping us understand it in a context of a more extensive vision encompassing education, employment, housing, food and environment – a systems view, analysing and understanding how crises and inequalities converge and how to tackle them holistically.

In light of recovering from the pandemic and making investments in green recovery, academia, business, and politicians have a tremendous responsibility to work together to battle these crises, promote health and equality, and prevent disease. The aforementioned Oxford's Economic Recovery Project/UNEP report states: "Despite positive steps towards a sustainable COVID-19 recovery from a few leading nations, the world has so far fallen short of matching aspirations to build back better. But opportunities to spend wisely on recovery are not yet over. Governments can use this moment to secure long-term economic, social, and environmental prosperity."<sup>13</sup>

## Objectives

The world is in a situation where there is an increased openness for transformation due to the pandemic, where clear goals need to be set, and key activities need to be prioritised. In this, PMAC can be a strong voice addressing the converging global crises and how to take bold actions for humanity and planet – emphasising that human health is dependent on the planet's health.

The objectives for sub-theme 2 are:

- Discuss actions to address the converging crises of climate, biodiversity, environment and health.
- Mobilise political and private sector support and momentum for action-oriented collaboration between countries and actors to synergise in political solutions and mechanisms. This should also include creating accountability for investing greener in the recovery post-COVID-19 and mobilising resources for "building forward better".
- Engage youth and vulnerable groups in the converging crises of climate change, environmental degradation and health in these discussions, and create a platform for them to express what they need from today's leaders.
- Leverage the momentum and impacts from COP26 (before PMAC) and contribute to Stockholm +50 in June 2022 (after PMAC).

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- 31 .Horton (2020) Offline: COVID-19 is not a pandemic. *The Lancet*: Vol 396, September 2020.



Sub-theme 3

# Learning from the COVID-19 Pandemic

to Better Prepare for Tomorrow's  
Challenges



The ongoing COVID-19 pandemic has laid bare our collective weaknesses in being able to effectively respond to the emergence of a highly contagious and lethal microbial threat. Despite extraordinary advances over the past century in science and in global health standards, we still live in a world where the threat of an infectious agent can emerge anytime and anyplace without warning and spread rapidly to every community and every household without regard to national borders

Importantly, COVID-19 is not the first pandemic due to an emergent pathogen from wildlife of this century and is unlikely to be the last. Over the last 20 years a number of high impact pathogens have emerged or re-emerged. These include emergence of diseases due to three new coronaviruses (CoV), namely Severe Acute Respiratory Syndrome (SARS) in 2003; Middle East Respiratory Syndrome (MERS) in 2012; and the ongoing COVID-19 pandemic, a number of highly pathogenic influenza A viruses (e.g. H5N1 in 2003; H7N9 in 2013; and the H1N1 pandemic of 2009), the Zika virus as a global health emergency in 2016, and the continuing rise and spread of Ebola in West and Central Africa since 2013.

All these emergent pathogens have jumped from transmission among non-human animals to transmission among humans. Over the course of the remainder of this century, the likely frequency of epidemics and pandemics will continue to increase, driven mainly by demographic trends, including urbanization, and environmental degradation, climate change, persistent social and economic inequalities, and globalized trade and travel.



While upgrading of the health security apparatus over the last decade has been welcomed, COVID-19 underscores that the existing legislation, processes, and institutional arrangements such as the International Health Regulations (IHR) and Global Health Security Agenda (GHSA) are insufficient for early warnings and in preventing impacts of events such as those caused by SARS COV-2. Some countries that were assessed to be well prepared using various indexes and metrics, performed poorly in containment and mitigation during the COVID-19 pandemic. Clearly, there are other components of health emergency risk management and an effective response that have not been well characterized.

The experience of the COVID-19 pandemic, yet again underscores that new efforts are needed to craft global strategies, policies and regulatory frameworks that improve our collective capacities to prevent, as well as rapidly detect and respond to threats. The COVID-19 pandemic, has heightened the sensitivity of the global community to devastating socio-political and economic damage to the planet. This is an opportunity to capitalize on a growing international discussion among political and global health leaders on the need to address future emerging threats to leverage political and financial support, as well as build out its organizational and operational architecture. Making good use of the additional energy in the system will be essential if we are to learn the lessons that we have failed to learn before. We must capitalize on this to guide both near-term and longer term future investments in pandemic preparedness and to expand work to understand new pathogens and where they come from before there are widespread outbreaks.

