

Outline of presentation

- Global health security – human, animal and ecosystems interface
- One Health approach to combat local and global health security issues
- Challenges and opportunities in implementing One Health in resource poor settings

Global health security

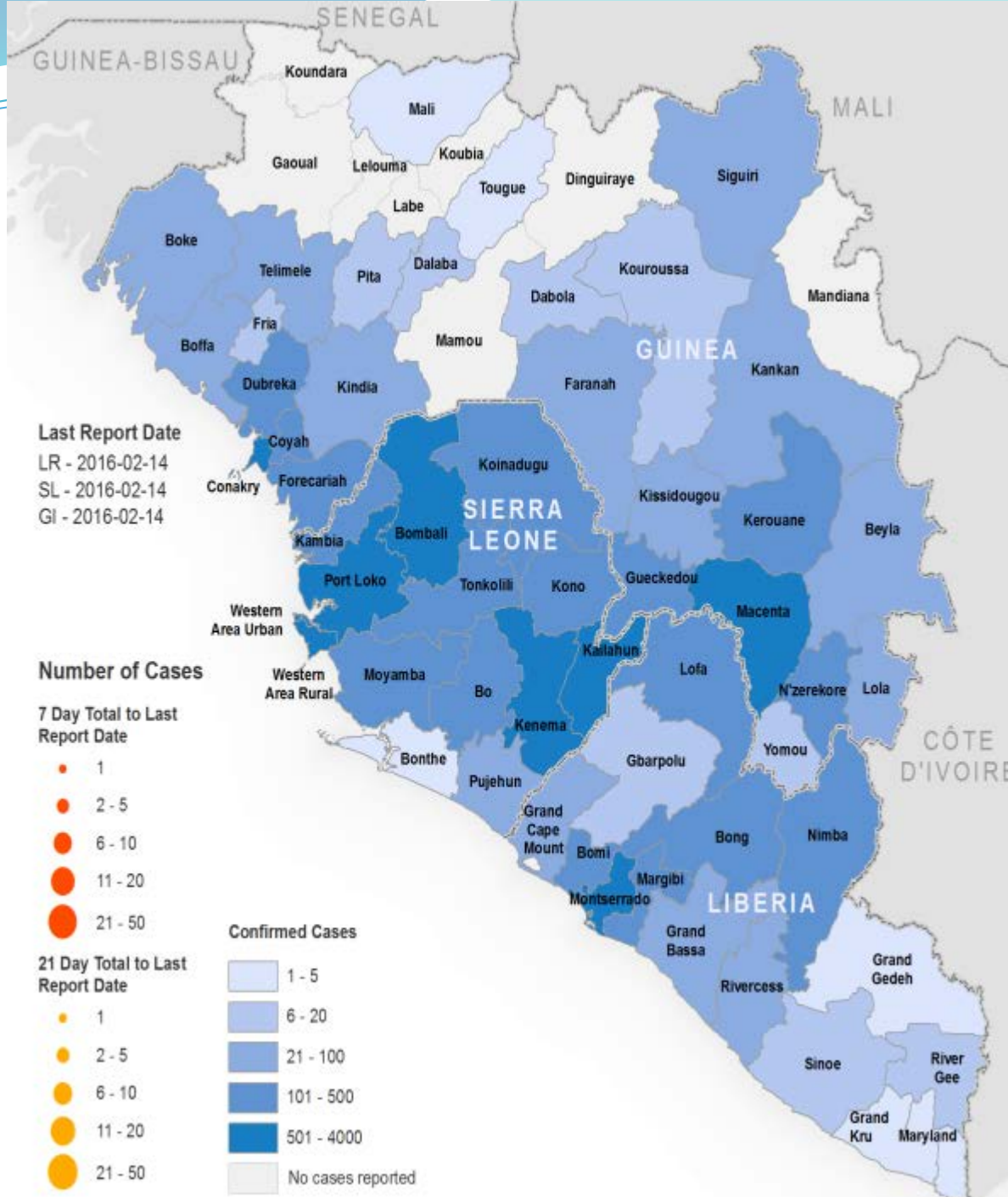
- Health risks are major non-traditional security issues
- Emerging infectious diseases (EIDs) of zoonotic origin are growing worldwide public health concern
- Over the last century >75% of emerging infectious diseases (EID's) were from zoonoses.
- **A**ntrax to **Z**ika
- Pandemic threats are increasing

Major epidemics and pandemics

Disease	Year	Reported cases	Reported fatalities	Case-fatality rate	Countries affected
Zika	2007–16	1.5m	N/A	N/A	39
Ebola	2014–16	28,603	11,301	40%	3
MERS-Cov	2012–16	1,638	587	36%	26
SARS	2002–03	8,422	916	11%	32
H5N1 (HPAI)	2004–12	584	345	59%	>70

Source: World Health Organization

Pandemic flu 1918-19: 50–100 million deaths!



