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PRINCE MAHIDOL AWARD CONFERENCE

# Report on the

## 2013 Conference on A World United Against Infectious Diseases: **CROSS-SECTORAL SOLUTIONS**

JAN 28<sup>TH</sup> - FEB 2<sup>ND</sup>, 2013 | BANGKOK, THAILAND



A World United Against Infectious Diseases:

# CROSS-SECTORAL SOLUTIONS

humans | animals | the environment

# Report

on the 2013 Conference on

A World United Against Infectious Diseases:

## **CROSS-SECTORAL SOLUTIONS**

Prince Mahidol Award Conference 2013

1<sup>st</sup> Global Conference on Regional Disease Surveillance Networks

2<sup>nd</sup> International One Health Congress

Centennial Commemoration of the Rockefeller Foundation

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January 28<sup>th</sup> – February 2<sup>nd</sup> 2013

Centara Grand & Bangkok Convention Centre

at Central World, Bangkok, Thailand



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## Background of THE PRINCE MAHIDOL AWARD

The Prince Mahidol Award Foundation was established by the royal permission of His Majesty the King Bhumibol Adulyadej, in accordance with the proposal of Faculty of Medicine, Siriraj Hospital, in commemoration of the Centenary Birthday Anniversary of His Royal Highness Prince Mahidol of Songkla on January 1<sup>st</sup>, 1992. The Foundation was established in honour of His Royal Highness and in recognition of his exemplary contribution as “The Father of Modern Medicine and Public Health of Thailand.”

At the onset, the Foundation was named “The Mahidol Award Foundation under the Royal Patronage,” which was then renamed “The Prince Mahidol Award Foundation under the Royal Patronage” on July 28th, 1997.

On Wednesday, 30<sup>th</sup> January, 2013

Her Royal Highness Princess Maha Chakri Sirindhorn, as the representative of His Majesty the King, presented the Prince Mahidol Awards for the year 2012 in the field of Medicine to Sir Michael David Rawlins, UK, and in the field of Public Health to Dr. Uche Veronica Amazigo, Nigeria, at the Chakri Throne Hall, Grand Palace.

**For more information see:**

[www.princemahidolaward.org/index.en.php](http://www.princemahidolaward.org/index.en.php)





## Message from

### CHAIRS OF THE INTERNATIONAL ORGANIZING COMMITTEE

The theme of this year's Prince Mahidol Awards Conference ***"A world united against infectious diseases: cross-sectoral solutions"*** highlights how infectious diseases continue to threaten the well-being of the world, and the opportunity we have to more successfully counter these threats in the future through a more strategic cross sectoral approach to global health preparedness. The continuing threat from infections such as H5N1 (avian) influenza, Rift Valley fever, rabies, SARSCoV, Ebola virus, the H1N1 2009 pandemic influenza, and, most recently the novel coronavirus and other urgent issues such as increasing global trends in antimicrobial drug resistance has raised awareness of the global interdependence of human health, animal health, and economic security, and the need for more systematic and cross-sectoral approaches to identifying and responding to global public health emergencies and other health threats arising at the human-animal-ecosystems interface.

The "One Health" paradigm arose from the recognition that the wellbeing of humans, animals, and the ecosystems in which we all live are interdependent. Maintaining this

well-being will affect not only our physical health, but also the economic well-being of societies. Recent studies forecast that the toll on the world's economy of a pandemic with impact similar to the 1918 influenza pandemic would exceed \$4 trillion. We have seen that even short-lived and geographically focused outbreaks of recent zoonotic diseases can be devastating; SARS cost the economies of East Asia an estimated \$50 billion. Many other zoonotic diseases regularly entail economic losses - Rift Valley fever, anthrax, and brucellosis are but a few examples. Early detection and rapid response will be central to minimizing their impact on our social and economic stability.

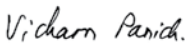
Preventing disease at the human-animal-ecosystems interface requires a strategic approach that (1) builds on the understanding that the health and well-being of humans, animals and the environment are inextricably linked, (2) promotes cross-sectoral collaboration that spans a variety of sectors, including but not limited to the animal health, public health, environmental and conservation communities, including academia and the private sector (3) targets promotion of those policies, systems and processes and the strengthening of those skills and capacities critical for minimizing health risks and limiting their social, economic and public health impact, (4) uses a "risk" based approach to target investments and capacity building to those places, populations, times and situations where need is greatest.



This year's Prince Mahidol Award Conference is a unique opportunity to consider recent progress, remaining challenges, and the collaborative solutions required for the future. This Conference provides us with a forum to assess the investments required to reduce economic, societal, and health impacts. Threats to health are too complex for any country or organization to be successful on its own; collaboration among international, regional, national, non-governmental, academic and private sector players will be essential.

This underscores the need for the global community to act systematically to improve individual countries' abilities to identify and mitigate the severity of health threats arising within their borders. However, this readiness for action cannot be the preserve of the human health sector alone. Comprehensive disease detection and response capacities that span the traditional domains of animal health, public health, ecology and conservation are required for effective control.

***We need strong collaboration across sectors to make "health" united as "One".***

|                                                                                    |                                                                                                     |                                                                                            |                                                                                     |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |                  |         |  |
| <b>Dr. Vicharn PANICH</b><br>Chair<br>Prince Mahidol<br>Award Conference           | <b>Dr. Keiji FUKUDA</b><br>Co-Chair<br>World Health Organization                                    | <b>Dr. Ariel PABLOS-MENDEZ</b><br>Co-Chair<br>U.S. Agency for<br>International Development | <b>Mr. Kiyoshi KODERA</b><br>Co-Chair<br>Japan International<br>Cooperation Agency  |
|  |                  |         |  |
| <b>Dr. Jeanette VEGA</b><br>Co-Chair<br>The Rockefeller Foundation                 | <b>Dr. Silvia BINO</b><br>Co-Chair<br>Connecting Organizations for<br>Regional Disease Surveillance | <b>Dr. Fiona GODLEE</b><br>Co-Chair<br>BMJ                                                 | <b>Dr. Martyn JEGGO</b><br>Co-Chair<br>One Health Congress                          |





## CONFERENCE SUMMARY IN BRIEF

Monday, 28 - Tuesday, 29  
January 2013

There were 27 side meetings and workshops convened by partners. A list of side meetings and workshops is shown in ANNEX IV



Wednesday,  
30 January 2013

There were 9 optional field visits, where around 300 PMAC participants attended.



1. System strengthening in the context of tourist attraction areas
2. Managing the information system for disease surveillance in livestock farms
3. Proactive SRRT response
4. Surveillance system in migrant workers
5. Multi-sectoral collaboration at the district level
6. Strong SRRT at the subdistrict level
7. Self reliance by the civil society at the community level
8. Disease control in a metropolis: the variety of the urban community
9. Roles of a university hospital in disease control



Thursday  
31 January -  
Saturday  
2 February 2013

The main PMAC2013 conference consisted of:  
Keynote addresses  
5 plenary sessions  
21 parallel sessions

## Participants

There were 970 participants from 73 countries

The list of countries are: Afghanistan, Albania, Argentina, Australia, Bangladesh, Belgium, Belize, Bhutan, Bolivia, Bosnia Hercegovina, Brazil, Brunei Darussalam, Bulgaria, Burkina Faso, Cambodia, Cameroon, Canada, Chile, China, Colombia, Democratic Republic of Congo, Denmark, Ecuador, Egypt, Ethiopia, France, Germany, Ghana, Grenada, Guatamala, Hong Kong, India, Indonesia, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Lao People's Dem. Rep., Malaysia, Maldives, Mexico, Moldova, Mongolia, Mozambique, Myanmar, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Oman, Pakistan, Peru, Philippines, Rwanda, Singapore, South Africa, South Korea, Sri Lanka, Sweden, Switzerland, Taiwan, Tanzania, Thailand, Uganda, United Kingdom, United States, Vietnam, Zambia



## CONFERENCE PROGRAM IN BRIEF



### Plenary session 1

One Health: Meeting the  
Challenge of “A World United  
Against Infectious Diseases”

### Plenary session 2

National to Regional to Global  
Surveillance – A Path to One  
Health

#### Parallel session 2.1

Achievements and Gaps in One  
Health Surveillance

#### Parallel session 2.2

Ecosystems, Wildlife and One Health

#### Parallel session 2.3

Making Regional Networks Work



#### Parallel session 2.4

Measuring the Impact of  
Cross-sectoral Collaboration on  
Disease Prevention and Control  
at the Human-Animal-Ecosystems  
Interface

#### Parallel session 2.5

Innovations Advancing Health  
Surveillance at the Human-Animal  
Interface

#### Parallel session 2.6

Transforming the Global Workforce  
for One Health Approaches

#### Parallel session 2.7

Preparedness for Nipah Virus  
Outbreaks in At-Risk Countries





## Plenary session 3

Policies and Strategies to Meet the Challenge of Emerging Disease Threat through Prevention, Preparedness and Response

### Parallel session 3.1

Cross-sectoral Solutions: Challenges and Best Practices from Country and Regional Experiences

### Parallel session 3.2

Managing Pandemic Disease Threats in the International Extraction Industry

### Parallel session 3.3

People, Practices and Policies –Designing and Implementing Effective Multisectoral, Trans-disciplinary Interventions to Reduce Risk and Mitigate the Negative Impact of Infectious Diseases under One Health



### Parallel session 3.4

Successful Collaboration: Trust and Transparent Data Sharing and Communication

### Parallel session 3.5

Identify Gaps/Barriers that Impede Effective Cross Border Preparedness and Response Planning and Execution for Infectious Diseases

### Parallel session 3.6

Contribution of the One Health Paradigm to Food Security

### Parallel session 3.7

Is Technology or Failure of the Imagination the Bigger Challenge for Disease Detection?

## Plenary session 4

The Paradigm Shift Towards Cross-Sectoral Collaboration: Policy, Tools and Empowering Factors for Health Systems Strengthening

### Parallel session 4.1

Stories from the Ground

### Parallel session 4.2

The Evolutionary Process of Risk Determination to Define Surveillance Strategies and Target Resources for Efficient Prevention and Control

### Parallel session 4.3

Unprecedented Move toward a More Coherent Approach Among Sectors for the Strengthening of National Human-Animal-Ecosystem Health Capacities



### Parallel session 4.4

Going Viral #Strategic Public Communication to Affect Practices and Livelihoods

### Parallel session 4.5

Controlling Antibiotic Resistance through the One Health Approach

### Parallel session 4.6

Enabling Policy Environments for a One Health Approach

### Parallel session 4.7

Enhancing One Health: To Cultures, Add Culture





## Conference Synthesis session

Synthesis: Summary,  
Conclusion & Recommendations



## Plenary session 5

Sustainable Effective Cross-sectoral  
Collaboration for Bio-secured World





## RATIONALE

The Prince Mahidol Award Conference is an annual international conference hosted by the Royal Thai Government, the Prince Mahidol Award Foundation, and other relevant International Organizations, Foundations and Civil Society Organizations. The Conference serves as an international forum for sharing evidence for health related policies and strengthens social commitments for health development. This conference is linked to the annual Prince Mahidol Award for Public Health and Medicine, one of the most prestigious international health awards.

The Conference in 2013 was jointly organized for the Prince Mahidol Award Conference 2013, the 1st Global Conference on Regional Disease Surveillance Networks, the 2nd International One Health Congress, and the Centennial Commemoration of the Rockefeller Foundation. The 2013 Conference with the theme “A World United Against Infectious Diseases: Cross-Sectoral Solutions” is dedicated to transparent and progressive resolve to reduce the threat of infectious diseases through cross-sectoral and international cooperation and communication.



The 2013 Conference will prove to be one of the most significant assemblages of infectious disease experts in the world, who will meet to advance the “One Health” agenda beyond the theoretical to the practical, and bring much-needed attention to the policy and operational issues that ultimately determine the impact and success of these cross-sectoral efforts. In addition, the Conference provides good opportunities for establishing or strengthening networks among scientists and program implementers.

We expect vanguard moments with a positive impact on global solidarity for a world united against infectious disease.



## OBJECTIVES



- To foster cooperation and communication across sectors and across borders to mitigate the threat of infectious diseases, existing or emerging, at the human-animal-ecosystems interface.
- To review and share experiences among low, middle and high-income countries with different degrees of health system capacity as defined within the International Health Regulations and the OIE PVS pathway (Global programme for sustainable improvement of a country's veterinary services), leading to knowledge sharing, strengthening of health systems, establishment of sound policies, and positive social action.
- To identify the human suffering and economic cost if one fails to build appropriate human and institutional capacities and to exploit available technologic innovations in countering health threats.
- To provide opportunities for a group of experts - utilizing multidiscipline country teams - to dialogue, learn and share, create solutions, and provide leadership in applied one-health concepts.
- To provide a platform for international, regional, and national disease surveillance systems and networks to demonstrate best practices, forward-looking concepts, management of political challenges, and cross-border cooperation in response to health threats at the human-animal-ecosystem interface.
- To identify those policies and other higher-level factors that either constrain or enable effective cross-sectoral collaboration at the country, regional and global level and the formulation of an action agenda that draws on these insights to promote successful cross-sectoral solutions to infectious disease threats.



## STRUCTURE OF THE CONFERENCE PROGRAM

The Conference was convened during the week of 28 January – 2 February 2013 and hosted activities, including:

- Side meetings
- Field visits
- World Art Contest
- Posters
- Main conference program

The main conference program consisted of the Plenary and Parallel sessions, in addition to the opening, closing and official dinner sessions.



## CONFERENCE CO-HOSTS

The conference is co-hosted by 8 organizations, namely the Prince Mahidol Award Conference, the World Health Organization (WHO), U.S. Agency for International Development (USAID), the Japan International Cooperation Agency (JICA), the Rockefeller Foundation, One Health Congress, Connecting Organizations for Regional Disease Surveillance (CORDS), and the British Medical Journal (BMJ).

## CONFERENCE PARTNERS AND SPONSORS

Asian Development Bank, Center for Diseases Control and Prevention, USHHS, Centre on Global Health Security, Chatham House, China Medical Board (CMB), Department for International Development, UK (Dfid), Eco Health Alliance, European External Action Service (EEAS), Food and Agriculture Organization (FAO), International Development Research Center (IDRC), Nuclear Threat Initiative (NTI), People's Health Movement (PHM), Public Health Agency of Canada, Skoll Global Threats Fund, Southern African Centre for Infectious Disease Surveillance (SACIDS), Thai Health Promotion Foundation (ThaiHealth), The Bill & Melinda Gates Foundation, The World Bank, World Health Organization Regional Office for South-East Asia, World Organization for Animal Health (OIE)



## KEYNOTE SESSIONS



## Sir Michael David Rawlins

Prince Mahidol Award Laureate 2012

Founding Chairman

National Institute for Health and Clinical Excellence  
United Kingdom

Over the past 40 years I have addressed thousands of audiences, ranging in size from a dozen or so, to huge auditoria with more than 20,000 people. I have never, however, had the privilege of speaking in the presence of a Princess of the Royal Blood. Thank you for this exceptional honour. And thank you, too, for presenting me with the Prince Mahidol Award for Medicine, for 2012, yesterday evening in the Chakri Throne Room. To be now numbered among those giants of medicine and public health, who have previously received this award, is very humbling.

My own professional life has been that of a physician-scientist combining the roles of teacher – to undergraduate and postgraduate medical students; a clinical investigator – largely devoted to research into the actions, effectiveness and adverse effects of medicines; and as a physician looking after patients with general medical problems.

These roles have been interconnected. The problems I encountered looking after patients under my care prompted my research interests. These were followed, in turn, by attempts to pass on my newly discovered knowledge to the next generation of physicians.



But I soon discovered that the passing on of knowledge was much more difficult than acquiring it. For example, in the late 1970s and early 1980s, I discovered (and published) a simple method for predicting safe and effective doses of the anticoagulant drug warfarin for individual patients. Patients' dosage requirements for warfarin vary forty-fold. If they are under-dosed they run the risk of developing clots in their blood vessels; and if they are overdosed they run the risk of bleeding. In the 1970s finding the right dose was a matter of trial and error and could take weeks. The simple method that my collaborators and I developed allowed patients' dose requirements to be predicted after the first dose.

Although I managed to persuade my colleagues in my own hospital to use the technique it took 25 years for it to be widely adopted. I learned the hard way how right your Royal Highness's grandfather – Prince Mahidol – was when he stated: "True success is not in the learning, but in its application for the benefit of mankind"

In retrospect perhaps 25 years wasn't as long as it might have been. In general we now know that it takes, on average, 17 years for new ideas and methods to reach patients. This is not because health professionals, generally, are unreceptive to advances in medical knowledge. Rather it is because of the sheer size of the burgeoning medical literature. About 2 million scientific articles are published, each year, relevant to the practice of medicine. It has been estimated that for a doctor to keep up-to-date in his own field he or she must read between 18 and 20 original articles, each day, including weekends and public holidays.

This of course is impossible. And even if I accomplished this task for myself, for just one day, there is little chance that I would remember very much by the following morning. It was for this reason that I became enamoured by the potential utility of clinical guidelines – pathways of care – that map



the most appropriate journey for patients with particular conditions and allowed their physicians to provide their patients with the best attainable care.

We have at the National Institute for Health and Clinical Excellence (NICE) now published over 160 clinical guidelines covering such disparate topics as diabetes in both adults and children, schizophrenia and depression, antenatal, perinatal and postnatal care, breast cancer and the febrile child. These guidelines are making real difference to the quality of care that patients in Britain get from our National Health Service.