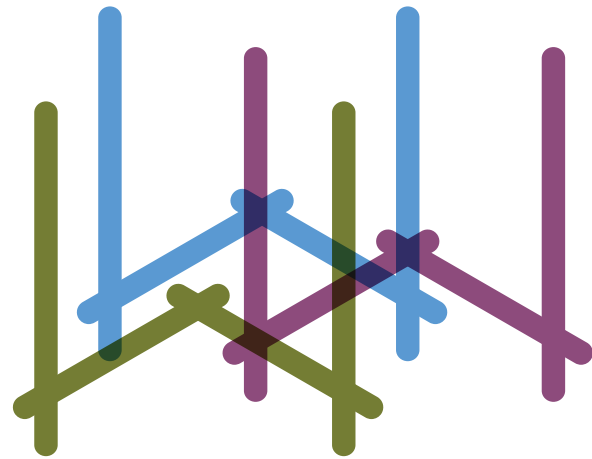
### **Objectives (solution oriented)**

1. Characterize and understand the factors that led to the inadequate global preparedness for and response to COVID-19, leading to direct and indirect impacts, in order to answer "how can we be better prepared to prevent and mitigate the impacts of any future pandemic threat?"
2. Characterize and understand the strengths and weaknesses in the design and implementation of: the global regulatory framework and conventions, such as the IHRs and the SDGs; the global health architecture; international funding mechanisms etc., in preparing

the world for COVID-19 and identify how they might be improved to make them more effective for future emerging threats?

3. Understand how current mega-trends are likely to impact the emergence and spread of future infectious disease threats and identify actions to make the world's social, political and economic systems better able to cope with these changing dynamics.





## ANNEX II CONFERENCE PROGRAM STRUCTURE

### PMAC 2022 Conference Activities

- 19 Side Meetings
- 2 Virtual Filed Trip
- 370 Submissions for PMAC 2022 World Art Contest
- Webcasts / Podcasts / Workshop / Publications



### Main Conference Program:

25 – 29 January February 2022

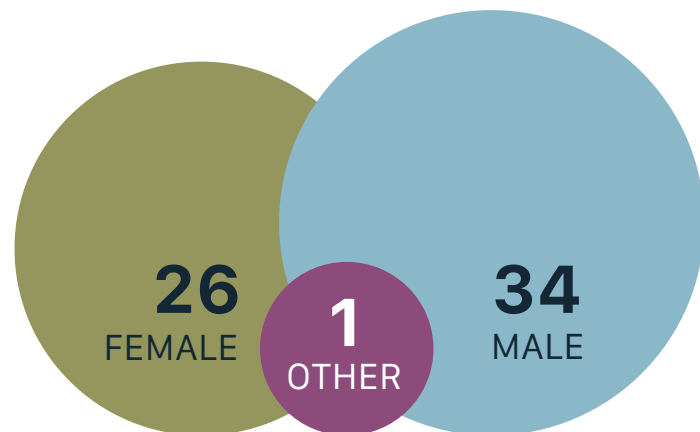
- Keynote Armchair Conversation with 3 Prince Mahidol Award Laureates
- Opening Session – Armchair Conversation
- 7 Plenary Sessions (S1 – S7)
- Closing Session – Armchair Conversation

## SPEAKERS, MODERATORS AND PANELISTS

Speakers, moderators and panelists: There were a total 61 speakers, panelists and moderators altogether (Male 55.7 %, Female 42.6 %, Other 1.6 %) in all sessions of PMAC 2022 (including keynote, opening, 7 plenary and closing sessions).