Zika epidemic 2007-2016

Countries, territories and areas with autochthonous Zika virus circulation (2007 - 2016)

MAP DATE: 11 February 2016



Burden of zoonotic diseases

Low-income countries:

- 26% of the DALYs lost to EIDs and 10% of the total DALYs lost.

High income countries:

- <1% of DALYs and only 0.02% total disease burden.

Purpose of the study

- To examine the prospect of one health collaboration in Bangladesh focusing on:
 - enablers and barriers to trans-discipline, multi-sectors collaboration
 - institutional capacity building
 - challenges and opportunities

Methods

- Mix-method approach involving:
 - both primary and secondary data collections
 - wide consultation with key stakeholders from government and non-government sectors.

Inter-connected world...

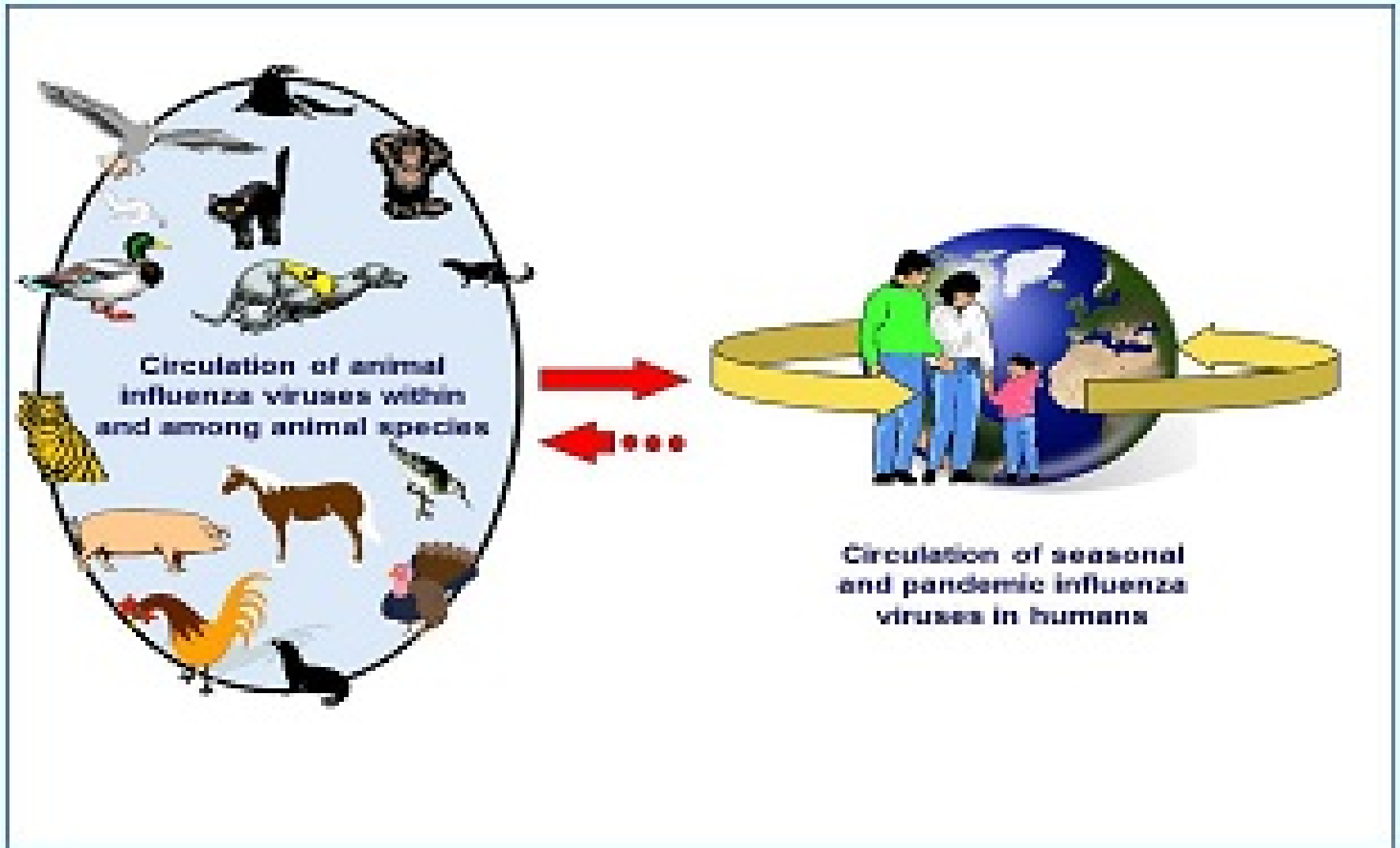
“We are living in an interconnected world where an outbreak of infectious disease is just a plane ride away”