But all countries seeking to provide universal access to healthcare for all their peoples, whether in Britain or Thailand, have another problem. For in both developed and developing countries resources for healthcare are finite. We have to decide on priorities which means that we all have to take



account of cost effectiveness, as well as clinical effectiveness, in deciding what we are able to provide for our peoples.

This is unquestionably a difficult and sometimes controversial task. But face it we must. For if we spend large sums of money on a few patients we will deny other patients, with other conditions, access to cost effective care.

And the amount of money that individual countries can devote to healthcare is a function of their wealth. Richer countries like Britain or France can afford to spend much more on healthcare than poorer ones such as Myanmar or Cambodia. Indeed, and as you might expect, there is a very close correlation between countries' gross domestic products and their expenditures on healthcare.

NICE was charged, at its inception 14 years ago, to take cost effectiveness as well as clinical effectiveness into account when providing guidance to, and deciding on priorities for, the British National Health Service. It was the first

time, in the UK, that cost effectiveness was explicitly used in deciding on healthcare coverage.

At the time it was very controversial. The notion that considerations of cost should be taken into account, when deciding on the extent of healthcare coverage, was an anathema to some. But with the passage of time British healthcare professionals, parliamentarians, and the public have come to appreciate that in deciding priorities economic evaluations are necessary.

How did this change of heart come about? There have, I believe, been 6 essential ingredients. First – all of NICE guidance is based on a full review of all the available evidence. In developing a clinical guideline, for example, we may have to undertake 15 to 20 full systematic reviews of the literature. Second, we try to involve all those with a legitimate interest in the topic to contribute. This includes relevant specialists, pharmaceutical and device manufacturers, and patients. We want them all to “have their say” even if they cannot all “have their way”. Thirdly, we attempt to ensure that we are transparent about our processes and methodologies and about the evidence-base that we use in making our decisions.

Fourthly, it is the independent members of our guidance development groups make the conclusions we reach. They are chosen for their ability to exercise judgements about the reliability of the evidence and application of research findings to the British National Health Service. Fifth, as well as requiring scientific judgements to be made, judgements are also needed about social values. Should we, for example, be prepared to spend more on an extra year of life for a child rather than their parents or their grandparents? These are not decisions about which the members of our advisory bodies have any legitimacy to make. Rather they should be decided by the people who use, and own our National Health Service the public. So we have established a Citizens Council, drawn from the general public, to help decide the social



values we should adopt in deciding our priorities in healthcare. And, finally, we always publish our conclusions in draft form to allow our stakeholders to comment. Where their comments are reasonable we change out guidance.

Each healthcare system must make its own decisions about its own priorities for healthcare. How conclusions are reached, and how decisions are made, are for individual countries to decide. NICE, through NICE International, seeks to help countries wishing to make evidence-informed healthcare policy, using our own experience in the UK, but recognising that ultimately individual countries must reach their own conclusions taking into account their own financial political and societal perspectives.

We, at NICE, have been very impressed by the arrangements you have put in place to support your own highly successful programme for universal healthcare coverage. Your Health Intervention and Technology Assessment Programme, HITAP as it is known internationally, has been a pioneer in the field and, as the result of its work, it has made a major impact in supporting evidence-based resource allocation decisions that include social values, and following a transparent process. It has, if I may make so bold, been a significant component in your nation's ability to offer universal healthcare coverage to all your people.

HITAP is though equally important in an international context. It is a model health technology agency and we, at NICE, have very much benefited from our co-operative engagement with HITAP. We look forward to continued working with your agency in the future.

Your Royal Highness – thank you for your interest, for your support to us through HITAP and, once again, for presenting me with the Prince Mahidol Award for Medicine for 2012.





## Uche Veronica Amazigo

Prince Mahidol Award Laureate 2012

Former Director

African Program for Onchocerciasis Control

World Health Organization

Federal Republic of Nigeria

It is a distinct honour and privilege to be asked to give the keynote address at this gathering. And especially so, as we are at a time of unprecedented change and promise in the global fight against infectious diseases.

It also gives me great personal pleasure to be able to talk, no matter how briefly, on something to which I am extremely dedicated. Namely, the need to identify - and exploit to the fullest - multisectoral solutions to improve the health of all sectors of society. In particular, the health of populations that, for whatever reasons, are ignored by, or underserved by, national health services.

I should like to take this opportunity to congratulate the Prince Mahidol Foundation on its 20-year anniversary. I am in Thailand today because I have been greatly honoured and extremely fortunate to have been awarded this year's Prince Mahidol Prize in Public Health, primarily for my work on combating Onchocerciasis. To borrow the words of a famous British scientist, I have been recognised because I have been lucky enough to have been "standing on the shoulders of giants". In my case, the sturdy shoulders include those of a wiry 19-year-old Nigerian mother



-Agnes, standing hand-in-hand with brilliant African and international scientists, donors, the WHO, the World Bank, committed politicians, dedicated NGOs and millions of ordinary Africans who have to cope with the disease on a daily basis. Without the cooperation of the young Agnes and her willingness to express the sheer desperation of her plight, the horrors that she endured and her sense of hopelessness, my work, the discovery of the importance of onchocercal skin lesions, and my contributions through WHO/TDR research highlighting the burden of incessant itching from skin lesions and the associated devastating social stigma, may have gone unrecognised by the international community and external experts. And the world would not be looking at the possible elimination of Onchocerciasis in the not too distant future. A disease that has plagued my fellow Africans for centuries.

Most of you here will already know that there is a need for the world to rethink a fundamental approach to global health. As a distinguished colleague so succinctly put it in a recent article in the Lancet “despite billions of dollars of aid pouring into countries, delivery systems for health have to be re-thought.”

The African Programme for Onchocerciasis Control (APOC), which I was privileged enough to help set up, direct, and be part of for almost 20 years, is based on a singular, simple tool, mass distribution of the safe and effective drug ivermectin. APOC’s unique distribution system, Community-Directed Treatment, which I was instrumental in the promotion and scaling up, has demonstrated beyond measure the value of empowering communities and engaging a diverse multidisciplinary, multinational partnership toward a common goal. Disease-affected communities, through this partnership, manage what is viewed by many as Africa’s most successful of all public health interventions.

The Community-Directed system is a novel, innovative mechanism that can perhaps be adapted and exploited to advance PHC in Thailand, Asia and throughout the world, especially among poor, remote communities.

It is an approach in which the distribution and administration of ivermectin to the community is undertaken by the community itself. Communities understand the nature and importance of the intervention, and determine the appropriate time and method of drug distribution that ensures accessibility and maximum coverage in locations underserved by the health services. The approach is implemented by community-directed distributors (CDDs), individuals chosen by the community from among their peers – a bottom-up empowerment model.

In the words of a famous public health expert, “ the idea that communities should be involved in their own health, arranging to take and have their



neighbours take this drug; that has been a kind of revolution in international Public health.”

In 2011, the CDT approach helped disease-endemic countries to treat 98 million people with Ivermectin (Mectizan®) in 179,000 rural communities in 24 sub-Saharan Africa countries; this is in comparison to 1.5 million in 1997.

The effectiveness of this approach has increasingly made it a vehicle for the concomitant distribution of multiple health interventions. For example in 2011, 5.8 million people benefitted from home-based treatment of malaria and insecticide treated mosquito nets distributed by community-directed distributors and 42 million people were reached with treatment for the elimination of Lymphatic filariasis. With 650,000 trained CDDs delivering ivermectin and a high number of them involved in delivering other interventions, this approach has effectively demonstrated the potential of empowering communities.

The strategy has driven a reduction in onchocerciasis infections to less than 20% of pre-APOC levels; a 75% decrease in blindness; and over 50% drop in prevalence of itching, one of the most debilitating effects of the disease. So why has this initiative succeeded where others have failed? The secret is uniting with the rural poor; giving responsibility for the distribution of the drug to communities themselves, thus enabling them to be true partners in the health system.

The Community-Directed approach requires commitment, investment, time and care to make it work properly. It works well in remote villages in sub-Saharan Africa but not necessarily in peri-urban or urban areas. And it doesn't work in the Indian culture. When it comes to public health interventions, one phrase leaps to mind - “One size does not fit all”. What works perfectly well in one country and one culture, does not work elsewhere. And why should it?

Public health interventions such as community based initiatives to tackle dengue and delivery of micronutrients have worked well in Thailand but would they work elsewhere? Ideal solutions are tailor-made for the target, as are the best clothes. To promote the ideology of One Health and a united fight against Infectious diseases, a re-thinking of delivery systems for health - a comprehensive investigation -, needs to be done to discover what works best, and where. And establishing a global data base with universal access, would be a sensible global initiative, perhaps starting with Africa?

In Africa, and elsewhere, health systems need good and effective delivery systems in which the end users are inclusively engaged. And engaged in determining as well as operating those systems. That is the fundamental basis for the success of the Onchocerciasis /Mectizan donation programme – a bottom up revolution.





I would like therefore to seize the opportunity of this platform to call for a reform - or a profound rethinking - of our policies and how we create them. Why, despite the enormous progress made over the last 30 years, does Africa not have sustainable delivery methods for health interventions? Take the polio campaign in Nigeria and elsewhere in Africa. Every year, there are new foci with re-emerging or new outbreaks. In Nigeria, one hundred cases (100) were reported in 2012, significantly higher than the 62 in 2011. Why? When the solutions to polio and many such infectious diseases already exist and are readily available? This is a clear signal that Nigerian communities are poorly engaged or not committed as partners in the fight against polio.

I strongly believe that global health providers and countries will be walking in circles for ever unless there is a serious rethinking of delivery systems. What is even more frightening is the fact that, if we do not introduce and fully implement delivery systems, systems that are sustainable in the long-term, all our investments and advances in controlling – or even eliminating - diseases will be lost. Onchocerciasis, Guinea worm, Polio, Leprosy, Yaws. We are at a tipping point with respect to many diseases. Close to elimination, but running the risk of a lot of the gains we have made being reversed.

With today's unmatched opportunities, especially given the London Declaration pledge to guarantee provision of many curative drugs for infectious diseases free of charge, we have to seize and exploit this precious moment.

African villagers are incredibly resourceful and innovative. We have seen this in the health field, as well as agriculture and animal husbandry. To paraphrase an old saying, these villagers "may know less, but they understand more". Provided with access to the tools and specialized knowledge that they lack, they often exceed our expectations of them. Today, there is evidence of

elimination of onchocerciasis, made possible because of community involvement and the keeping of reliable treatment records.

With respect to health metrics, the records of household data compiled by CDDs have proved to be an important asset to districts and frontline health personnel and the Ministry of Education in many countries. Communities' role in harmonization of the distribution period of ivermectin and immunization across borders has been useful to co-ordinate trans-frontier polio, measles and onchocerciasis programmes.

Health intervention mechanisms have met with very limited success when they have failed to achieve universal participation. Or when they have not been customised to meet the real needs of the end-users. We also know that problems do exist, such as whether or not to give community volunteers external monetary incentive. CDDs lose not just time and money, a handful have, tragically, lost their lives because of their unwavering commitment.

To our great cost, we have learnt that, in Africa at least, a 'quick fix' imposed from outside simply does not work - and usually represents a wasted investment. Even where it does work, it simply does not strengthen any community health system in a cost-effective or sustainable manner. However, the Community-Directed system builds infrastructure guaranteed for the long-term. That is what Africa - our children's generation, and beyond – still desperately needs.

I am sure that your deliberations will focus on this topic and I trust that important positive developments - and actions - will arise from this conference.

Your Royal Highness, distinguished participants  
I thank you for your kind attention.



## Bernard Vallat

Director General

World Organization for Animal Health (OIE)

France

Good morning and many thanks to the organisers of this event for inviting me to present a keynote speech at the prestigious 2013 Prince Mahidol Award Conference. It is a great pleasure and honour to participate in an international conference that recognises the need for cross-sectoral collaboration for the effective and sustainable control of high priority infectious diseases that affect humans and animals and have an animal source at its origin. For this reason, I am delivering this speech on behalf of the three organisations, also called the “Tripartite” that is, FAO, WHO and OIE. I thank my colleagues from these organisations for giving me the honor to represent them.

Over 60% of human pathogens originate from animals. Influenza virus H5N1, anthrax, SARS, HIV AIDS, leptospirosis, rabies and Nipah virus are just a few examples.

An unprecedented increase of movement of people and commodities worldwide, the increasing interactions of humans with the environment, deforestation, climate change and variability, urbanisation, the intensification of animal production in response to growing global demands for proteins of animal origin such as milk,



eggs and meat, economic development, and the international trade in exotic pets are just some of the factors that have provided greater opportunity for transmission of pathogens between human and animal species. This has changed the eco-biology of infectious agents including vector borne disease spread and resulted in pathogens crossing the species barrier between wildlife, domestic animals and humans leading to increased threats to protected species and biodiversity as well as the health of domestic animals and humans.

A risk factor not always mentioned is the use of animal pathogens as bioweapons because of their potential impacts on human health, agriculture, and food security. Animal pathogens have been used as bioweapons throughout history. About 80% of the pathogens that could potentially be used in bioterrorism are of animal origin and many have a proven link with wildlife.

Direct contact with animals is greater in developing rural areas of the world where animals constitute a source of capital income, dietary protein, houseware, clothing, and transport; and are used for agricultural purposes, including traction in harvesting, land preparation, and the sustainable production of manure for cultivation. Untreated or undiagnosed infected animals can be a source of contamination of the environment and of the food and the water to which humans are exposed. By targeting control measures at the animal source, we can prevent or greatly reduce the occurrence of a wide range of diseases in humans. It is frustrating to see that in the 21st Century, millions of people continue to contract zoonoses, often fatal, with significant socioeconomic global impacts. It is surprising to see that many countries spend scarce resources on the treatment of human infections, and neglect investing a portion of their budget on the cheaper prevention of zoonotic disease in the animal source.

Animal diseases continue to restrict the availability of an affordable and safe food supply and can impact adversely on food security, a key component of public health and social stability. Veterinary Services play an important role in stabilizing society because they support a healthy and productive agricultural sector, and a nutritious and safe food supply. They also contribute in a significant way to protection of biodiversity and the environment.

Given this situation, activities directed to animal health improvements must be recognised as a global public good, as well as are those concerning public health. And there should be no gaps between actions oriented towards public health and animal health.

To address the need for a coordinated management approach to address health risks at the wildlife/domestic animal/human/ecosystems interface, the OIE organised a Global Conference on wildlife entitled “Animal Health and Biodiversity – Preparing for the Future”, in collaboration with FAO and WHO, in Paris (France) in 2011. The recommendations of the Conference emphasized the need for organisations to work with multiple partners and provide guidance for future cross sectoral actions.

Animal pathogens can travel with amazing speed and don’t respect national borders. Weaknesses in the Veterinary Services of one country can threaten neighbouring countries, regions and even the broader international community with disease. Unfortunately today many National Veterinary Services remain weak due to years of underinvestment and poor governance.

Zoonotic pathogens that become established because of insufficient control efforts to stop the transmission cycle constitute a potential threat to human health and a continuing economic burden. Known zoonotic diseases in many low-to-middle income countries might not be adequately diagnosed, reported or controlled because of limited resources, poor capacity, lack of sufficient political will, or the absence of strong governance.



The most sensible way to prevent and manage zoonotic hazards is to adapt existing systems of health governance at the global, regional and national levels to ensure greatly improved cross-sectoral collaboration and coordination as well as harmonised approaches to the prevention and management of infectious diseases. Key tools we have in our hands to do this include international standards, agreements and procedures such as WHO International Health regulation (IHR) for public health and OIE Performance of Veterinary services (PVS Pathway) for animal health as well as FAO/WHO Codex Alimentarius standards on food safety.

The world is confronted with a range of critical issues that can only be addressed by multiple partners and sectors working together in a collaborative manner. Recognising the need for an agreed environment to reach a consensus on the best ways of working together on health risks at the animal-humanecosystems interface, the OIE, FAO and WHO developed the Tripartite Concept Note tabled in Hanoi (Vietnam) in April 2010. This provides a strategic framework for collaboration, and seeks consensus on global measures needed to coordinate public, animal and environmental health policies more effectively at global, regional and national levels to reduce the risks of infectious diseases at the animal-human-ecosystems interface. Global health is complex, and therefore effective prevention and control measures require the contributions of multiple disciplines understanding each other and working together to achieve success.

The OIE, FAO, and WHO agreed to:

***“...share responsibilities and coordinate global activities to address health risks at the animal-human-ecosystems interface for a world capable of preventing, detecting, containing, eliminating, in response to animal and public health risks attributable to zoonoses and animal diseases with an impact on food security”.***



To illustrate the concept, I would like to mention some practical examples:

At the global level, we have selected and confirmed during the High Level Technical Meeting in Mexico three priority topics, namely antimicrobial resistance, zoonotic influenza, and rabies, as models that we can learn from and improve our overall approaches to working better together. We must recognise of course that there are other key issues linked to food security and food safety that also need ongoing collaboration. In fact, virtually no important global health issue can be characterized as purely “human” or “animal”.

The OIE, WHO and FAO created the Global Early Warning System, known as GLEWS, a platform shared by the three organisations to improve the sharing of disease information and intelligence, in particular early warning on animal diseases and zoonoses worldwide.