### 61 Persons in total

#### Gender



#### WHO Regions

Europe (EURO)Africa (AFRO)	23	37.7 %
America (PAHO)	18	29.5 %
Africa (AFRO)	9	14.8 %
Western Pacific (WPRO)	7	11.5 %
South-East Asia (SEARO)	3	4.9 %
Eastern Mediterranean (EMRO)	1	1.6 %
Total	61	100 %

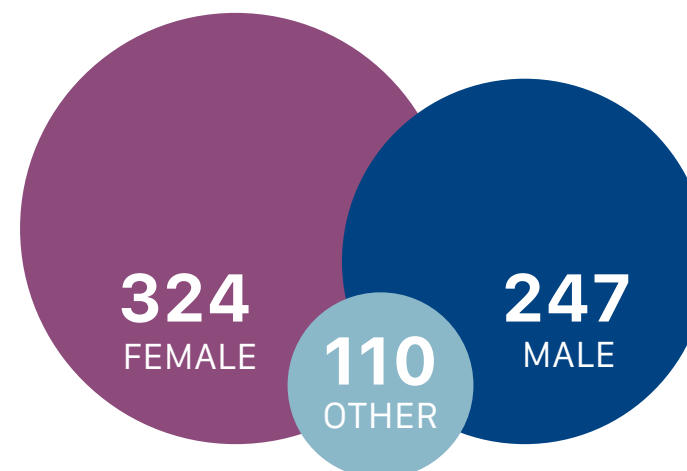
## Type of Organization

Academic/Research Institute	13	21.3 %
NGO/CSO	8	13.1 %
Private Sector	4	6.6 %
UN Agency	4	6.6 %
Bilateral/Multilateral/International Agency	3	4.9 %
Other	3	4.9 %
Public Sector (Developing Country)	2	3.3 %
Public Sector (Developed Country)	1	1.6 %
Professional Association	0	0 %
N/A	23	37.7 %
Total	61	100%

## PARTICIPANTS

Total participants who join live sessions (including speakers, panelists, moderators, rapporteurs and attendees): There were a total of 681 participants from 57 countries

#### Gender



## WHO Regions (57 Countries)

South-East Asia (SEARO)	291	42.7 %
Western Pacific (WPRO)	107	15.7 %
Europe (EURO)	104	15.3 %
America (PAHO)	80	11.7 %
Africa (AFRO)	24	3.5 %
Eastern Mediterranean (EMRO)	5	0.7 %
N/A	70	10.3 %
<b>Total</b>	<b>681</b>	<b>100%</b>

## Type of Organization

Academic/Research Institute	173	25.4 %
NGO/CSO	115	16.9 %
Public Sector (Developing Country)	75	11.0 %
UN Agency	57	8.4 %
Bilateral/Multilateral/International Agency	52	7.6 %
Private Sector	42	6.2 %
Public Sector (Developed Country)	33	4.8 %
Other	27	4.0 %
Professional Association	3	0.4 %
N/A	104	15.3 %
<b>Total</b>	<b>681</b>	<b>100%</b>

## Annex III International Organizing Committee Members

Name - Surname	Position	Organization	Role
Dr. Vicharn Panich	Chair, International Award Committee	Prince Mahidol Award Foundation, Thailand	Chair
Ms. Henrietta H. Fore	Executive Director	United Nations Children's Fund, USA	Co-Chair
Ms. Winnie Byanyima	Executive Director	Joint United Nations Programme on HIV/AIDS, Switzerland	Co-Chair
Dr. Naoko Yamamoto	Assistant Director-General for Universal Health Coverage and Health Systems Cluster	World Health Organization, Switzerland	Co-Chair
Dr. Juan Pablo Uribe	Global Director for Health Nutrition and Population	The World Bank, USA	Co-Chair
Mr. Haoliang Xu	Assistant Secretary General and Director of the Bureau for Policy and Programme	United Nations Development Programme, USA	Co-Chair
Dr. Osamu Kunii	Head, Strategy, Investment and Impact Division (SIID)	The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland	Co-Chair
Mr. Tomoya Yoshida	Deputy Director General, Human Development Department	Japan International Cooperation Agency, Japan	Co-Chair
Dr. Jennifer Adams	Senior Deputy Assistant Administrator, Bureau for Global Health	United States Agency for International Development, USA	Co-Chair
Dr. Barbara J. Stoll	President	China Medical Board, USA	Co-Chair
Dr. Naveen Rao	Senior Vice President & Senior Advisor to the President, Health Initiative	The Rockefeller Foundation, USA	Co-Chair