- National Centre for Emerging and Zoonotic Infectious Diseases, CDC.

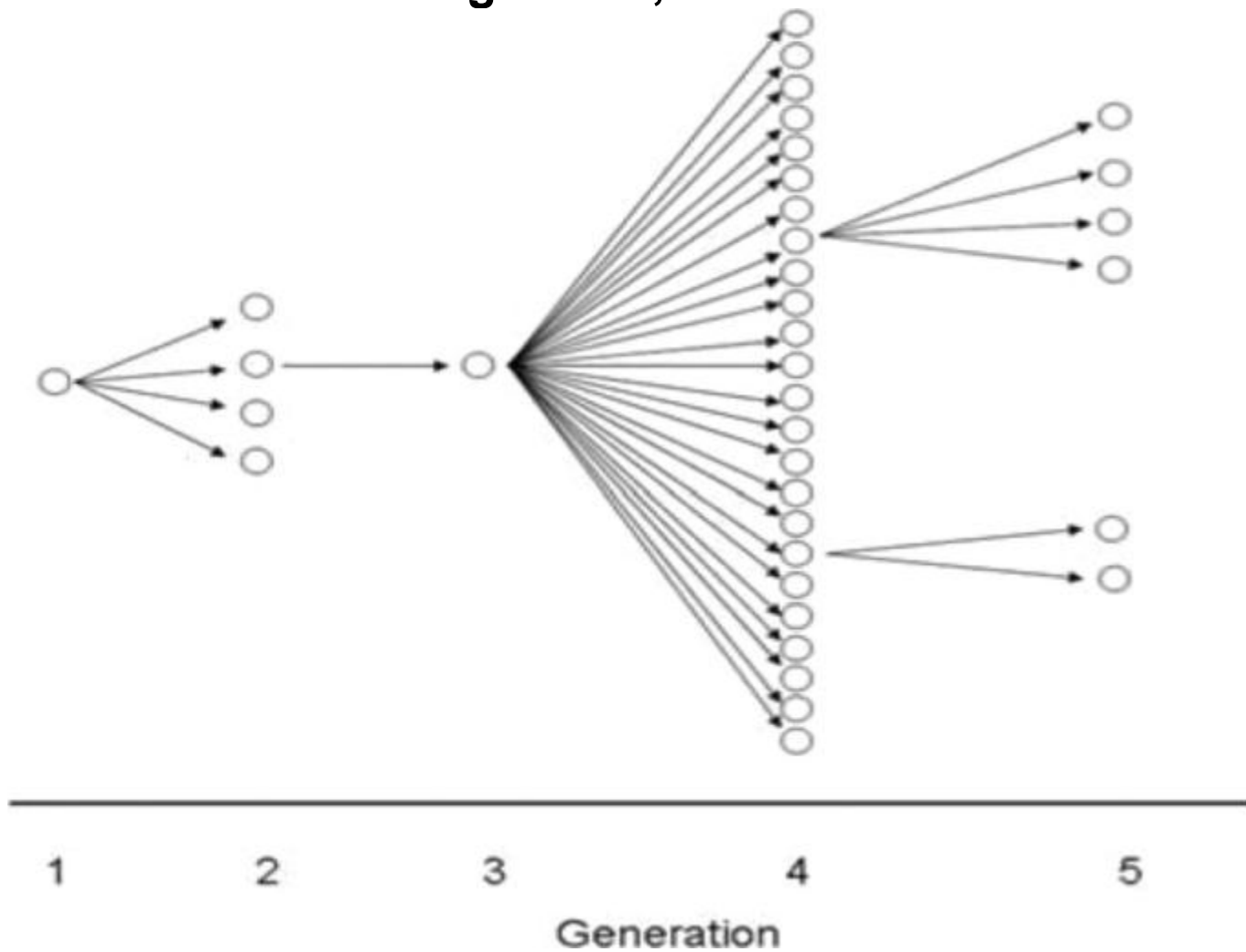
Contributors to health risks from EIDs

- Microbial/virologic (mutation, individual immunity factors, host behavioural characteristics)
- Social, cultural:
 - Population growth and mobility
 - Human animal interaction pattern
 - Rapid urbanization
 - Loss of biodiversity
 - Change in land use and habitat pattern
- Environmental - climate change impact: rising temp, changes in precipitation pattern.

Circulation of flu viruses



Chain of person-to-person transmission in Nipah outbreak in Bangladesh, 2004.



James M. Hughes et al. Clin Infect Dis. 2009;49:1743-1748

Risks for resource-poor nations