FAO and the OIE also created the mechanism known as OIE/FAO Network of Expertises on Animal Influenza (OFFLU) with the best scientists worldwide and we are now able to provide key information to WHO on influenza virus strains of animal origin thus contributing to the early preparation of influenza human vaccines recommended by WHO.

These few examples show how the OIE/FAO/WHO collaboration can make a difference in enhancing global health security with the support of scientific community, academia and all partners and stakeholders.

Following agreement to the Concept Note, the Tripartite organised, in November 2011, a High-Level Technical meeting to Address Health Risks at the Human-Animal-Ecosystem Interface in Mexico City (Mexico), with the support of UNSIC and the Government of Mexico.

On behalf of the OIE, FAO and WHO, I would like to convey the three essential messages for action, based on the key elements identified at the High Level Meeting in Mexico.

#### **The key elements included:**

One - The need for political will and high-level commitment between ministries involved in One Health (Agriculture, Health, and Environment/ Natural Resources) and trust between the different stakeholders involved, as well as underscoring a common vision with priorities and shared benefits. In this regard:

We must recognise that the most cost effective and sustainable ways of controlling infectious diseases at the animal-human-ecosystems interface is to target control measures at the source of diseases.



We need to continue motivating national governments to invest in prevention and control at the source of infection, thereby preventing or reducing deaths and health problems related to zoonoses in humans and animals.

Two - The importance of strong and appropriate governance structures, aligned legal frameworks, and recognition of existing international standards such as the WHO International Health Regulations and the OIE International Standards on quality of animal health systems and for animal diseases including zoonoses. This will result in strong and effective health systems within the individual sectors, including the provision of stable and adequate resources. This is especially important for countries where the impact of zoonoses is higher.

With appropriate governance structures, countries will be able to develop improved organisational structures as well as allocate proper resources for prevention and control systems. To improve animal and public health and enhance compliance with WTO/Sanitary and Phytosanitary standards, the OIE supports its Member Countries with the OIE PVS Pathway for the Evaluation of Performance of Veterinary Services. Governments are responsible for the good governance of animal health systems based on close public/private partnerships.

It is important to recall that if one country fails, it may endanger its neighbouring countries, the region, the continent and potentially the entire planet.

Three – A joint cross-sectoral collaboration and coordination with an active data sharing, joint risk assessments, and a timely and transparent communication. The implementation of joint cross-sectoral simulation exercises can be seen as a useful tool to test countries' preparedness plans

and enhance collaboration in preparation for outbreaks that cannot be addressed by one sector alone.

We are convinced that implementation of these recommendations will contribute to a safer and better world while minimising bureaucracy and wasteful investments.

In conclusion, I would like to say that although much good work on infectious disease prevention and management has been done, it is critical that health systems be strengthened with improved multi-sectoral collaboration, coordination and the harmonisation and implementation of standards and relevant international Agreements within and between existing institutions. This will require political support and significant investment to ensure a sustainable approach in the fight against infectious diseases. The PMAC 13 Conference is highly relevant in allowing us to address key global health issues, and I would again like to thank the organisers and our sister organisations for asking me to deliver of this address.

Thank you very much for your attention, I wish you a successful conference.



## Punchawee Sukbut

Epidemiologist and Technical Health Officer  
Coordinator of Border Health Mukdahan and Savannakhet  
Mukdahan Provincial Health Office  
Ministry of Public Health  
Thailand

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Your Royal Highness, I am honored to be invited to address at this podium to share my real working experience at this prestigious Conference. This is one of the proudest moments of my life. Please allow me to present in Thai.

My name is Punchawee Sukbut. I am a Technical Health Officer and Associate Coordinator of border health of Mukdahan and Savannakhet at Mukdahan Provincial Health Office, Thailand. I have been working in epidemiology and border health for the past 23 years. Before this, I was a nurse for 2 years after my graduation. In fact, I am still a registered nurse now. You can say that I am a nurse at heart. I enjoy seeing people get well and remain healthy.

I got into epidemiology by chance. But after only one month of working in this field, I realized that this is me. I was born for this. Epidemiology is a task that requires great alertness and instinct actions. Besides following routine vigilance, we also have to be ready for operations at any time of the day or night. We have to use multidisciplinary knowledge including my training as a nurse. To be effective, our knowledge of global epidemiology must be kept up to date, if not up to the minute.





I wish to take this opportunity to speak on behalf of my team of committed officers from both sides of Mekong River, Mukdahan, Thailand and Savannakhet, Laos, and on behalf of my beloved Thai people. For those who don't know where Mukdahan is, let me take you on a virtual tour. From the picture you'll see that Mukdahan is located in the North East of Thailand, with a population of approximately 300,000, and Savannakhet is in the Central part of Laos, with a population of just over one million.



The Mekong River is the border separating Mukdahan and Suwannakhet. The length of the border is 72 kilometers. The modes of transport for people wishing to travel between these two cities are either by land over the Friendship Bridge or by boat.

The travel time is only 20-30 minutes either by car or by boat. With this easily access, we have around 200,000 persons per month or 2 million persons per year commuting across the border.

The relationship of people from both sides is very cordial and friendly. We have similar looks, similar languages and almost identical customs and celebrations, such as, Loy Krathong, Boat Racing Festival, etc. We have a very long history of deep friendship.

For Laos patients, they come to seek health care in Mukdahan province on average of around 8,000 to 10,000 patients per year and it is increasing around 20 percent each year. With this high mobility of people, we need to set up an effective surveillance system between the two provinces.

This was the start of my job. At first, I set up a surveillance system just for my own province but later on, I thought that it was not enough. We have to have collaboration between the two countries. When Laos patients come to Mukdahan hospital with controlled and infectious diseases, such as AFP, DHF, AH1N1, rabies and TB, we need to inform Savannakhet immediately to control the spread of the diseases.

When Mukdahan was selected by MBDS, with support by the Rockefeller Foundation, to be the first site for surveillance system together with Savannakhet in 2007, it gave me an opportunity to work closely with them.



Since then, we have worked together to set up the surveillance system for the two provinces. We have gradually built trust and collaboration among each other. Nowadays, we can share our information right away, our SRRT teams work hand in hand for 24 hours. We also help each other and strengthen the team together. When we have cases coming from Laos with controlled diseases, we will inform them immediately and vice versa. With this collaboration, we have early detection, early reporting, and early control of the infectious diseases.

I am pleased to let you know that I am very happy with my job. Most of the time, I do not even think of it as a job. I consider myself lucky to be given the opportunity to do what I love. Of course, there are times when my team members are exhausted or their family lives are badly disrupted. But once the job is done well we just celebrate quietly with a smile.

I was told many times that a big job cannot be accomplished by one person or by a disjointed team effort. There are many factors that make my job a lot easier than it could have been. This is because we have a fantastic SRRT border health team.

Allow me to tell you something about our team. I consider that our team has the 3 most important attributes to allow us to function very well as a team. First is Continuity: We have been together for a long time. We know each other by name. We also address each other as if we are family members. When I say “our team” I do not mean people who are only in the same organization or are on the same side of the border, but all of us who work together.

Second is Sincerity: I can speak with confidence that every single one of us truly loves doing what we do. We help and encourage each other in our work lives as well as private lives.



***And third is Friendship: We are in a very close-knit network called “Friendship Border Health Team”.***

With all the support from the team, I am sure we will be able to cope with the difficulties in keeping the 18 most important diseases under control. I can go on and on about how proud I am regarding our team and our achievements. I realize that there are things we need to improve especially to work with other sectors under the concept of ONE HEALTH.

Finally, I wish to thank my team from both sides of the border to allow me to be part of this wonderful team work. It is the job that I love and want to continue doing for the better health of all people.



## David Rockefeller, Jr.

Board Chair  
The Rockefeller Foundation  
USA

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Congratulations to this year's two Prince Mahidol award winners, Sir Michael David Rawlins, the founding Chairman of NICE, for his achievements in the field of medicine, and Dr. Uche Veronica Amazigo, former director of WHO, for her award in the field of public health.

It was a century ago, in 1913, that my great-grandfather established the Rockefeller Foundation and charged it with its bold mission "to promote the well-being of mankind throughout the world." And given that we have an excuse to celebrate our successes just a bit on this, our 100th anniversary, I hope that you will allow me to share a few reflections on our history—particularly in the field of health and in the Kingdom of Thailand, a nation with which we have enjoyed a special relationship since 1915.

Back then, of course, the world was very different. A mosquito bite could quickly become a death sentence. The year my father was born, in 1915, an American infant would be lucky to someday celebrate a 55<sup>th</sup> birthday.

Needless to say, there was a great deal of human well-being to promote.



So in 1913—the very first year of its existence—the Rockefeller Foundation made its first contact with the royal court of Siam.

The cause for this correspondence was small—only about 1 centimeter long to be precise—a parasite called hookworm. And the Rockefeller Foundation’s first major initiative led to its eradication in the United States.

Not long after that initiative commenced, a foundation official, Wickliffe Rose, was curious whether Thailand had experienced hookworm outbreaks, and whether there was anything the foundation could do to help. And in his letter he explained that a grassroots public health campaign to end hookworm would lay the groundwork for improved sanitation and hygiene, and prepare Thailand to fight still more threatening diseases, like malaria.

There were challenges, to be sure. But Thai leaders, together with Rockefeller Foundation experts, persevered. They experimented. They made friends and allies—mobilizing a massive operation that reached from the royal court to the countryside. In a single year, the program treated nearly 350,000 people for intestinal parasites, and installed over 83,000 latrines.

The success of the hookworm campaign directly led to improved urban and rural sanitation. It led to the establishment, in 1918, of a Thai Department of Public Health.

And with the invaluable aid of Prince Mahidol—a close friend of the foundation whom we honor today with this conference—Thai officials supported by Rockefeller overhauled public health in this kingdom. They developed a medical curriculum, trained nurses at Siriraj Hospital and funded scholarships for medical study overseas.

In the words of Dr. A.G Ellis, then the Dean of Siriraj Medical School, “H.R.H Prince Mahidol was born to make the world a better place.” I would say

that the same is true of Her Royal Highness and the rest of the royal family, whose contributions and commitment to global health have improved millions of lives.

So, from the beginnings of Wycliffe Rose’s initial inquiry came a productive, mutually beneficial partnership between the Rockefeller Foundation and Thailand—a partnership that has flourished for a full century.

Today, Thailand is a leader in medical delivery, education, and research. Thailand also has defied the common belief that Universal Health Coverage is reserved for richer countries, and for the past decade has provided accessible and affordable healthcare to 98 percent of its citizens.

We are proud of our enduring partnership and friendship with the people of Thailand. You see, from Thailand to Tanzania, spanning world wars and global crises, the Rockefeller Foundation has continually sought to make the world a more equitable and resilient place. And over the past one hundred years, the skill and dedication of Rockefeller’s researchers and partners have led to incredible breakthroughs that accomplished just that.

Working flexibly, fearlessly and creatively across countries and disciplines, we helped establish the discipline of public health, and developed a Nobel Prize-winning vaccine for yellow fever.

With hundreds of thousands of people starving in developing countries, the Rockefeller Foundation sparked the Green Revolution in agriculture that saved one billion lives in Asia and Latin America. Here too, partnerships with Thai researchers saw major breakthroughs in areas such as rice biotechnology—a second green revolution—benefitting farmers not just inside Thailand, but across the region.



That spirit of inquiry and innovation—that commitment to collaboration for the betterment of all—has defined the Rockefeller Foundation from the beginning. And it is that spirit, alive and well in Thailand today, which we call upon as we champion a unified, “One Health” approach to infectious diseases.

Because while we may have dealt with hookworm and yellow fever, pandemics remain perhaps the deadliest threat in a globalized world my great-grandfather could hardly have imagined.

Simply put, in a world of diseases without borders, we require disease detection without borders.

That is why, for more than a decade, the development of the groundbreaking Mekong Basin Disease Surveillance Network has been an important priority for the Rockefeller Foundation. Linking the Ministries of Health in six

countries, the network facilitates research, information sharing, disease monitoring and response efforts throughout Southeast Asia, allowing public health officials to move as rapidly and flexibly as SARS or H1N1.

In 2005, the MBDS Network successfully investigated and contained a dengue fever outbreak between Thailand and Lao PDR. Two years later, they likewise caught an avian flu outbreak between Thailand and Lao PDR and dealt with the aftermath of regional disasters like Cyclone Nargis. As a testament to its enduring commitment to jointly fight disease outbreaks, this Tuesday the MBDS Network celebrated its official recognition as the MBDS Foundation.

The Foundation also is proud to support the global network Connecting Organizations for Regional Disease Surveillance, or CORDS, which was officially launched here Tuesday.

Made up of six founding regional disease surveillance network members—two in Asia, two in Africa, one in Eastern Europe and one in the Middle East—CORDS complements the work of the leading global human, animal and food health organizations, and enhances the ability of all the network members to improve global surveillance.

With the launch of both the MBDS Network and CORDS, we continue to refine our approach, even as we expand our efforts to other regions, and work with the Asian Development Bank, WHO, and USAID to integrate our One Health strategies into their models.

Together, we are once again proving the power of original thinking, close collaboration across disciplines and borders, and a determined commitment to solutions. Which brings me back to the beginning.

You see, after that first letter asking about hookworm, the Rockefeller representative in Thailand, Dr. Victor Heiser, received an audience with



King Rama VI of the Court of Siam. It was a great honor—the first audience granted to any American—and they proceeded to discuss the success of the hookworm campaign in the U.S. and its potential benefits in Thailand.

King Rama VI, apparently, was impressed. Afterwards, he gave the Rockefeller official a medal, honoring him as a member “Fourth Class of the Order of the White Elephant, Busanabaran.” And he said, “I give you this in confirmation of my promise to support the work of the Rockefeller Foundation in Siam.”

Today, Thailand is a dramatically different place—a country that has set the pace for economic and social progress around the world.

This conference is but one illustration of how Thailand has become a leader in public health, and a true development partner with expertise and experiences to share. And so, as we seek together to understand and address the increasingly complex challenges of the 21st century, the Rockefeller Foundation will proudly continue to partner with the enormous range of innovative and committed institutions in this country.

Over the past hundred years, we have traveled further than my great-grandfather could have dreamed— and I know that our best achievements are ahead of us yet.





## Keynotes Motivated Us

Unprecedented promise for the  
global fight to respond to  
and mitigate the effects  
of infectious diseases

Call to rethink  
the approach to global health  
with involvement of  
communities at all levels

“  
...villagers  
may know less but  
they understand more  
”

*Uche Veronica Amazigo*

Need to be thinking about

“  
diseases without borders  
-> they respect no geographical  
or disciplinary boundaries  
”

*David Rockefeller Jr.*



## ....and Set the Stage

Production of clinical guidelines must be  
transparent, inclusive, and embody scientific  
and social values recognizing that ultimately  
individual countries must reach their own  
conclusions taking into account their own  
financial political and societal perspectives”

*Sir Michael David Rawlins*

## ... and Pointed the Way Forward

...continuity, sincerity, friendship  
...we love our work  
...we just celebrate quietly with a smile

*Puncharwee Sukbut*

“  
It is surprising to see that many countries  
spend scarce resources on  
the treatment of human infections,  
and neglect investing a portion of their  
budget on the cheaper prevention  
of zoonotic disease in the animal source.  
”

*Bernard Vallat*



## CONFERENCE SESSIONS



## CONFERENCE SESSIONS

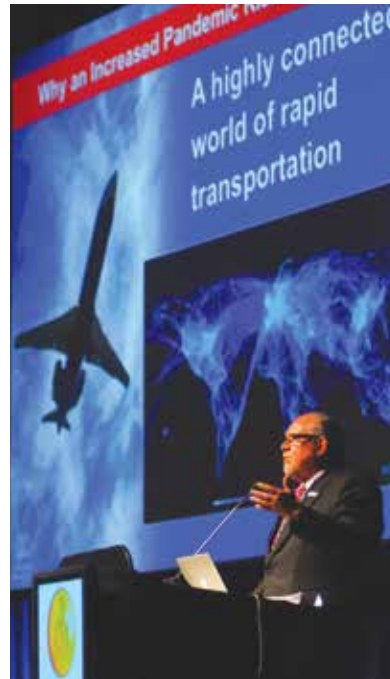
Although One Health was a concept originally brought forward by wildlife veterinarians and ecologists, the concept has been embraced and supported most publically by the medical and veterinary fields-- particularly by those involved in zoonotic disease research and management. Unfortunately, ecologists, wildlife biologists, and environmental scientists have been poorly integrated into the promotion of the One Health initiative. However, the ideas and goals included in the One Health concept have been long-standing concerns for ecologists, and the, “repackaging with a new label” that is the “One Health” term does not change the original goals of ecologists and environmental scientists in preserving healthy natural ecosystems. This conference represented a true convergence of disciplines toward this goal of the holistic betterment of health for people, animals and the environment.