Name - Surname	Position	Organization	Role
Dr. David Harper	Senior Consulting Fellow, Global Health Programme	Chatham House, United Kingdom	Co-Chair
Dr. Rintaro Mori	Regional Adviser (Population Ageing and Sustainable Development)	United Nations Population Fund, Thailand	Member
Dr. Peter Friberg	Co-founder and Director	Swedish Institute for Global Health Transformation, Sweden	Member
Dr. David Wilson	Senior Program Officer in Decision Sciences	Bill & Melinda Gates Foundation, USA	Member
Dr. Teo Yik Ying	Dean, Saw Swee Hock School of Public Health	National University of Singapore, Singapore	Member
Dr. Ashley McKimm	Director of Partnership Development	British Medical Journal, United Kingdom	Member
Dr. Timothy Mastro	Chief Science Officer	Family Health International (FHI 360), USA	Member
Ms. Bridget Lloyd	Global Coordinator	People's Health Movement, South Africa	Member
Mr. Thani Thongphakdi	Permanent Secretary	Ministry of Foreign Affairs, Thailand	Member
Dr. Kiattibhoom Vongrachit	Permanent Secretary	Ministry of Public Health, Thailand	Member
Dr. Supat Vanichakarn	Secretary General	Prince Mahidol Award Foundation, Thailand	Member

Name - Surname	Position	Organization	Role
Dr. Jadej Thammatach-aree	Secretary General	National Health Security Office, Thailand	Member
Dr. Nopporn Cheanklin	Director	Health Systems Research Institute, Thailand	Member
Dr. Supreda Adulyanon	Chief Executive Officer	Thai Health Promotion Foundation, Thailand	Member
Dr. Banchong Mahaisavariya	President	Mahidol University, Thailand	Member
Dr. Prasit Watanapa	Dean, Faculty of Medicine Siriraj Hospital	Mahidol University, Thailand	Member
Dr. Piyamitr Sritara	Dean, Faculty of Medicine Ramathibodi Hospital	Mahidol University, Thailand	Member
Dr. Suwit Wibulpolprasert	Vice Chair	International Health Policy Program Foundation and Health Intervention and Technology Assessment Foundation, Thailand	Member
Dr. Viroj Tangcharoensathien	Senior Advisor	International Health Policy Program, Thailand	Member
Dr. Walaiporn Patcharanarumol	Director, Global Health Division	Ministry of Public Health, Thailand	Member & Joint Secretary
Mr. Gerardo Zamora -Monge	Executive Officer, Office of Assistant Director-General, Division of UHC/Healthier Populations	World Health Organization, Switzerland	Member & Joint Secretary

Name - Surname	Position	Organization	Role
Dr. Toomas Palu	Advisor in Global Health	The World Bank, Switzerland	Member & Joint Secretary
Mr. Hakan Bjorkman	Regional Health Advisor/Team Leader ai, Asia and the Pacific	United Nations Development Programme, Thailand	Member & Joint Secretary
Ms. Debora Comini	Deputy Regional Director, East Asia and the Pacific Regional Office	United Nations Children's Fund, Thailand	Member & Joint Secretary
Mr. Taoufik Bakkali	Regional Director ai, Regional Support Team Asia and the Pacific	Joint United Nations Programme on HIV/AIDS, Thailand	Member & Joint Secretary
Dr. Scott Stewart	Senior Health Economist, Bureau for Global Health	United States Agency for International Development, USA	Member & Joint Secretary
Mr. Tatsuya Ashida	Director, Human Development Department	Japan International Cooperation Agency, Japan	Member & Joint Secretary
Dr. Le Nhan Phuong	CMB SE Asia Regional Representative	China Medical Board, Thailand	Member & Joint Secretary
Mr. John Spangler	Director, Communications, Policy and Advocacy	The Rockefeller Foundation, USA	Member & Joint Secretary
Dr. Thananya Boonyasirinant	Deputy Dean for Academic Affairs	Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand	Member & Joint Secretary
Dr. Churnrurtai Kanchanachitra	Professor	Institute for Population and Social Research, Mahidol University, Thailand	Member & Joint Secretary