- Patterns of human-animal interactions
- Climate change impact
- Rapid population growth
- Rapid urbanization
- Socio-economic disparity
- Poverty, poor infrastructure
- Political instability



Photo credit: WHO

Nipah outbreaks in Bangladesh

- Highest number of Nipah virus (NiV) cases transmitted by person-to-person contact
- Drinking raw date palm sap – a key risk factor
- Personal care for the infected person







Avian influenza



Rabies



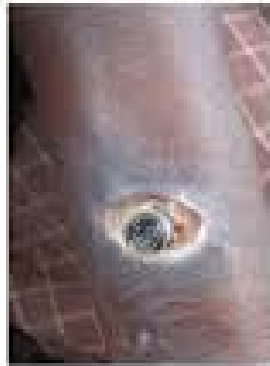
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Anthrax



Anthrax Outbreak
in Bangladesh



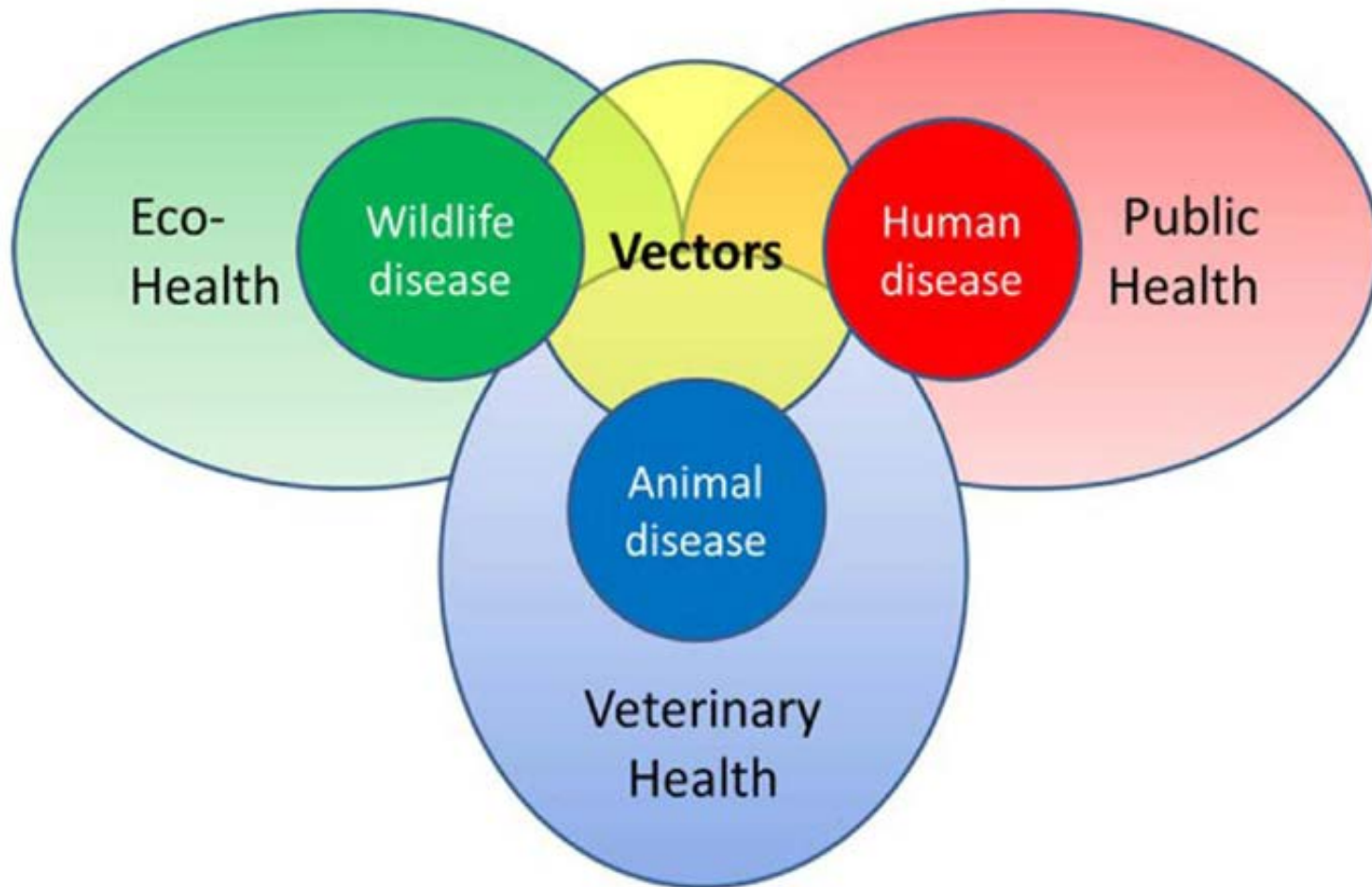
- Since then anthrax outbreaks repeatedly been reported from different parts of country