# 1.

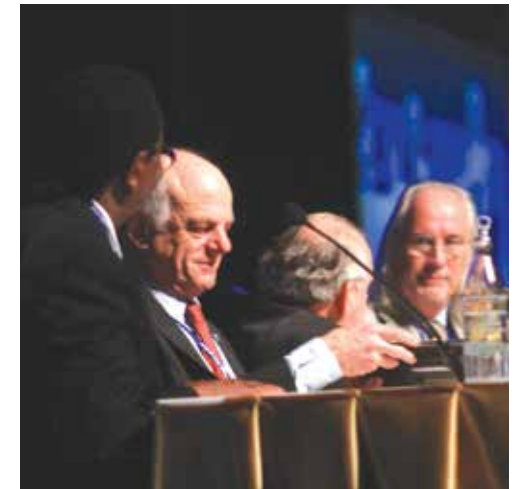
## Local to Global Surveillance: **CHALLENGES AND WAY FORWARD**



### Challenges:

The Plenary 1 speakers clearly exposed the inadequate human resources, technology and budgets for identification and control of pandemics, and the lack of infrastructure and effective surveillance systems to rapidly detect and introduce appropriate responses to disease emergence. The translation from research to actions is hampered by multi-level obstacles, for example, adequate laboratory diagnostics are too costly or not accessible in many cases, and mortality remains high in some places due to poorly equipped personnel to deal with the outbreaks. Human and animal migrations pose additional challenges.

One Health surveillance systems, often through policy or use of technologies have significantly developed; however, some gaps and challenges remain. Although use of technologies improves the capacity of surveillance systems, many remote and hard to reach areas remain inaccessible to surveillance. This leads to delay in information delivery and appropriate timely responses. The quality and consistency of tele-communication systems of a country are vital for the effectiveness of surveillance.



One of the most important problems raised was sustainability of the One Health surveillance systems. Compensation as a form of incentives has been commonly used to involve people into the systems but it is not sustainable. Finally, the formal collective effort is limited. It was suggested that to make surveillance sustainable, passive surveillance should be employed, with data and knowledge sharing across sectors and across borders where appropriate, and increased health education at the community level to raise people's awareness.



## Way Forward:

Building capacity and providing platforms for discussion at all levels and among all sectors is needed. This includes workers on the farm, veterinarians, laboratorians, epidemiologists, communities, ministries, and regional networks etc.

Suggested ways forward include case-study models to convince people that One Health-based approaches are feasible and cost-effective, bringing solutions directly to locals and policy-makers, and reducing the science down to what will benefit the people on a personal and on a community level. Long term, there is an obvious requirement to educate children to instill a different mindset in the next generations.



Mobile communication technology and social media (e.g. SMS, data sharing networks) provide a means for linking human and animal health surveillance from ground to national and international levels. These innovations are able to overcome the challenges of paper-based reporting such as in remote localities, where there is lack of manpower, irregular supply of logistics, resources issues, administrative issues and data analysis for action. However, innovations such as SMS reporting need planning, manuals, feedback, incentives, must be simple, and require private sector involvement for better integrated disease surveillance in the future.

“

There is only one health to begin with, and to break apart human health and animal health and ecosystem health is a very anthropogenic way of thinking.

Dr. William Karesh

”



One of the issues hampering improved surveillance is the lack of sharing of knowledge and sample specimens across fields of study. More cooperation and sharing of these resources is needed to increase the global knowledge base and speed up the development and implementation of new innovations. Health leadership should be shared at all levels of organization - from local to national to international, because the problems affect everyone.



## 2.

The drivers of  
disease emergence:

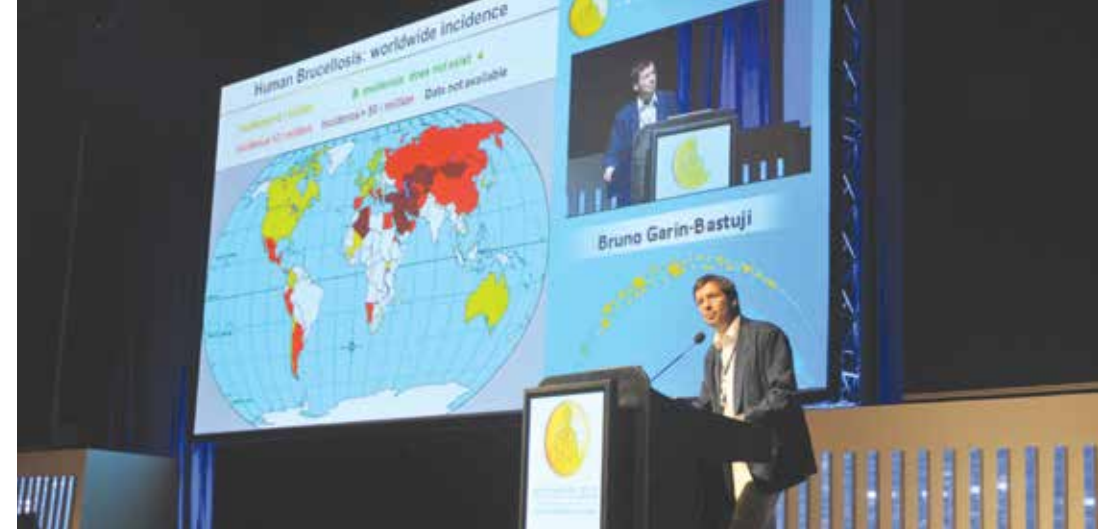
### **LAND USE, CLIMATE VARIABILITY, TRANSPORT AND TRADE AND FOOD SYSTEMS**

To date, ecologists, wildlife biologists, and environmental scientists have not been sufficiently included in the One Health movement, as it has mainly been adopted as a medical field mantra. The most important resources to humans, air, water, and food need to be properly managed. This requires a change in mindset from short-term consumptive to long-term stewardship. Land management and human consumption need rethinking with appropriate impact assessments prior to all development.

Clearly, the greatest threat to natural ecosystems and biodiversity is habitat loss due

to human expansion and development. Most of the problems that humans face, such as air pollution, contamination and loss of water sources, emerging infectious diseases, etc., are merely the symptoms of the greater problem that is human expansion and short-term unsustainable resource consumption. The One Health approach must address, therefore, these “large picture” issues, in part, by requiring environmental assessments using a One Health approach for all development projects.

Air, fresh water, and food are resources that are provided by ecosystems, and although food is now mainly produced by agriculture, fresh water, which is a product of natural water cycling, is absolutely essential to agriculture. Furthermore, natural ecosystems are complex, and involve not only water cycling and nutrient cycling, but also a broad array of flora and fauna. Healthy ecosystems provide a wide range of services to humans, and they are also intrinsically more resilient to shocks, such as natural disasters. The number one cause of loss of biodiversity, and therefore the loss of healthy, natural ecosystems, is fragmentation and human development. Along with human development and expansion also comes the introduction of non-native species, which also are a major cause of species diversity loss.





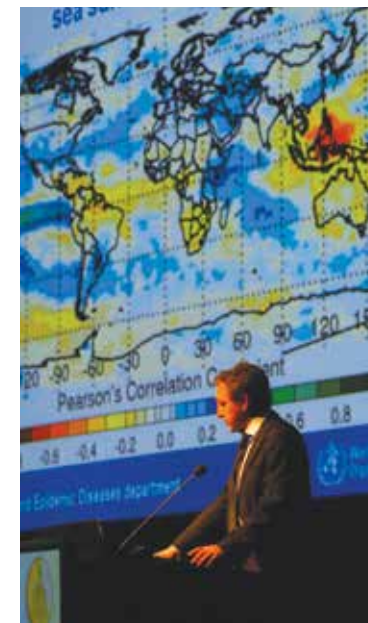
The discussions about the One Health concept have largely ignored/neglected the food security issues. Due to globalized trade of food products that increases the risk of transmission of disease agents, pesticides, and antimicrobial agents, integration of the One Health concept must be considered as a national strategic plan for food security. There are four aspects of food security linked with the One Health concept: food availability, food accessibility, food utilization, and market stability as agreed by the tripartite organizations (FAO/OIE/WHO). Increasing global sourcing and market stability of animal products is associated with increased disease risk of public health importance that requires the One Health approach. The current focus of One Health on food security is mostly terrestrial due to the fixation on domestic animal pathogens and zoonoses. Wildlife and fish are mostly



invisible and are seen as sources of infectious agents and risks to agriculture. The food security paradigm shift should address the benefits of these resources with proper management using the One Health approach. True One Health is for all (all plant and animal species and 7 billion people). Food cannot be secure if their worry is mainly on impact on human health and needs without reciprocal care for animals and the environment. The One Health paradigm for food security should recognize the contribution of small-scale production systems with emphasis on the key role played by women (reproductive roles, hygiene and sanitation, food production, food processing and preservation).



- One Health must be integrated into national strategic plan for food security (FAO/OIE/WHO)
- Recognition that the most important resources for humans come from the environment: air, water & food
- Land and water need to be properly managed
- Manage the risks without negatively impacting conservation



“ Interfaces thinking and action is the absolute secret of effective multi-sectoral work. ”



# 3.

## Efficient targeting of **SURVEILLANCE TO REDUCE COSTS**



Cross-sectoral surveillance involves public health, animal health and environmental health workers and leads to information exchange for joint response, resulting in risk reduction of zoonotic disease. Sentinel surveillance is an alternative to detect cases effectively among a targeted population at high risk, over a longer period of time. It is flexible and manageable with cooperation of farmers and other service providers in designated farms etc. However, the results from sentinel surveillance may not be generalized to other areas of population at risk. Surveillance among wild animals of different taxonomic groups at high-risk interfaces with humans, especially those involving primates, bats, rodents, birds, suids, carnivores and ungulates, leads to an early health warning system. In terms of health surveillance at the human-animal interface, sentinel study needs to focus

on population groups at risk, being “regular, consistent and persistent”, else it may not get needed results.

As a diagnostic tool, “consensus PCR” is cheaper, faster and more accessible than the disease-specific PCR or very expensive, high-throughput sequencing often done in outbreak investigations, yet it is able to detect known, novel and closely related to human viruses and can thus reduce the epidemic curve because of earlier detection and reporting of cases.

This in turn can lead to earlier and optimal health warnings and epidemic predictions. However more research and funding for the development of serologic assays to screen human and animal samples for transmissibility across species is needed, and is an area of knowledge development lagging behind surveillance and

detection. These are needed to link molecular epidemiology and pathogenicity to disease outbreak.

Web-based GIS systems are promising tools to reconcile different country data for infectious disease surveillance. There is a need for an integration of web-based tools, information systems and mathematical modeling. Feeding these information systems are pathogen information, epidemic models, web based programming, GIS tools, multisectoral relational databases and maps, among others. Web-based GIS systems enable sharing of information among various agencies, such as government, military, public, private and academics, and can lead to minimization of endemic impact to economies in the future.



# 4.

## Cross-Sectoral Policies, Strategies & Tools to Meet the Challenges of Emerging Disease Threats and Ways Forward: **“MAKING REGIONAL NETWORKS WORK”**

While there are legally binding formal systems, such as the WHO International Health Regulations 2005 (IHR), there are emerging less-formal trust-based regional networks that involve building multi-sectoral, cross country borders and cross-network inter-connections that have proved useful, and contributed to population security.

For example, the East African Integrated Disease Surveillance Network (EAIDNet) is a network for communicable diseases surveillance in East Africa. Tanzania, Kenya and Uganda are members. The aim is to reduce morbidity and mortality due to common communicable diseases in the East African Region.

Similarly, the Middle East Consortium of Infectious Diseases Surveillance (MECIDS) is the surveillance network founded in 2001 composed of Palestine, Israel and Jordan,



working from the community to the regional level in order to detect and control infectious diseases.

The Mekong Basin Diseases Surveillance (MBDS) network is an example of successful cross border collaboration, a twelve-year old network among 6 countries in the Mekong sub-region (Cambodia, China, Myanmar, Lao PDR, Thailand and Vietnam), with the objectives to combat and control outbreaks of diseases through collaborative regional surveillance, reporting, joint outbreak investigation and capacity building, with supportive budget from Rockefeller Foundation; now a Foundation has been established for long term sustainable development of the network.

SHEEN is a network of 9 countries in Eastern Europe that has developed guidelines and a surveillance system for communicable diseases in the region. A major problem is large trans-migration among countries in



Eastern Europe and limited budgets and resources in each of the countries, but collaboration and networking are the ways to strengthen the countries.

The Asian Partnership of Emerging Infectious diseases Research (APEIR) is an example of success of a network from their work during the pandemic influenza outbreak in 2009. APEIR was founded in 2006 to form a regional network for surveillance and monitoring of Avian Influenza virus in migratory birds. It consists of Cambodia, China, Indonesia, Thailand and Vietnam. The 3M strategy, composed of multicountry, multidisciplinary and multi-sectoral cooperation, are the key methods that keep the network functioning and enhance the internet work research capacity.

Launched at this conference, the CORDS network (Connecting



Organizations for Regional Disease Surveillance) has been established by 6 founding members to build and join the existing regional networks of the world.

In order to have successful collaboration, the governments of member countries need to have strong strategies and policies to support the network. An effective way to engage or communicate with countries and community are MOUs, risk communication policies for knowing in advance about outbreaks, and providing closed countries or communities with benefits from the network. It is important to build relationships with all stakeholders. To benefit

from a One Health approach, it is also necessary to have institutionalization within the government. Therefore, political commitment and will is crucial, as well as strengthening animal and human public health systems.

H5N1 is a good example of how to kick-start a One Health approach. As illustrated in Thailand, control of H5N1 outbreaks involved including farmers (i.e. community engagement) along with animal and human health disciplines. Urgent stamping out (culling) was one of the main measures used with financial compensation provided to the affected farmers. The use of compensation is an important incentive in combating epidemics. For compensation to be effective, it needs to be sufficient and timely in reaching the local people. Consideration should also be given to alternative sources of income or employment. This presents a challenge to countries that are not able to provide compensation and may result in under-reporting of cases. Engaging the media is also an effective way to increase awareness. However, behavioural change should be taken into account.

At the regional level, communication and cooperation among countries are also necessary in controlling outbreaks. For example, collaboration between the Thai and Lao PDR governments, when an H5N1 case from Lao PDR was detected in a Thailand hospital, allowed the two countries to investigate and control the outbreak; the outcome was so successful that is established collaborative work based on trust and mutual respect.

Proficiency may be increased through field-based training. Joint training between human public health and animal health workers is an essential factor to strengthen capacities and sustain data sharing systems; inter-professional education is one of the key entry points for the One Health approach. This has been successful in Thailand and several other countries in Asia.



# 5.

## Cross-Sectoral Policies, Strategies & Tools: **PROMISE FOR SUCCESS**



To move forward, regional networks need financing and government involvement in sustainability. Thus networks need to show promising outcomes in convincing development partners to invest. Successful regional networks collaborate completely, even in difficult areas that demand transparency, such as culture, in each of the countries and regions. However ways need to be found to make regional networks more effective than only surveillance and information collection i.e. to cover disease prevention strategy and long-term capacity building of human resources.

## 5 KEY STRATEGIES

Five key strategies were suggested in forming regional networks:

- 1) do not make decisions that mainly rely on funding
- 2) do not manage the network as a project
- 3) the domestic funding should be a sustainable source
- 4) do not be afraid of building new partnerships
- 5) active participation and ownership are essential for long-term network sustainability

## 3 ADDITIONAL SUGGESTIONS

Three additional suggestions were made for using technology, limited resources and budget for sharing resources:

- 1) using electronic technology, such as the internet and mobile communications
  - 2) sharing tools, including diagnosis and treatment tools
  - 3) sharing data between networks.
- This is challenging, but can be possible with good and systematic management





With regards to development partners,  
Annette Dixon, from The World Bank, stated that

6

It's not about One Health,  
but One World. The disease  
pathogens can spread quickly.....  
development partners should  
have a greater role in fostering  
One Health, not just financially but  
also technically.

,

Implementing One Health varies in different countries  
and in dealing with different diseases. As illustrated by  
the country examples – Bangladesh used a vaccination  
campaign to control an anthrax outbreak, while  
Thailand and Vietnam used different measures to tackle  
HPAI H5N1, use and non-use of vaccines in poultry.  
Intervention programs depend on the level of awareness,  
social norms, fiscal capacity and cultural influences,  
which can be different in each country. However, all  
country-level experiences that were discussed involved  
collaboration between human and animal sectors, as  
well as multi-level cooperation. Disease surveillance and  
reporting is also an area for improvement at the country  
level.

Several promising programs are being implemented across disciplines,  
geographic boundaries and government sectors. In the area of field  
research in prediction it has been discovered that disease hotspots are all  
over the world. The PREDICT program is developing standard protocols  
for diagnosis and surveillance, training in human and wildlife surveillance  
(technicians, veterinarians, public health workers etc.) and infrastructure  
development. It has the potential to identify novel pathogens, but the  
biggest challenge is the inability to predict new pathogens. Prediction has  
relied solely on known pathogens, yet the new outbreaks may come from  
totally new pathogens. The molecular techniques used by PREDICT are  
aimed at detecting known and novel pathogens, but may not be accepted  
rapidly enough for field use in emerging outbreaks.

Extractive industries play a role in ecosystem changes and modification,  
and increase contact at human–animal interfaces, which allow unknown  
diseases to emerge. Commonality factors, such as road installation,  
construction camps, logging, plantation and land development etc.,  
contribute to cross species transmissibility, thus increase the risk of  
zoonotic disease outbreaks and the emergence of infectious diseases  
(EIDs).





If the risk of EIDs is not well analyzed in terms of common source detection and common transmission pathway recognition, pandemics could develop unchecked. Then the events will lead to a real, global economic and health impacts. For example, there are the cost expenses to curb disease, loss of productivity and/or profitability, customer's confidence with companies and hidden costs e.g. people's morbidity and mortality.