## Annex IV List of Speakers, Panelists, Moderators and Rapporteurs

Speaker/Panelist	Moderator	Rapporteur
KEYNOTE SESSION Armchair Interview with Prince Mahidol Award Laureates 2021: Development of the mRNA Vaccine and Future Applications		
Pieter R. Cullis Katalin Karikó Drew Weissman	Pavit Pienvichit	Salin Amponnavarat Thanakit Suebsaicharoen
OPENING SESSION Armchair Conversation		
Michelle Bachelet Margaret Chan Helen Clark	David Harper	Chayannan Jaide Sarayuth Khuntha Phatthanamon Sinsawat Thanakit Suebsaicharoen
SESSION 1 Understanding the Megatrends of the 21st Century – A Critical Step Towards Getting the World We Want		
Gro Harlem Brundtland Brian Christian Mohamed Eissa Katalin Karikó Ayoade Olatunbosun-Alakija Naveen Rao	Dennis Carroll	Savina Chham Anond Kulthanmanusorn Rungsun Munkong Karen M Tam
SESSION 2 To What Extent Will the COVID Pandemic Affect Achievement of the SDG Goals		
Agnes Binagwaho Richard Horton Aboubacar Kampo Ronald Labonté	Fran Baum	Anjalee De Silva Suvina Jiraboonsri Shaheda Viriyathorn Sininard Wangdee
SESSION 3 Scaling up Efforts to Tackle the Climate Crisis and Building Forward Greener		
Gillian Caldwell Andy Haines Jun Ma Iferemi Waqainabete Elizabeth Wathuti	Richard Horton	Aparna Ananthakrishnan Salin Amponnavarat Ratchakorn Kaewpramkusol Mayumi Okada
SESSION 4 Health Systems in 2030: What will They Look Like?		
Yogesh Jain Maris Jesse Ariel Pablos-Mendez Juan Pablo Uribe Jan-Willem Scheijgrond	Gavin Yamey	Chaovanon Sophonsakulsuk Uma Vasudevan Woranan Witthayapipopsakul Maylin Wongjarupun

Speaker/Panelist	Moderator	Rapporteur
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SESSION 5 Managing Pandemics During The Fourth Industrial Revolution

Daniel Bausch Yosuke Hatanaka Sarah Hess David Heymann Lisa Menning Adebola Olayinka Alexandre Pinho Tina Purnat Kristine Rose Michael J. Ryan Melanie Saville Nahoko Shindo Beth Thompson Mike Varshavski Shan Xu	Sylvie Briand	Supitsara Kositbovornchai Zarni Lynn Kyaw Nattadhanai Rajatanavin Nontakorn Siriwattanasatorn
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SESSION 6 Pandemic Preparedness and Response: Stopping the Next Outbreak Before It Becomes a Pandemic

Rick Bright John Nkengasong Monika Puri Soumya Swaminathan Raji Tajudeen	Timothy Mastro Helen Rees	Karoon Chanachai Boonyasit Ngamwirojchareon Ajaree Rayanakorn Titiporn Tuangratananon
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SESSION 7 Capacity to Contain Future Pandemics in Communities

James Bangura Ramatu Jalloh Jonna Mazet Patipat Susumpow	Raj Panjabi	Somtaneuk Chotchoungchatchai Titaya Punyaratabandhu Siddharth Srivastava Chawisa Teansue
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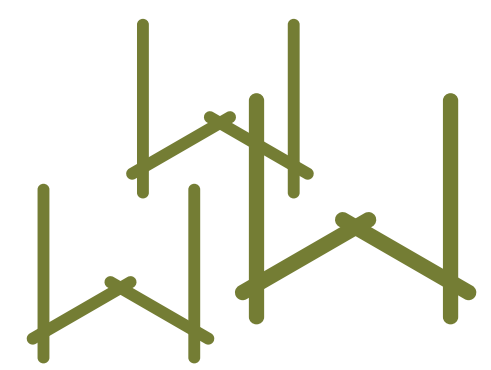
CLOSING SESSION Armchair Conversation