Impacts and implications

- Individual:
 - human and animal health
- Economy
 - 1.5% reduction of GDP growth
 - trades, tourism
 - unemployment
 - nutritional deficiency
- Political
 - quarantine, border control
- Societal
 - community response, values, perceptions, trust
 - Burden of disease (health care cost, lost productivity)

The concept of One Health



One health

- Health of human is connected to the health of animals and the environment
- Human-animals interactions has been increasing and so is the risk of disease transmission
- 6-7 out of every 10 infectious diseases in humans are spread from animals – zoonoses
- The One Health approach typically integrate 3 sectors
- The extended One Health model includes wider areas for collaboration: e.g. sociological, agricultural, law, transport and trade.

Extended one health

- Trans-disciplines, multi-sectors collaboration
 - public health, veterinary health, ecohealth, commerce, trade and tourism, customs and quarantine
 - social science / strong GO-NGO partnership
 - legal (industrial action, litigation etc.)
- Coordinated actions along the prevention-protection-management pathways
- A unified media and communication system.

Lessons learned from Ebola epidemic and the way forward



Lessons learned

- Grave consequences on human and animal health, social, economic and political fields
- Communities and nations are collectively vulnerable
- Shortcomings in surveillance and alert system:
 - national and int'l responses were slow and inadequate
- Poor medical R&D (e.g. vaccines), treatment and care
- Inadequate engagement with affected families and communities.

Challenges and opportunities for developing countries



Challenges for One Health practice

- Systemic weaknesses:
 - bureaucracy, procrastination, power/politics
- National capacities and commitments
 - limited resources, competing priorities
- Leadership and coordination

Opportunities

- Strong NGO sector: GO-NGO collaboration
- Experienced in efficient use of early warning and response against disaster management
- Community resilience against other emergencies.

The way forward

- National capacity building:
 - Multi-disciplinary and multi-sectoral collaboration
 - Technical skills building
 - Enhanced surveillance system
 - Health infrastructure improvement
- Regional and global knowledge and skills sharing
- Risk communications timely and clearly
- **Strategic shift: social science engagement with health and medicine**
- Importance of gaining community trust, respect and transparency.

Thank you



References

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International Network for Health Promoting Hospitals & Health Services

The Task Force on Health Promoting Hospitals and Environment

Asia-Pacific Regional Symposium 2016

Eco-Friendly Hospitals For a Sustainable World

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Program BOOKLET



AN INTERNATIONAL FORUM ON

“DISASTER and EMERGENCY MANAGEMENT in the HEALTH CARE SECTOR”

TUESDAY, Feb 23rd 2016

Griffith University, Southbank Campus

Hosted by Centre for Environment and Population Health, Griffith University
and co-hosted by Tzu Chi Medical Foundation, Tzu Chi University

Venue: Griffith University South Bank Campus, Griffith Graduate Centre Building (S07) Room 1.23

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