However, existing systems of risk analysis and risk management in extraction industries open an opportunity for joint contribution among local government, health authorities, regional and international partners and the private sector in leading appropriate mitigation actions in terms of prevention and control and reduction of hazard consequences. Risk management in the extraction industries is guided by principles and company values in regards to safety and health issues, but zoonotic diseases are not sufficiently considered.

Moreover, the industries need a roadmap for action which should answer sequentially "Why, What and How." 'Why' stands for industry's incentives and benefits for initiative participation, such as corporate social responsibility (CSR), enhancing credibility image and reducing liability cost. 'What' is about incorporating emerging infectious diseases data into internal and external risk management systems. 'How' is about identifying change to construct cross-sectoral collaboration.



## How to Involve THE PRIVATE SECTOR

Major problems and issues raised / discussed

1. How to convince the importance of EIDs to top management of the industries?
2. How do we communicate risk with low probability and high-impact events?
3. Is scientific evidence sufficient to take action? YES
4. How do we connect scientific concern to mitigation action on the ground?
5. Should risk management for pandemics be implemented across industries or within individual companies?
6. How to integrate the One Health program into existing structure of the industries?
7. Is there any possibility to incorporate animal information and potential EID drivers and interfaces to the existing risk matrix?



## Suggested SOLUTIONS

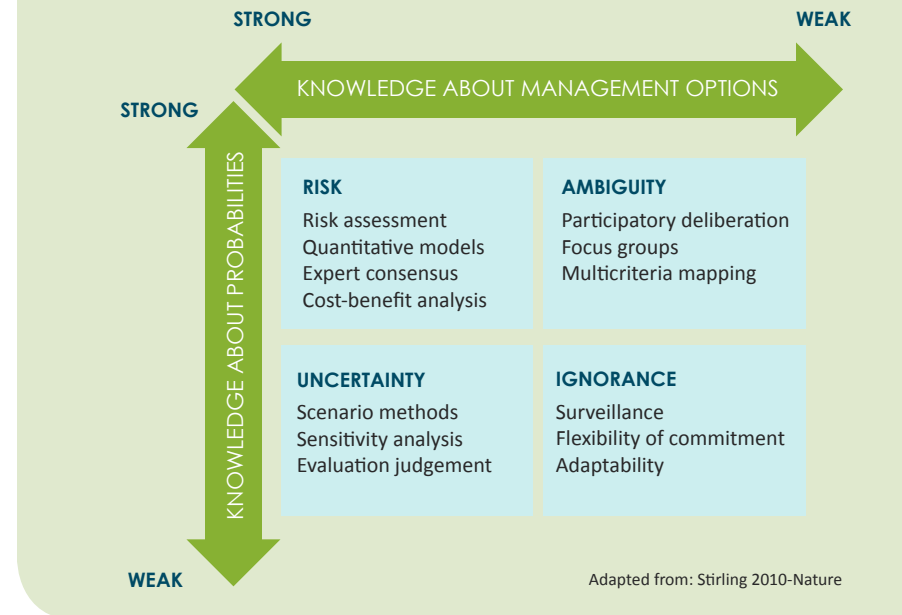
These were significant solutions proposed from panelists and participants as follows:

- Highlight the importance of EIDs and build a pandemic framework into existing risk management systems in line with a company's interests in order to gain possible coordination and corporation from the company
- Involve professionals, health authorities, and international experts to expand risk management systems
- Build in EID impact assessment at the beginning of projects
- Apply existing models for rare events e.g. tsunami and earthquake into existing risk management systems
- Implementation of EIDs risk assessment should begin with pilot projects to test proof of principle.
- Risk assessment, control strategies, education, and surveillance and prevention are all needed to prevent EIDs, particularly in extraction industries.
- Regional disease surveillance networks should be included in the risk management process.

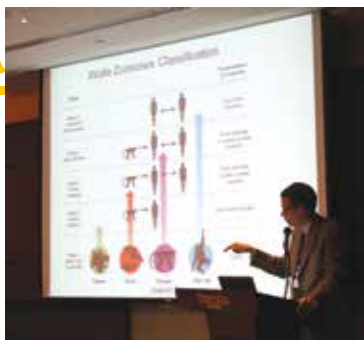
Emerging diseases are a significant global threat to public health, trade, and economic growth. Prevention and control requires significant global resources. Several models to predict pandemics, as well as to apply them to create sustainable preventive policy with economic optimization, were discussed e.g. modeling, risk assessment and spatial analysis. There

## Methodologies

### IN RISK ASSESSMENT AND MANAGEMENT



are innovative tools to predict and understand the epidemiology of the diseases as a first step for effective policy and advocacy. Various variables are carefully selected and put into the model analysis. Still, several factors are overlooked, especially biological data, as well as ecological and socio-economic factors.



To achieve successful disease prevention and control requires a good model of risk assessment. Our current models cannot eliminate emerging diseases, such as H5N1. Future development should employ molecular epidemiology and pathogenicity to link with spatial epidemiology, as well as to consider human behaviors which are the risks for disease spreading. Multidisciplinary collaboration from health-care sectors, social-scientists, economists, and anthropologists are also needed to develop better plans for sustainability with economic optimization. These professions need to be more effectively encouraged to participate in One Health solutions.





# 6.

## Sustainability – PARADIGM SHIFTS, CHALLENGES AND WAYS FORWARD



The One Health approach has not yet been widely integrated into curricula - inter-professional education, particularly across medical, pharmacy, veterinary and public health providers, is required. Pre-service and in-service training should be applied to increase One Health capacity building, especially field-based training. Nowadays, many universities around the world including in Asia, Africa, America, and New Zealand have developed One Health curricula which are appropriate for a cross/trans/inter disciplinary approach. The aim is for graduate training to fit the needs of the community and government organizations for sustainability in health for healthy, productive animals, prosperous communities, and productive ecosystems through multidisciplinary research, training and community service.

In-service training also plays a vital role in human and system capacity building. One example in Thailand, One Health Epidemiology Training including the public, livestock and wildlife health professionals was established using a multidisciplinary approach for preparedness and response to EIDs. A pre-service and in-service educational paradigm should be transformed by using the One Health approach in creating global health workforces.

There are gaps that need to be filled in cross disciplinary training. The standard of One Health core competencies of workforces and curriculum of training should be identified in order to minimize variability in the workforce across countries. Not only technical knowledge and skills, but also non-technical skills are essential to the multi-disciplinary One Health approach for sustainability. Collective

leadership, respect and trust play a vital role in multidisciplinary relationships.

In order to make changes, people need an entirely new, creative mindset. The current culture of consumption needs to be curbed. Children should be educated about the importance of maintaining One Health for the world by including ecosystem health. Developing countries should be encouraged not to emulate the industrial nature of developed nations, but to find alternative, sustainable approaches to better lives while maintaining the environment and healthy ecosystems. In order to ensure success, scientists need to provide the data and models to show that the One Health approach is cost-effective and feasible and to bring it to the tables of politicians; not simply ideals and scientific data, but practical solutions to problems.



Many examples of effective public engagement were presented during PMAC. In One Health, we work with the public therefore risk communication is crucial. Moreover, to do a good job we need collaboration between different sectors, disciplines, and professionals. Effective communication across sectors and disciplines is the key to preventing chaos and social abruption. The term communication can mean different things to different people. Communication can be seen as a science and discipline, as a profession, as an industry, or as methodologies, strategies, tactics, tools, and channels. The simple linear approach to communication is not working; giving facts is not enough.

A paradigm shift in communication is needed. We need to move away from simple to complex structures; building communication environments, asking questions, creating community, building trust and good relationships, consulting facilitators, creating identity, and exchanging perceptions. Risk communication should engage with the public ahead of happening events



## WAY FORWARD for One Health

- Increase emphasis on adaptive risk assessment and mitigation with effective risk communication
- Strategies tailored to specific needs
  - culturally, socially and economically appropriate  
e.g. religious beliefs
  - equity & rights
- Improved abilities to address the emerging “wicked problems,” notably antimicrobial resistance
- More knowledge of transmissibility and pathogenicity
- Move from surveillance emphasis to true prediction & prevention



## ... beyond disease reduction

The overwhelming message of PMAC 2013, A World United Against Infectious Diseases: Cross-Sectoral Solutions, was that the success of One Health requires primarily trust, with appropriate doses of political commitment, transparency, leadership delivery, collaboration, economic impact, global stewardship and quality of life improvement.



- Data from the field of both animal health and public health must be shared and shared in a timely fashion
- Clear understanding of concept/action plan is important
- Trust between partners can be developed by 2 ways; formal way and informal way
- Trust is required not only among sectors but also between public
- Regular meetings to share and discuss is key to developing relationships and trust

And a formula was  
developed with  
sense of humour!

$$\text{TRUST} = \frac{\text{Credibility} + \text{Reliability} + \text{Intimacy}}{\text{Self Interest}}$$



# 7.

## Future DIRECTIONS



Discussion on future directions focused on strengthening animal health delivery systems, institutions for mainstreamed cross-sectoral training, and regional governance. Regional networks should play key roles e.g. the ASEAN Strategic Framework in Health.

The failure to appropriately integrate ecologists and environmental scientists into the One Health concept has probably been due to inadequate and ineffective communication and a difference in values and priorities among the leaders of each field. As Dr. Scott Newman (FAO) said, placing the majority of funds for rabies control into dog vaccination would be a cost-effective preventive measure, but many medical responders feel that the funds are needed



for human prophylaxis. Sharing of data and sample collection is also not coordinated, and has resulted in enormous waste of valuable samples from both the medical and the ecology fields. This is a problem at the leader and organizational levels, because the people on the ground and in the field understand the need for and value of cooperation, and simply do whatever is practical and necessary.



- Inclusion of more disciplines in the One Health movement (e.g. social media experts, anthropologist, economist, media and communication experts, etc.) is needed.
- Scientists communicating ways forward to policy makers and communities
- Active encouragement of the private sector -> foster One Health professionals into industry e.g. extractives

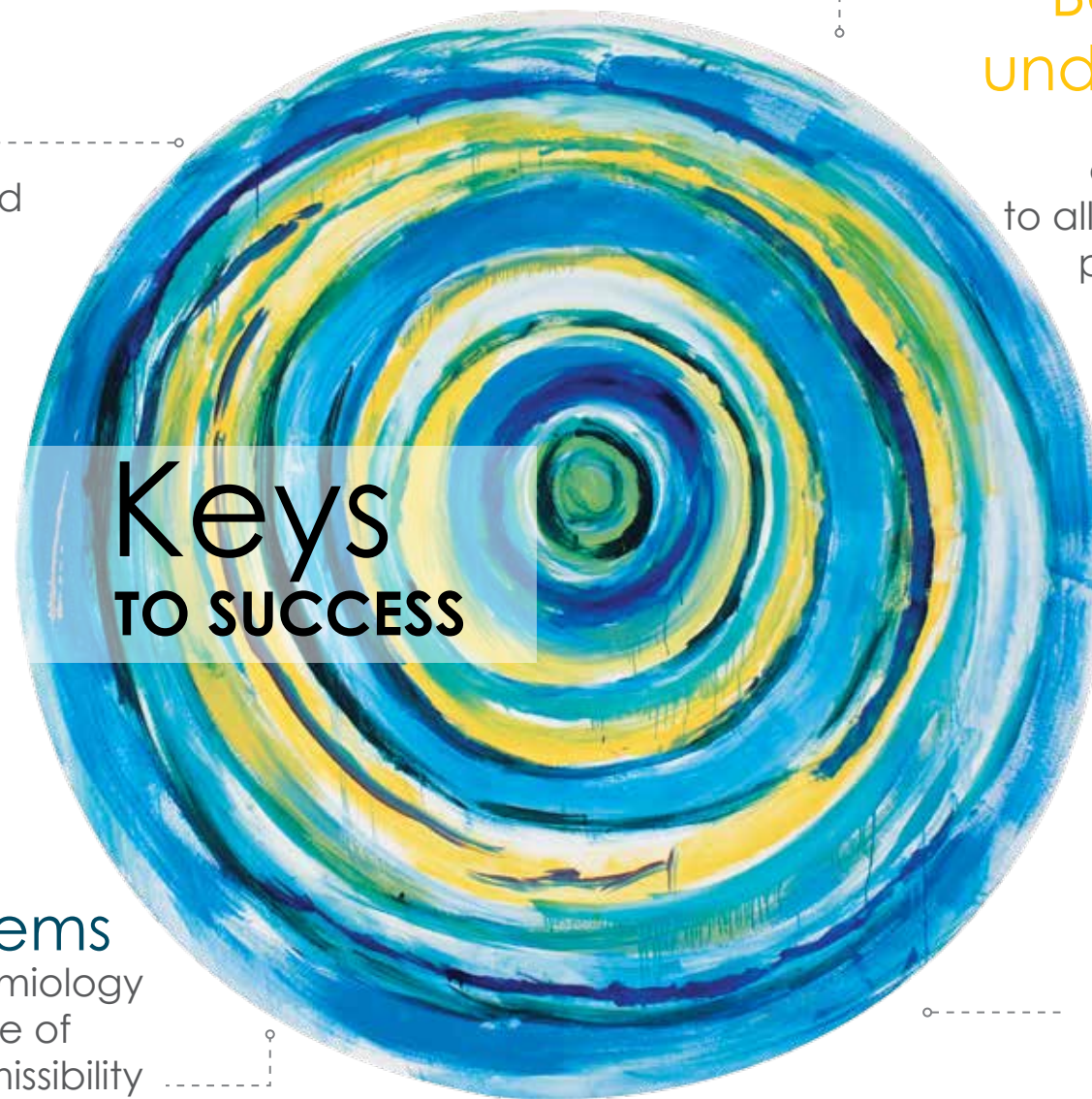


## Societal

recognition and  
cultural shift

Adaptive  
and targeted  
policies

Linking  
of spatial systems  
with molecular epidemiology  
and knowledge of  
pathogenicity/ transmissibility



Keys  
TO SUCCESS

Better  
understanding  
of the drivers  
of disease emergence  
to allow better  
prevention and  
prediction

MDG 2015  
– possibly redefine  
goals to include  
animal and  
environmental  
sectors

Targeting  
control at the  
source is key!



**ANNEX**



## INTERNATIONAL ORGANIZING COMMITTEE

|                                                                                                                                                                           |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Prof. Dr. Vicharn Panich</b><br>Chair, International Award Committee<br>and Scientific Advisory Committee<br><i>Prince Mahidol Award Foundation/Mahidol University</i> | Chair    |
| <b>Dr. Keiji Fukuda</b><br>Assistant Director-General for Health Security and Environment<br><i>World Health Organization (Represent WHO, FAO, OIE)</i>                   | Co-chair |
| <b>Mr. Kiyoshi Kodera</b><br>Vice President<br><i>Japan International Cooperation Agency (JICA)</i>                                                                       | Co-chair |
| <b>Dr. Ariel Pablos-Mendez</b><br>Assistant Administrator, Bureau for Global Health<br><i>U.S. Agency for International Development (USAID)</i>                           | Co-chair |
| <b>Dr. Jeanette Vega</b><br>Managing Director<br><i>The Rockefeller Foundation</i>                                                                                        | Co-chair |
| <b>Dr. Silvia Bino</b><br>Chair Elect<br><i>Connecting Organizations for Regional Disease Surveillance (CORDS)</i>                                                        | Co-chair |
| <b>Dr. Fiona Godlee</b><br>Editor-in-Chief<br><i>BMJ</i>                                                                                                                  | Co-chair |

|                                                                                                                                                            |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| <b>Prof. Martyn Jeggo</b><br>Director, Australian Animal Health Laboratory<br><i>CSIRO Livestock Industries</i>                                            | Co-chair |
| <b>Dr. David Nabarro</b><br>Senior Coordinator for Avian and Pandemic Influenza<br><i>UNSG's Office</i>                                                    | Member   |
| <b>Mr. Hiroyuki Konuma</b><br>Assistant Director-General of the Regional Office for Asia and the Pacific<br><i>Food and Agriculture Organization (FAO)</i> | Member   |
| <b>Dr. Cristian Baeza</b><br>Director, Health, Nutrition & Population, Human Development Network<br><i>The World Bank</i>                                  | Member   |
| <b>Dr. Gardner Murray</b><br>Special Advisor<br><i>World Organization for Animal Health (OIE)</i>                                                          | Member   |
| <b>Dr. Neil Squires</b><br>Head of Profession, Health<br><i>Department for International Development, UK (Dfid)</i>                                        | Member   |
| <b>Dr. Rosalia Sciortino</b><br>Regional Director for Southeast and East Asia<br><i>International Development Research Center</i>                          | Member   |
| <b>Dr. Patricia Moser</b><br>Lead Health Specialist<br><i>Asian Development Bank</i>                                                                       | Member   |



|                                                                                                                                                                                         |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>Dr. David Heymann</b><br>Head<br><i>Centre on Global Health Security, Chatham House</i>                                                                                              | Member |
| <b>Dr. Alain Vandersmissen</b><br>Senior Coordinator One Health, Emerging Diseases,<br>Food Security Department Asia / Horizontal Affairs<br><i>European External Action Service</i>    | Member |
| <b>Mr. Nick Previsich</b><br>Director, Environmental Issues Division, Centre for Food-borne,<br>Environmental and Zoonotic Infectious Diseases<br><i>Public Health Agency of Canada</i> | Member |
| <b>Dr. Peter Daszak</b><br>President<br><i>EcoHealth Alliance</i>                                                                                                                       | Member |
| <b>Ms. Deborah Rosenblum</b><br>Executive Vice President<br><i>Nuclear Threat Initiative (NTI)</i>                                                                                      | Member |
| <b>Dr. Ann Marie Kimball</b><br>Senior Program Officer, Surveillance and Epidemiology<br><i>The Bill &amp; Melinda Gates Foundation</i>                                                 | Member |
| <b>Dr. Mark Smolinski</b><br>Director, Global Health Threats<br><i>Skoll Global Threats Fund</i>                                                                                        | Member |
| <b>Prof. Mark Rweyemamu</b><br>Executive Director<br><i>Southern African Centre for Infectious Disease Surveillance (SAC-IDS)</i>                                                       | Member |
| <b>Dr. Tanarak Plipat</b><br>Co-director, Thai-MOPH US-CDC Collaboration (TUC)<br><i>Center for Diseases Control and Prevention, USHHS</i>                                              | Member |