Muzoon Almellehan Ban Ki-Moon	Ashley McKimm	Natnicha Manaboriboon Milin Sakornsinn Riddit Napaphat Satchanawakul Akarima Vajirakaphan
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Speaker/Panelist	Moderator	Rapporteur
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Rapporteur Coordinator

Viroj Tangcharoensathien Walaiporn Patcharanarumol Nattanicha Pangkariya Angkana Lekagul		
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## Annex V List of Side Meetings

Title	Organization
Community-based Public Health Services, SDGs and Economic Systems in the World We Want	People's Health Movement
Digital Health for UHC and Primary Care	Asia eHealth Information Network (AeHIN); AeHIN's Community of Interoperability Labs (COIL); Open Health Information Exchange; Standards and Interoperability Lab; Transform Health and Patrick J. McGovern Foundation
Exemplars in Global Health – Collating Lessons Learned from COVID-19 and Health Systems Resilience	The Rockefeller Foundation; Johns Hopkins University; Johns Hopkins Center for Health Security and Gates Ventures
Health in All Policies (HiAP) in Thailand: Institutionalization and Politicization	International Health Policy Program; Mahidol University; National Health Commission Office; The Global Network for Health in All Policies and Health Systems Research Institute
Health Justice in Thailand in the Contexts of the COVID-19 Pandemic: a Work in Progress	Faculty of Medicine Ramathibodi Hospital, Mahidol University; National Health Foundation and The CMB Foundation
High-Level Expert Meeting for Thailand Sustainable Development Forum 2022	International Health Policy Program; SDG Research and Support Programme (SDG Move) and Sustainable Development Solutions Network (SDSN)
Identifying and Responding to the Needs of Vulnerable Groups for Pandemic Preparedness and Response: Are People Living with Non-communicable Diseases 'Key Populations'?	United Nations Interagency Task Force on the Prevention and Control of Non-communicable Diseases; International Health Policy Program and United Nations
Launch of BMJ – PMAC 2022 Collection	The British Medical Journal and International Health Policy Program
Launch of Special Issue for Bulletin of the World Health Organization for PMAC 2022	International Health Policy Program and World Health Organization

Title	Organization
Meaningful Youth Engagement in Global Health	International Federation of Medical Students' Associations (IFMSA)
Medical Education, We Want	Faculty of Medicine Siriraj Hospital, Mahidol University; Faculty of Medicine Ramathibodi Hospital, Mahidol University; Mahidol International College, Mahidol University and Faculty of Medicine, Chulalongkorn University
PHM South East Asia and Pacific Region: COVID and Beyond Planning Meeting	People's Health Movement
Preparing National Medicines Regulatory Authorities for Future Emerging Infectious Disease Pandemics: A Risk-Based Approach on Emergency Authorization of Drug Approvals	United States Agency for International Development
Prince Mahidol Award Youth Program (PMAYP) Conference 2021-2022	Prince Mahidol Award Youth Program; Prince Mahidol Award Foundation; Faculty of Medicine, Chulalongkorn University; Faculty of Medicine Ramathibodi Hospital, Mahidol University; Faculty of Medicine Siriraj Hospital, Mahidol University and Faculty of Medicine, Khon Kaen University
Protect our Future: Mitigating the Impact of COVID-19 on Maternal and Child Health	The Partnership Project for Global Health and Universal Health Coverage; National Health Security Office; Thai Ministry of Public Health and Japan International Cooperation Agency
South-South Leadership: Working Together on Medical R&D to Meet the Needs of All Patients, the Example of Dengue	Research Department, Faculty of Medicine Siriraj Hospital, Mahidol University and Drugs for Neglected Diseases Initiative (DNDi)



Title	Organization
The EGAT Study: The Annual Review and Future Directions	Faculty of Medicine Ramathibodi Hospital, Mahidol University
Where is Our Doctor? Measures for the Future Distribution of Health Workforce	The Partnership Project for Global Health and Universal Health Coverage; National Health Security Office; Global Health Division, Thai Ministry of Public Health; International Health Policy Program and Asia Pacific Action Alliance on Human Resources for Health