**Prof. Rifat Atun** Member

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*Imperial College Business School and the Faculty of Medicine*

**Dr. David Legge** Member

Associate Professor of School of Public Health  
*La Trobe University, Australia / People's Health Movement*

**Dr. Paijit Warachit** Member

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*Ministry of Public Health, Thailand*

**Mr. Sihasak Phuangketkaew** Member

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*Ministry of Foreign Affairs, Thailand*

**Clin. Prof. Supat Vanichakarn** Member

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*Ministry of Public Health, Thailand*



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| <b>Dr. Pongpisut Jongudomsuk</b><br>Director<br><i>Health Systems Research Institute, Thailand</i>                           | Member                         |
| <b>Dr. Kumnuan Ungchusak</b><br>Senior Expert (Epidemiology)<br><i>Ministry of Public Health, Thailand</i>                   | Member                         |
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| <b>Dr. Parntep Ratanakorn</b><br>Dean, <i>Faculty of Veterinary Science</i><br><i>Mahidol University</i>                     | Member                         |
| <b>Dr. Sopida Chavanichkul</b><br>Director, <i>International Health Bureau</i><br><i>Ministry of Public Health, Thailand</i> | Member                         |
| <b>Dr. Cathy E. Roth</b><br>Scientific Policy Advisor<br><i>World Health Organization</i>                                    | Member<br>& Joint<br>Secretary |
| <b>Mr. Yojiro Ishii</b><br>Visiting Senior Advisor<br><i>Japan International Cooperation Agency (JICA)</i>                   | Member<br>& Joint<br>Secretary |
| <b>Dr. Dennis Carroll</b><br>Director<br><i>U.S. Agency for International Development</i>                                    | Member<br>& Joint<br>Secretary |

|                                                                                                                                                 |                                |
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| <b>Dr. Mushtaque Chowdhury</b><br>Senior Adviser & Associate Director<br><i>The Rockefeller Foundation</i>                                      | Member<br>& Joint<br>Secretary |
| <b>Dr. Louise Gresham</b><br>CEO<br><i>Fondation Merieux USA, Inc. / CORDS</i>                                                                  | Member<br>& Joint<br>Secretary |
| <b>Prof. John Mackenzie</b><br>Professor of Tropical Infectious Diseases<br><i>Curtin University</i>                                            | Member<br>& Joint<br>Secretary |
| <b>Prof. Dr. Manee Rattanachaiyanont</b><br>Deputy Dean for Academic Affairs<br><i>Faculty of Medicine, Siriraj Hospital Mahidol University</i> | Member<br>& Joint<br>Secretary |
| <b>Dr. Churnrurtai Kanchanachitra</b><br>Associate Professor<br><i>Institute for Population and Social Research, Mahidol University</i>         | Member<br>& Joint<br>Secretary |
| <b>Dr. Sopon Iamsirithaworn</b><br>Director<br><i>FETP-Thailand</i>                                                                             | Member<br>& Joint<br>Secretary |



## LIST OF SCIENTIFIC COMMITTEE MEMBERS

|   |                                                                                                                                                      |        |    |                                                                                                                                                                                               |        |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1 | <b>Dr. Viroj Tangcharoensathien</b><br>Senior Advisor<br><i>International Health Policy Program, Thailand</i>                                        | Chair  | 7  | <b>Prof. Jonna Mazet</b><br>Executive Director<br><i>One Health Institute &amp; Wildlife Health Center, UC Davis</i>                                                                          | Member |
| 2 | <b>Dr. Bernadette Abela</b><br>Scientist<br><i>Department of Food Safety and Zoonoses (FOS)<br/>World Health Organization</i>                        | Member | 8  | <b>Dr. Elizabeth Mumford</b><br>Scientist<br><i>Global Influenza Programme<br/>Department of Epidemic and Pandemic Alert and Response<br/>World Health Organization</i>                       | Member |
| 3 | <b>Dr. John Deen</b><br>Professor<br><i>College of Veterinary Medicine, University of Minnesota</i>                                                  | Member | 9  | <b>Dr. Walaiporn Patcharanarumol</b><br>Senior Researcher<br><i>International Health Policy Program, Thailand</i>                                                                             | Member |
| 4 | <b>Dr. Sopon Iamsirithaworn</b><br>Director<br><i>FETP, Disease Control Department<br/>Ministry of Health, Thailand</i>                              | Member | 10 | <b>Dr. Guenael R. Rodier</b><br>Director<br><i>Communicable Diseases, Health Security, &amp; Environment<br/>World Health Organization</i>                                                    | Member |
| 5 | <b>Dr. William Karesh</b><br>Executive Vice President<br><i>Eco Health Alliance</i>                                                                  | Member | 11 | <b>Dr. Boripat Siriaronrat</b><br>Wildlife Health and Ecology Coordinator<br><i>Emergency Center for Transboundary Animal Diseases<br/>FAO Regional Office for Asia and Pacific, Thailand</i> | Member |
| 6 | <b>Prof. Hiroshi Kida</b><br>Director<br><i>Research Center for Zoonosis Control<br/>Graduate School of Veterinary Medicine, Hokkaido University</i> | Member |    |                                                                                                                                                                                               |        |



## CONFERENCE SPEAKERS/PANELISTS, CHAIRS/ MODERATORS AND RAPPORTEURS

| SPEAKERS                                                                                     | PANELISTS         | MODERATORS | RAPPORTEURS             |
|----------------------------------------------------------------------------------------------|-------------------|------------|-------------------------|
| <b>KEYNOTE SESSION</b>                                                                       |                   |            |                         |
| Sir Michael David Rawlins                                                                    |                   |            | Jeff John               |
| Uche Veronica Amazigo                                                                        |                   |            | Suladda Pongutta        |
| Bernard Vallat                                                                               |                   |            | Iyarit Thaipisuthikul   |
| Punchawee Sukbut                                                                             |                   |            |                         |
| David Rockefeller, Jr.                                                                       |                   |            |                         |
| <b>PLENARY SESSION 1</b>                                                                     |                   |            |                         |
| <b>One Health: Meeting the Challenge of<br/>“A World United Against Infectious Diseases”</b> |                   |            |                         |
| Larry Brilliant                                                                              | Dennis Carroll    |            | Tomokazu Tamura         |
| David Nabarro                                                                                |                   |            | Phanthanee Thitichai    |
| David M. Serwadda                                                                            |                   |            | Yuttapong Wongswadiwat  |
| <b>PLENARY SESSION 2</b>                                                                     |                   |            |                         |
| <b>National to Regional to Global Surveillance – A Path to One Health</b>                    |                   |            |                         |
| Bruno Garin-Bastuji                                                                          | Elizabeth Mumford |            | Nao Naganori            |
| Yoshihiro Sakoda                                                                             |                   |            | Jaruayporn Srisasalux   |
|                                                                                              |                   |            | Patcharin Tantiworrawit |
| <b>PARALLEL SESSION 2.1</b>                                                                  |                   |            |                         |
| <b>Achievements and Gaps in One Health Surveillance</b>                                      |                   |            |                         |
| Armando Gonzalez                                                                             | Peter Black       |            | Duangjai Denkesineelam  |
| Justin Masumu                                                                                |                   |            | Irene Marete            |
| Julio Pinto                                                                                  |                   |            | Junki Maruyama          |
| Daniela von Blumröder                                                                        |                   |            | Decha Tamdee            |

| SPEAKERS                                                                                                                                   | PANELISTS | MODERATORS        | RAPPORTEURS              |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|--------------------------|
| <b>PARALLEL SESSION 2.2</b>                                                                                                                |           |                   |                          |
| <b>Ecosystems, Wildlife and One Health</b>                                                                                                 |           |                   |                          |
| David Coates                                                                                                                               |           | Scott Newman      | Ruchirada Changkwanyeeun |
| Ruth Cromie                                                                                                                                |           |                   | Kyle Taylor              |
| Borja Heredia                                                                                                                              |           |                   | Kanokwaroon Watananirun  |
| William Karesh                                                                                                                             |           |                   |                          |
| Juan Lubroth                                                                                                                               |           |                   |                          |
| Scott Perkin                                                                                                                               |           |                   |                          |
| <b>PARALLEL SESSION 2.3</b>                                                                                                                |           |                   |                          |
| <b>Making Regional Networks Work</b>                                                                                                       |           |                   |                          |
| Silvia Bino                                                                                                                                |           | Nigel Lightfoot   | Parunyou Julayanont      |
| Louise Gresham                                                                                                                             |           |                   | Kellen Karimi            |
| Martyn Jeggo                                                                                                                               |           |                   | Phathai Singkham         |
| Alex Leventhal                                                                                                                             |           |                   |                          |
| Christophe Longuet                                                                                                                         |           |                   |                          |
| Pierre Nabeth                                                                                                                              |           |                   |                          |
| Janusz Paweska                                                                                                                             |           |                   |                          |
| Bounlay Phommasack                                                                                                                         |           |                   |                          |
| Suvichai Rojanasthien                                                                                                                      |           |                   |                          |
| Stanley Sonoiya                                                                                                                            |           |                   |                          |
| Kumnuan Ungchusak                                                                                                                          |           |                   |                          |
| <b>PARALLEL SESSION 2.4</b>                                                                                                                |           |                   |                          |
| <b>Measuring the Impact of Cross-sectoral Collaboration on Disease Prevention<br/>and Control at the Human-Animal-Ecosystems Interface</b> |           |                   |                          |
| Nitish Debnath                                                                                                                             |           | Katinka de Balogh | Stephanie Burniston      |
| Penelope Mavor                                                                                                                             |           | Debra Olson       | Manasigan Kanchanachitra |



| SPEAKERS   PANELISTS | MODERATORS | RAPPORTEURS |
|----------------------|------------|-------------|
|----------------------|------------|-------------|

|                   |  |                      |
|-------------------|--|----------------------|
| Wilhelm von Trott |  | Supawan Saihongthong |
| Frans van Knapen  |  | Chanwit Tribuddharat |
| Paul Williams     |  |                      |

**PARALLEL SESSION 2.5****Innovations Advancing Health Surveillance at the Human-Animal Interface**

|                     |                 |                         |
|---------------------|-----------------|-------------------------|
| Teerasak Chuxnum    | Charlanne Burke | Chantapat Brukesawan    |
| Tracey Goldstein    |                 | Rosnah Ismail           |
| Clement Meseko      |                 | Sumalee Lirtmunlikaporn |
| Maurice Ope         |                 |                         |
| Vivek Singh         |                 |                         |
| Rafael Villa-Angulo |                 |                         |

**PARALLEL SESSION 2.6****Transforming the Global Workforce for One Health Approaches**

|                      |                 |                               |
|----------------------|-----------------|-------------------------------|
| William Bazeyo       | William Hueston | Ronald Enrique Morales Vargas |
| Sopon Iamsirithaworn |                 | Hirunwut Praekunatham         |
| Malika Kachani       |                 | Angkana Sommanustweechai      |
| Joanna McKenzie      |                 |                               |
| Narin Romlumduan     |                 |                               |

**PARALLEL SESSION 2.7****Preparedness for Nipah Virus Outbreaks in At-Risk Countries**

|                           |                  |                     |
|---------------------------|------------------|---------------------|
| Hume Field                | Jonathan Epstein | Aphaluck Bhatiasavi |
| Stephen Luby              |                  | Viravarn Luvira     |
| Ramalan bin Mohamed       |                  | Kevin Olival        |
| Supaporn Wacharapluesadee |                  |                     |

| SPEAKERS   PANELISTS | MODERATORS | RAPPORTEURS |
|----------------------|------------|-------------|
|----------------------|------------|-------------|

**PLENARY SESSION 3****Policies and Strategies to Meet the Challenge of Emerging Disease Threat through Prevention, Preparedness and Response**

|                 |                 |                              |
|-----------------|-----------------|------------------------------|
| Pierre Formenty | Ximena Aguilera | Naruchorn Kijpaisalratana    |
| David Heymann   |                 | Stevens M.B Kisaka           |
| John Mackenzie  |                 | Daniel-Laurent Nkamba Mukadi |
| Dilys Morgan    |                 | Thanawadee Thantithaveewat   |

**PARALLEL SESSION 3.1****Cross-sectoral Solutions: Challenges and Best Practices from Country and Regional Experiences**

|                       |                 |                         |
|-----------------------|-----------------|-------------------------|
| Annette Dixon         | Masato Mugitani | Stephanie Burniston     |
| Baizid Khoorshid Riaz |                 | Calvin Sindato          |
| James Kile            |                 | Pattarawalai Talungchit |
| Bounlay Phommasack    |                 | Rochana Wutthanarungsan |
| Suvichai Rojanasthien |                 |                         |

**PARALLEL SESSION 3.2****Managing Pandemic Disease Threats in the International Extraction Industry**

|                |                 |                      |
|----------------|-----------------|----------------------|
| Marta Cabrera  | Steven Phillips | Rosnah Ismail        |
| Frank Fox      |                 | Kevin Olival         |
| William Karesh |                 | Sirinya Phulkerd     |
|                |                 | Supattra Rungmaitree |



## SPEAKERS | PANELISTS MODERATORS RAPPORTEURS

**PARALLEL SESSION 3.3**

**People, Practices and Policies –Designing and Implementing Effective Multisectoral, Trans-disciplinary Interventions to Reduce Risk and Mitigate the Negative Impact of Infectious Diseases under One Health**

|                     |               |                          |
|---------------------|---------------|--------------------------|
| Petra Dickmann      | Kama Garrison | Manasigan Kanchanachitra |
| Asiya Odugleh-Kolev |               | Bowornsom Leerapan       |
| John Parrish-Sprowl |               | Masumi Okamoto           |
| Daniel Siegel       |               | Nathan Satienchayakorn   |
| Duc J. Vugia        |               |                          |

**PARALLEL SESSION 3.4**

**Successful Collaboration: Trust and Transparent Data Sharing and Communication**

|                   |                     |                   |
|-------------------|---------------------|-------------------|
| Soheir Abdelkader | Wantanee Kalpravidh | Kanjana Changkaew |
| Peter Black       |                     | Phathai Singkham  |
| Hume Field        |                     |                   |
| I Nyoman Kandun   |                     |                   |
| Pudjiatmoko       |                     |                   |

**PARALLEL SESSION : 3.5**

**Identify Gaps/Barriers that Impede Effective Cross Border Preparedness and Response Planning and Execution for Infectious Diseases**

|                      |                  |                      |
|----------------------|------------------|----------------------|
| Ferdinal M. Fernando | Subhash Morzaria | Charamporn Holumyong |
| Jan Hinrichs         |                  | Paveena Ngkhananukit |
| James Hopkins        |                  | Andrew Thaiya        |
| Vincent Martin       |                  |                      |
| Moe Ko Oo            |                  |                      |

## SPEAKERS | PANELISTS MODERATORS RAPPORTEURS

Mahmudur Rahman

Jonathan Rushton

**PARALLEL SESSION : 3.6**

**Contribution of the One Health Paradigm to Food Security**

|                       |               |                         |
|-----------------------|---------------|-------------------------|
| Francois Le Gall      | David Nabarro | Sumalee Lirtmunlikaporn |
| Lany Rebagay          |               | Robinson Mgdela         |
| Pathom Sawanpanyalert |               | Orratai Waleewong       |
| Craig Stephen         |               |                         |
| Berhe Tekola          |               |                         |

**PARALLEL SESSION : 3.7**

**Is Technology or Failure of the Imagination the Bigger Challenge for Disease Detection?**

|                               |                |                    |
|-------------------------------|----------------|--------------------|
| Karl Brown                    | Mark Smolinski | Dibesh Karmacharya |
| John Brownstein               |                | Siritree Suttajit  |
| Peter Daszak                  |                | Decha Tamdee       |
| Dionisio Jose Herrera Guibert |                | Tao Zhang          |
| Dennis M. Israelski           |                |                    |
| Esron Karimuribo              |                |                    |
| Ann Marie Kimball             |                |                    |
| Carl Koppeschaar              |                |                    |
| Juan Lubroth                  |                |                    |
| Larry Madoff                  |                |                    |
| Stephen S. Morse              |                |                    |
| Rosanna Peeling               |                |                    |
| Patipat Susumpow              |                |                    |
| Channe Suy                    |                |                    |



| SPEAKERS   PANELISTS                                                                                                                                                              | MODERATORS     | RAPPORTEURS              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------|
| <b>PLENARY SESSION 4</b><br><b>The Paradigm Shift Towards Cross-Sectoral Collaboration: Policy, Tools and Empowering Factors for Health Systems Strengthening</b>                 |                |                          |
| Borja Heredia                                                                                                                                                                     | Maged Younes   | Chalermpol Chamchan      |
| Peter Maina Ithondeka                                                                                                                                                             |                | Quoc Toan Luu            |
| William Karesh                                                                                                                                                                    |                | Hirunwut Praekunatham    |
| Dilys Morgan                                                                                                                                                                      |                |                          |
| Elizabeth Mumford                                                                                                                                                                 |                |                          |
| <b>PARALLEL SESSION 4.1</b><br><b>Stories from the Ground</b>                                                                                                                     |                |                          |
| Syed Abbas                                                                                                                                                                        | Yojiro Ishii   | Aya Kagota               |
| Bernadette ABELA-RIDDER                                                                                                                                                           | Tessa Richards | Voraporn Poomlek         |
| Jeanne Coffin                                                                                                                                                                     |                | Angkana Sommanustweechai |
| Rungrueng Kitphati                                                                                                                                                                |                |                          |
| Kota Yoshioka                                                                                                                                                                     |                |                          |
| <b>PARALLEL SESSION 4.2</b><br><b>The Evolutionary Process of Risk Determination to Define Surveillance Strategies and Target Resources for Efficient Prevention and Control</b>  |                |                          |
| Peter Daszak                                                                                                                                                                      | Jonna Mazet    | Wiranpat Kittitharaphan  |
| Pierre Formenty                                                                                                                                                                   |                | Denla Pandejpong         |
| Marius Gilbert                                                                                                                                                                    |                | Smathorn Thakolwiboon    |
| Dirk Pfeiffer                                                                                                                                                                     |                | Sanigan Thongsawad       |
| <b>PARALLEL SESSION 4.3</b><br><b>Unprecedented Move toward a More Coherent Approach Among Sectors for the Strengthening of National Human-Animal-Ecosystem Health Capacities</b> |                |                          |

| SPEAKERS   PANELISTS                                                                                                                                         | MODERATORS      | RAPPORTEURS                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------|
| Simeon S. Amurao Jr.                                                                                                                                         | Maged Younes    | Chosita Pavasuthipaisit     |
| Stephane de La Rocque                                                                                                                                        |                 | Suladda Pongutta            |
| Stela Gheorghita                                                                                                                                             |                 | Kanokwaroon Watananirun     |
| Francois Le Gall                                                                                                                                             |                 |                             |
| Severin Loul                                                                                                                                                 |                 |                             |
| Scott Newman                                                                                                                                                 |                 |                             |
| Herbert Schneider                                                                                                                                            |                 |                             |
| Rajesh Sreedharan                                                                                                                                            |                 |                             |
| Alejandro Thiermann                                                                                                                                          |                 |                             |
| <b>PARALLEL SESSION 4.4</b><br><b>Going Viral #Strategic Public Communication to Affect Practices and Livelihoods: <a href="http://PMAC">http://PMAC</a></b> |                 |                             |
| Ljubica Latinovic                                                                                                                                            | Anton Schneider | Pennapa Kaweewongprasert    |
| Keri Lubell                                                                                                                                                  |                 | Yue Ma                      |
| Sari Setiogi                                                                                                                                                 |                 | Tula Michaelides            |
|                                                                                                                                                              |                 | Kanitsorn Sumriddetchkajorn |
| <b>PARALLEL SESSION 4.5</b><br><b>Controlling Antibiotic Resistance through the One Health Approach</b>                                                      |                 |                             |
| Maria Virginia Guzman-Ala                                                                                                                                    | David Legge     | Trassanee Chatmethakul      |
| Li Yang Hsu                                                                                                                                                  |                 | Mac Farnham                 |
| Andri Jatikusumah                                                                                                                                            |                 | Pojjana Hunchangsith        |
| Carmem Pessoa-Silva                                                                                                                                          |                 | Viravarn Luvira             |
| Mira Shiva                                                                                                                                                   |                 |                             |
| David Wallinga                                                                                                                                               |                 |                             |



**SPEAKERS | PANELISTS      MODERATORS      RAPPORTEURS**

**PARALLEL SESSION 4.6**

**Enabling Policy Environments for a One Health Approach**

|                         |                        |                    |
|-------------------------|------------------------|--------------------|
| Gervais Andze Ondobo    | Joseph Anelli          | Ngamnetr Eiamnakha |
| Santanu Bandyopadhyay   | Marguerite Pappaioanou | Karn Lekagul       |
| Ruben Donis             |                        | Cha-aim Pachanee   |
| Steven Phillips         |                        |                    |
| Theerapat Prayurasiddhi |                        |                    |
| Michael Robach          |                        |                    |

**PARALLEL SESSION 4.7**

**Enhancing One Health: To Cultures, Add Culture**

|                      |               |                       |
|----------------------|---------------|-----------------------|
| Cynthia Hunter       | Stephen Luby  | Sarah Kalumba         |
| Saiful Islam         | Susan Zimicki | Chiraporn Khitdee     |
| Jeffrey Mariner      |               | Vittavat Termglinchan |
| Julienne Ngoundoung  |               | Thitikorn Topothai    |
| Anoko                |               |                       |
| Lertrak Srikitjakarn |               |                       |

**PLENARY SESSION 5**

**Sustainable Effective Cross-sectoral Collaboration for Bio-secured World**

|                     |                |                       |
|---------------------|----------------|-----------------------|
| Silvia Bino         | Mark Smolinski | Wilawan Auewongkul    |
| Keiji Fukuda        |                | Passisd Laoveeravat   |
| Juan Lubroth        |                | Chompoonut Thaichinda |
| Hasan Mahmud        |                |                       |
| Ali Ghufon Mukti    |                |                       |
| Ariel Pablos-Mendez |                |                       |



**LEAD RAPPORTEUR TEAM**

Supamit Chunsuttiwat  
 Jeff Johns  
 Jonna Mazet  
 Viroj Tangcharoensathien

**RAPPORTEUR COORDINATOR**

Walaiporn Patcharanarumol



## LIST OF SIDE MEETINGS AND WORKSHOPS

MONDAY 28 JANUARY 2013

| TIME            | MEETING TITLE                                                                                                                                                                                                                                                      | ORGANIZER                                                     |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 09:00-12:30 hrs | Reducing Risks at the Animal-Human-Environment Interface: Lessons for Framing our Future Approach. A workshop and a debate with Country Officials, International Partners, and World Bank Managers and staff from the South Asia and East Asia and Pacific Regions | The World Bank                                                |
| 09:00-12:30 hrs | Optimising health care in the UK National Health Service: Balancing quality and efficiency                                                                                                                                                                         | Health Intervention and Technology Assessment Program (HITAP) |
| 09:00-12:30 hrs | PMAC 2013<br>One Health<br>World Art Contest<br>Award Ceremony                                                                                                                                                                                                     | Prince Mahidol<br>Award<br>Conference                         |

| TIME                                        | MEETING TITLE                                                                                                              | ORGANIZER                                                        |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 09:00-17:30 hrs                             | Consultative meeting of the epidemiology consortium for emerging zoonotic and transboundary animal disease control in Asia | FAO Regional Office for Asia and the Pacific (FAO-RAP)           |
| 09:00-17:30 hrs                             | Promoting Global Solidarity of One Health Approaches                                                                       | University of Minnesota                                          |
| 09:00 - 17:30 hrs                           | APEIR Steering Committee                                                                                                   | Asia Partnership on Emerging Infectious Disease Research (APEIR) |
| 09:00 - 17:30 hrs                           | PHM Steering Council Meeting                                                                                               | People's Health Movement                                         |
| 09:00 - 17:30 hrs                           | Regional Network on Global Health                                                                                          | Mahidol University Global Health                                 |
| 09:00 - 17:30 hrs (continued on January 29) | Asia-Pacific Network for Health Education Reform (ANHER)                                                                   | Prince Mahidol Award Conference                                  |
| 13:30 - 17:30 hrs (continued on January 29) | Lower Mekong Initiative Meeting                                                                                            | USAID/RDMA                                                       |



## TUESDAY 29 JANUARY 2013

| TIME              | MEETING TITLE                                                                                                  | ORGANIZER                                |
|-------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------|
| 08:00 - 12:30 hrs | Prince Mahidol Award Youth Program Conference 2013                                                             | Prince Mahidol Award Foundation          |
| 09:00 - 12:30 hrs | "Infectious Diseases in the Asia Pacific: Peril and Promise"<br>A Conversation with regional leaders in health | Bill and Melinda Gates Foundation        |
| 09:00 - 12:30 hrs | MBDS: Celebrating 12 Years of Accomplishments and Looking to Future Challenges                                 | Mekong Basin Disease Surveillance (MBDS) |
| 09:00 - 12:30 hrs | Neglected Zoonotic Diseases (NZD) in a One Health context: exchanging experiences between continents           | FAO and EC-Projects                      |

| TIME              | MEETING TITLE                                                                                                                                                                                   | ORGANIZER                                                                                         |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 09:00 -12:30 hrs  | Canadian Participants One Health Meeting                                                                                                                                                        | Public Health Agency of Canada                                                                    |
| 09:00-15:30 hrs   | The 3 <sup>rd</sup> Steering Committee Meeting of ASEAN Plus Three Field Epidemiology Training Network (FETN) : United Against Emerging Infectious Diseases Through Field Epidemiology Training | ASEAN+3 FETN Association of Southeast Asian Nations (ASEAN) Plus Three Countries formed a network |
| 09:00 - 17:30 hrs | Collaborative One Health Projects by Epidemiological Teams at the Provincial & District Level in Thailand: Learning from field experiences                                                      | Field Epidemiologist Association of Thailand (FEAT)                                               |
| 09:00 - 17:30 hrs | Second Meeting of the Scientific Task Force on Wildlife and Ecosystem Health and Multilateral Environmental Agreements Coordination Meeting                                                     | The Scientific Task Force on Wildlife and Ecosystem Health                                        |
| 09:00 - 17:30 hrs | Two Networks - One Goal - One Health<br>OHCEA/SEAOHUN Summit                                                                                                                                    | USAID/RESPOND                                                                                     |



| TIME              | MEETING TITLE                                                                                                                                    | ORGANIZER                                                     |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 09:00 - 17:30 hrs | The establishment and evolution of health technology assessment organisations in low- and middle-income countries                                | Health Intervention and Technology Assessment Program (HITAP) |
| 09:00 - 17:30 hrs | Health in the Post-2015 Development Agenda                                                                                                       | People's Health Movement                                      |
| 09:00 - 17:00 hrs | Regional Training in Animal and Human Health Epidemiology in South Asia: One Health Hub and Collaborative Project updates and strategic planning | Massey University                                             |
| 09:00 - 17:30 hrs | Asia-Pacific Network for Health Education Reform (ANHER)                                                                                         | Prince Mahidol Award Conference                               |
| 10:00 - 17:00 hrs | One Health Alliance of South Asia                                                                                                                | EcoHealth Alliance                                            |
| 13:30 - 17:30 hrs | Lower Mekong Initiative Meeting                                                                                                                  | USAID/RDMA                                                    |
| 13:30 - 18:00 hrs | APO Working Group on Guidelines on Steering Committee Working Methods                                                                            | Asia Pacific Observatory on Health Systems and Policies (APO) |

| TIME              | MEETING TITLE                                                                                                                                        | ORGANIZER                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| 14:00-16:00 hrs   | Prince Mahidol Award Youth Program Conference 2013<br>Lessons learned from scholars                                                                  | Prince Mahidol Award Foundation                                    |
| 14:00-16:00 hrs   | Prince Mahidol Award Youth Program Conference 2013<br>Acknowledgement and network enhancement for Thai and International Mentors                     | Prince Mahidol Award Foundation                                    |
| 14:00 - 17:30 hrs | Official launch of CORDS                                                                                                                             | Connecting Organizations for Regional Disease Surveillance (CORDS) |
| 14:00 - 17:30 hrs | 3 <sup>rd</sup> International One Health Congress 2015: Outlook and Scope                                                                            | Immuno Valley<br>The Netherlands                                   |
| 14:00 - 18:00 hrs | Cross-sectoral collaboration for health and sustainability :<br>a new agenda for generating and assessing research impact in the face of complexity. | International Development Research Centre (IDRC)                   |



## LIST OF POSTERS

**P1 The International Food Safety Authorities Network (INFOSAN): Fostering an Integrated and Cross-Sectoral Approach to Food Safety Emergency Response**  
*Carmen Savelli*, World Health Organization, Switzerland

**P2 PulseNet International, the Global Molecular Subtyping Network for Foodborne Disease Surveillance**  
*Gladys Gonzalez-Aviles and Peter Gerner-Smidt*  
 Centers for Disease Control & Prevention, United States

**P3 Global Foodborne Infections Network - Building Capacity for Integrated Foodborne Disease Surveillance**  
*Bernadette Abela-Ridder* on behalf of the Global Foodborne Infections Network (GFN) Steering Committee

**P4 Hygienic Status, Salmonella Spp. Prevalence, and Opportunities for Enhancement of Small Scale Poultry Slaughterhouses in Northern Thailand**  
*Suwit Chotinun*, Faculty of Veterinary Medicine, Chiang Mai University, Thailand

**P5 Novel Pathogenic Viruses and Their Zoonotic Potential**  
*Marta Canuti and Lia van der Hoek*, AMC, University of Amsterdam, Netherlands

**P6 Rabies as a Case Study for Exploring Opportunities for Cross-Sectoral Disease Surveillance Using a One Health Approach**  
*Siobhan Mor*, University of Sydney, Australia

**P7 Rabies in One Health**  
*Katinka de Balogh* on behalf of the Tripartite

**P8 Lessons Learnt from a One Health Response to Rabies Control in Bali, Indonesia**  
*Pudjiatmoko, Putu I Sumantra, James McGrane, Budiantono, Pebi Suseno, Eric Brum, Luuk Schoonman, Sally Crafter, Carolyn Benigno*

**P9 Global Burden of Human Leptospirosis and Cross-Sectoral Interventions for Its Prevention and Control**  
*Bernadette Abela-Ridder, Eric Bertherat, Kara Durski*  
 on behalf of the Leptospirosis Epidemiology Reference Group (LERG) & The Global Leptospirosis Environmental Action Network (GLEAN)

**P10 Bats, Pigs, People: A One Health Zoonotic Disease Surveillance Opportunity**  
*Scott Newman*, Emergency Center for Transboundary Animal Diseases (ECTAD) Vietnam - Food & Agriculture Organisation of the United Nations

**P11 The Added Value of an Ecohealth Approach for the Prevention and Control of Emerging Zoonotic Diseases**  
*Jeffrey Gilbert*, International Livestock Research Institute, Lao PDR

**P12 Review of the Global One Health Approach**  
*Satesh Bidaisee*, St. George's University, Grenada

**P13 Experience with Implementing a One Health Programme in India**  
*Rattan Ichhpurani*, National Centre for Disease Control, India

**P14 Evaluation of the One Health Approach to Managing Zoonotic Disease Outbreaks in Bhutan**  
*Tandin Dorji*, Department of Health, Bhutan



P15 **A One Health Approach to Enhancing Anthrax Control in Bangladesh**  
*Mobarak Hossain, Dhaka Medical College, Bangladesh*

P17 **Managing the Risks from Hendra Virus Using a One Health Approach**  
*Martyn Jeggo, AAHL CSIRO, Australia*

P18 **Framing Hendra: Media Discourse as a Policy Pitfall in Times of Zoonotic Uncertainty**  
*Christopher Degeling, Sydney School of Public Health, The University of Sydney, Australia*

P19 **Lessons Learned Promoting One Health by Adapting the Regional Field Epidemiology Training Program for Veterinarians Curriculum at Country Level**  
*D. Castellan, W. Kalpravidh, K. Chanachai, K. Wongsathapornchai, V. Martin, G. Fusheng, C. Chanthavisuk, T. Naispospos, K. Kanitanon, L. Allal, H. Davun, T. Sothyra, P. Padungtod, P. White, M. Dhingra, M. Murhekar, S. Mahendedale, P. Tshering, K. Singh Bisht, S. Morzaria, M. Oberoi, G. Chitoor*

P20 **The Southeast Asia One Health University Network (SEAOHUN)**  
*John Deen, University of Minnesota*

P21 **The WHO IHR Implementation Course: A Model for Strengthening Capacities of Key Players on International Health Regulations**  
*Paula Gomez, World Health Organization, France*

P22 **A One Health Focused Master's in Veterinary Public Health with a Field Epidemiology Component at Makerere University, Uganda**  
*Hellen Amuguni, Tufts University and Terence Odoch, Makerere University*

P23 **One Border One Health: Training and Outreach Strategies for the Binational One Health Initiative in California - Baja California Border Region**  
*Suzana Tkalcic, Western University of Health Sciences, United States*

P24 **Development of a Public Educations Module to Raise Public Participation in Emerging Infectious Diseases Preparedness**  
*Supaporn Wacharapluesadee, Faculty of Medicine, Chulalongkorn University, Thailand*

P25 **Innovative Approaches to Training Cross-sectoral Response Teams: Developing the Global Outbreak Alert and Response Network Leadership Course**  
*Amy Cawthorne, World Health Organization, Switzerland*

P26 **Participatory Training Approaches for Developing One Health Core Competencies for the Southeast Asia University Network to Address Emerging Pandemic Threats**  
*Mary Y. Lee, Tuft University; Raymond Hyatt, Tuft University; Donna Qualters, Tuft University; Karin Hamilton, Tuft University; Pornthip Rujisatian, DAJ; Stanley G. Fenwick, Tuft University; Linda Olson Keller, University of Minnesota; Margaret Morehouse, TRG*

P27 **Wildlife Investigation, Livestock Disease and Public Health (WILD): An Introductory One Health Short Course on Wildlife Health and the Human-Livestock-Wildlife- Environment Interface**  
*Scott Newman, Emergency Center for Transboundary Animal Diseases (ECTAD) Vietnam - Food & Agriculture Organisation of the United Nations*

P28 **Understanding the Risk of Transmission of HPAIV H5N1 at the Animal-Human-Environment Interface in Asian Intensive Agroecosystems**  
*Julien Cappelle, CIRAD, France*



**P29 Animal and Human Health Sector Collaboration for Community Engagement in Ecosystem Health**

*Sonia Fèvre, VWB/VSF-Canada*

**P30 How Can Policymakers Support Community-Based Disease Control? Fragmented Knowledge, Social Complexity and Sleeping Sickness in Uganda**

*Kevin Bardosh, University of Edinburgh, United Kingdom*

**P31 A Strategic Approach to Managing Responses to Emerging Zoonoses in Asia**

*Shiyong Wang, The World Bank, China*

**P32 Using Exercises to Improve National and Sub-Regional Public Health Preparedness in Asia, Africa and the Middle East**

*David Dausey, Mercyhurst University, United States*

**P33 The Epidemiology and Socio-Economic Impact of Rift Valley Fever in Tanzania: A Review**

*Calvin Sindato, Sokoine University of Agriculture/SACIDS/NIMR, Tanzania*

**P34 Reducing Animal-Human Infectious Diseases Transmission through Occupational Health Program in Zoological Parks and Wildlife Breeding Centers**

*Angkana Sommanustweechai, Zoological Park Organization, Thailand*

**P35 Evaluating Disease Outbreak Response: After Action Review Critical to Improved Preparedness, Surveillance, Investigation and Response in Uganda**

*MacDonald Farnham, University of Minnesota; Patrick Atimnedi, Uganda Wildlife Authority; Monday Busuulwa, African Field Epidemiology Network; Robert Downing, CDC Uganda; Thomas Easley, USAID Uganda; Douglas Hatch, USAID RESPOND; Winyi Kaboyo, Ministry of Health Uganda; Issa Makumbi, Ministry of Health Uganda; Samuel Majalija, Makerere COVAB; Anthony Mbonye, Ministry of Health Uganda; Immaculate Nabukenya, African Field Epidemiology Network; Deo Ndumu, MAAIF Uganda; Charles Okot, WHO Uganda; Anna Rose Ademun Okurut, MAAIF Uganda; Chris Rutebarika, MAAIF Uganda; Innocent Rwego, University of Minnesota; Bernard Ssebide, USAID PREDICT; Joseph Wamala, Ministry of Health Uganda*

**P36 Stop Cross-Species Transmission of Tuberculosis Between Captive Elephants and Humans: Experiences from Thailand Elephant TB Task Force**

*Angkana Sommanustweechai, Zoological Park Organization, Thailand*

**P37 TB Surveillance, Control and Management at Human/Animal Interface : the Route from the Field to the Lab, Challenges and Socio-Economic Impact**

*Erasto Mbugi, School of Medicine, Muhimbili University of Health and Allied Sciences, Tanzania*

**P38 Inclusion of TB in National Insurance Programs: Experiences in High Burden Countries**

*Refiloe Matji, University Research Co. (URC), South Africa*

**P39 Avian Pandemic Human Influenza Policy in South East Asia: The Interface Between Economic and Public Health Imperatives.**

*Wiku Adisasmito, Department of Health Policy & Administration, Faculty of Public Health, University of Indonesia, Indonesia*



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- P40 **One Health Principles at Work: Case of Uganda and East African Cross-sectoral Surveillance and Disease Control Strategies**  
*Immaculate Nabukenya*, African Field Epidemiology Network, Uganda
- 
- P41 **The One Health Alliance of South Asia: A Regional Science and Policy Network for Controlling Trans-Boundary Zoonoses**  
*Jonathan Epstein*, EcoHealth Alliance, United States
- 
- P42 **Addressing the Need for Trans-Disciplinary Research for Effective Health Systems' Pandemic Preparedness and Response**  
*Samantha Watson*, London School of Hygiene & Tropical Medicine, Thailand
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- P43 **Behavioral, Biological or Systemic Changes? Impact of SMS-Based Surveillance Strengthening in A Low-Resources Setting**  
*Anis Fuad*, Faculty of Medicine Universitas Gadjah Mada, Indonesia
- 
- P44 **Examining the Socioecology of Zoonotic Diseases: EcoHealth experiences in Southeast Asia**  
*Rainer Assé*, International Livestock Research Institute, Vietnam
- 
- P45 **Could Farmers Have a Greater Role in Poultry Disease Surveillance? Assessing Knowledge and Incentives for Reporting**  
*Robyn Alders*, Kyeema Foundation, Australia
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- P46 **Standard Deviation Ellipse (SDE) Models for the Case of Malaria in Malaria Endemic Areas with Participatory Mapping Approach in Simpenan Sub District**  
*Tris Eryando*, University of Indonesia; *Dewi Susanna*, University of Indonesia; *Dian Pratiwi*, University of Indonesia; *Fajar Nugraha*, University of Indonesia
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- P47 **Engaging the Cambodian education system in malaria control**  
*Soy Ty Kheang* and *Lina Kharn*, University Research Co. (URC), Cambodia
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- P48 **Immuno Valley connects human and animal health**  
*Arno Vermeulen*, Immuno Valley, Netherlands
- 
- P49 **Development of Rapid Diagnostics and Establishment of Alert System for Outbreaks of Yellow Fever and Rift Valley Fever in Kenya**  
*Shingo Inoue*, Nagasaki University, Japan
- 
- P50 **Association of Poultry Farms with Housefly and Morbidity: A Comparative Study from Raipur Rani, Haryana**  
*Vishal Dogra*, Save the Children, India; *Arun Kumar Aggarwal*, School of Public Health, Postgraduate Institute of Medical Education and Research, India
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- P51 **Monitoring and control of *Yersinia pestis* in an endemic plague area of Zambia**  
*Hang'ombe B. M.*, University of Zambia; *Samui K. L.*, University of Zambia; *Nakamura I.*, Hokkaido University Research Center for Zoonosis Control, Japan; *Kaile D.*, Namwala District, Zambia; *Mweene A. S.*, University of Zambia; *Kilonzo B. S.*, Sokoine University of Agriculture, Tanzania; *Sawa H.*, Hokkaido University Research Center for Zoonosis Control, Japan; *Sugimoto C.*, Hokkaido University Research Center for Zoonosis Control, Japan; *Wren B. W.*, London School of Hygiene & Tropical Medicine, UK
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- P52 **Costs, Consequences And Uncertainty: How Should Cambodia Invest In Pandemic Mitigation?**  
*Thomas Drake*, London School of Hygiene & Tropical Medicine, Thailand
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## ONE HEALTH WORLD ART CONTEST

### When Art meets Science

This year PMAC 2013 launched an unique activity, One Health World Art Contest, 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 initially introduced as a tool to communicate the idea of the PMAC 2013 theme “A World United against Infectious Diseases: Cross-Sectoral Solutions” to the public audience, especially the young generation. As the health of everyone and everything in the world is interdependent, “One Health” was set as the theme of the contest. The contest was open to students aged under 9 to 25, with the aim of raising the awareness of the young generation in how their health is connected to the health of animals and the environment through creation of two dimensional art and digital video.

Although this activity was conducted the first time, this project has received reasonable response nationally and internationally from young people, parents and schools. Out of 10 countries from 4 continents that participated, 149 submissions were sent in. 5 International and 7 Thai young artists won the world prize category. Moreover, the winners from both world and national categories were invited to receive their awards on 28 January 2013 as part of PMAC special events. This event was a fulfilling and enjoyable experience for the winners and their entourage who joined the Award Presentations, the majority of which came from rural provinces of Thailand, to have the opportunity to be a part of such an important conference like PMAC.



The 53 finalist paintings were exhibited at PMAC 2013. The idea was to introduce in vice-versa how the up-coming generation convey the message of “One Health” by using a diverse array of talent in art creations to PMAC participants. The art exhibition was displayed parallel to the Poster exhibition area. The image of art meets science, public meets member audiences, seemed to be finally visualized.

All display art pieces amazed most PMAC participants by their high quality artistic skill and also creativity in illustrating the One Health theme. The auction of winning art pieces has raised more than 60,751.79 Baht. This financial contribution from our prestigious PMAC participation and also generous donations from young artists will be donated to art school programs in Thailand.



## WORLD POPULAR VOTE Prize



### FIRST PRIZE:

Miss Nichanand Nakthai , Age:16, Thailand

### SECOND PRIZE:

Mr. Thatchapon Keawkamkong, Age:9, Thailand

### THIRD PRIZE:

Mr. Porndanai Wattanapraditchai, Age:13, Thailand

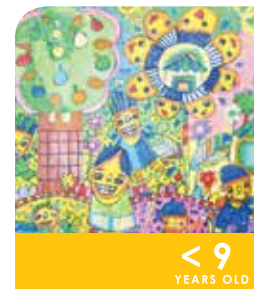
### HONORABLE PRIZE

Mr. Kiatisak Sukantha, Age:23, Thailand

Miss Korapin Aumsakul, Age:13, Thailand

Miss Pannapach Keereedeej, Age: 10, Thailand

## WORLD Prize Two Dimensional Media



< 9  
YEARS OLD

### First Prize:

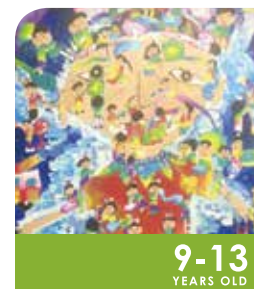
Miss Maria Angelica Ramos Tejada Philippines

### Second Prize:

Miss Pinaree Chen Thailand

### Third Prize:

Miss Sakhunich Iamcharas Thailand



9-13  
YEARS OLD

### First Prize:

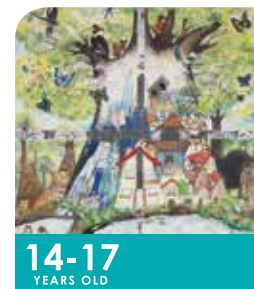
Miss Pannapach Keereedeej Thailand

### Second Prize:

Miss Rungruedee Kraiwong Thailand

### Third Prize:

Miss Viola Pica Italy



14-17  
YEARS OLD

### First Prize:

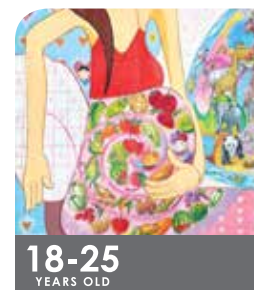
Miss Nichanand Nakthai Thailand

### Second Prize:

Mr. Pasakorn Preachana Thailand

### Third Prize:

Miss Katherine Peacock UK



18-25  
YEARS OLD

### First Prize:

Mr. Kiatisak Sukantha Thailand

### Second Prize:

Miss. Eileen Huang USA

### Third Prize:

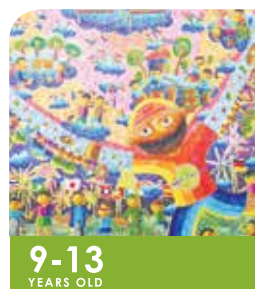
Miss Bianca Ong Philippines



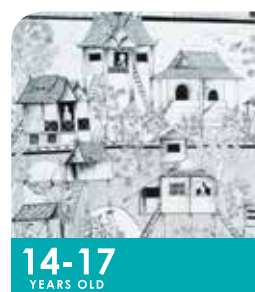
## NATIONAL Prize Two Dimensional Media



**First Prize:** Miss Katemanee Yodthong  
**Second Prize:** Miss Supapitch Poolsawat  
**Third Prize:** Mr. Pornpawit Makjun  
**Honorable Prize**  
 Miss Thansuda Kongkieang  
 Miss Siriratch Rattanamanee  
 Miss Kamonnet Kamklong



**First Prize:** Mr. Thatchapon Keawkamkong  
**Second Prize:** Mr. Tiwtus Kanama  
**Third Prize:** Mr. Porndanai Wattanapraditchai  
**Honorable Prize**  
 Miss Wigavee Rattamanee  
 Miss Korapin Aumsakul  
 Miss Thipayaporn Sapapun



**First Prize:** Miss Nattakan Khoonteg  
**Second Prize:** Mr. Phitchachan Phasukphan  
**Third Prize:** Mr. Ratchadakorn Boonyodom  
**Honorable Prize**  
 Miss Sunanta Suwanpitak  
 Mr. Chaiyapon Chanta  
 Mr. Terdtanwa Kanama



**First Prize:** Miss Sarunporn Rojanapapayon  
**Second Prize:** Mr. Nawat Lertsawaengkit  
**Third Prize:** Mr. Jatuporn Pangsang  
**Honorable Prize**  
 Mr. Nuttawut Pangluang  
 Mr. Saran Lohutangkul  
 Mr. Jaran Boonpraderm

## NATIONAL Prize Digital Vide

**First Prize:** Miss Chakkanata Pengudom  
**Second Prize:** Miss Suphinya Kasornsiri  
**Third Prize:** Miss Wannalak Sosanuy  
**Honorable Prize**  
 Mr. Kritsada Tanyakan  
 Mr. Katawut Duangin  
 Mr. Siripong Sungklang

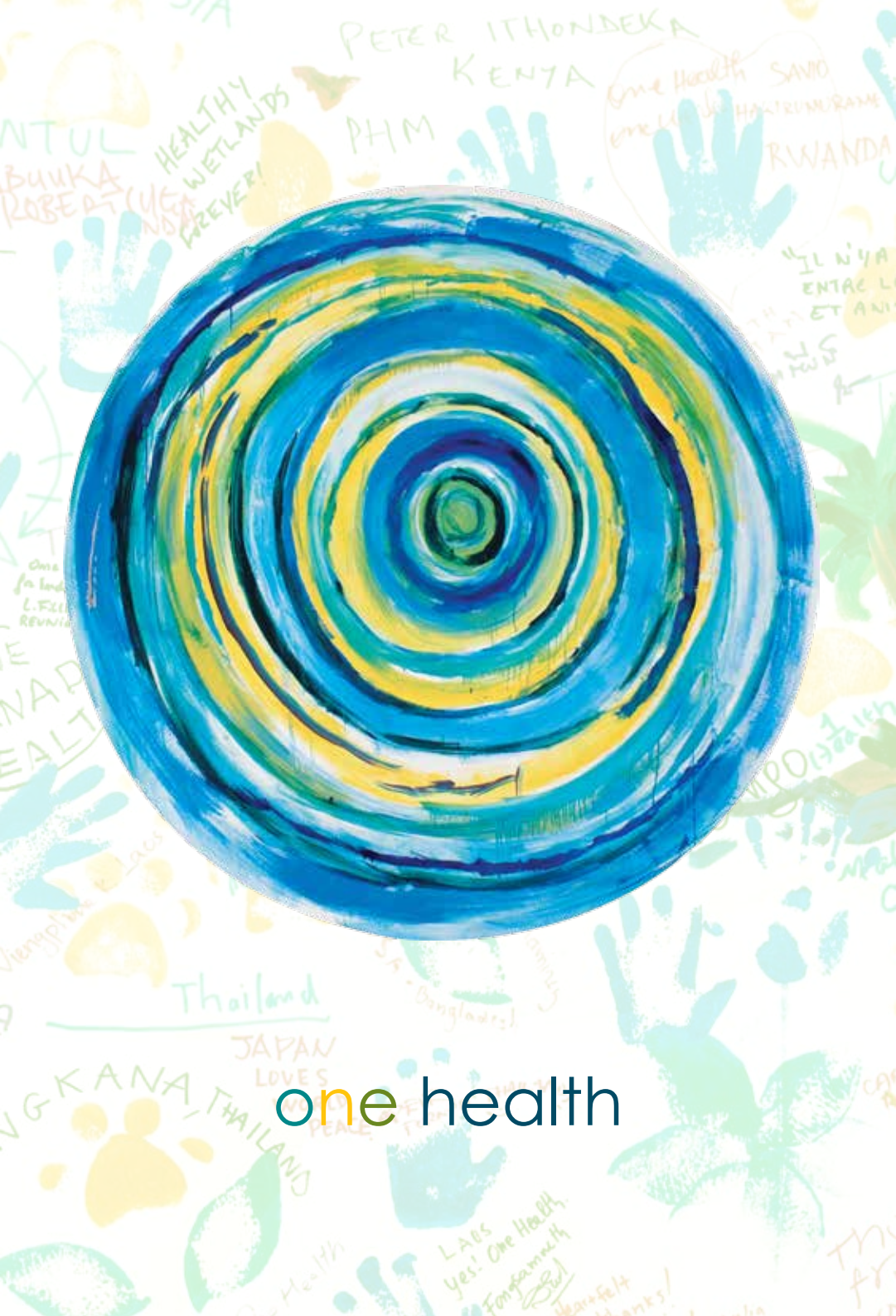






*True success is not in the learning  
but in its application to the benefit of mankind*

His Royal Highness Prince Mahidol of Songkla



one health