



**GUIDELINES FOR COUNTERING ZOO NOTIC  
SPILLOVER OF HIGH CONSEQUENCE  
PATHOGENS IN THE SOUTHEAST ASIA  
REGION**

**International Network for Governmental Science Advice**

**(INGSA)-Asia Regional Chapter**

**Sunway City, Malaysia**

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## **Reviewers**

Before publication the guidebook was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of the review is to provide candid and critical comments that will assist the institutions in making the published guidebook as sound as possible and to ensure that the publication meets standards for objectivity, evidence, and responsiveness to the goals of the project. We thank the following individuals for their input:

Simon Anthony, University of California, Davis  
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Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the guidebook or its conclusions or recommendations, nor did they see the final draft of the guidebook before its release.

## **Data Gathering Workshops**

### **Workshop #1** (Virtual, over VTC)

Session 1, Friday, May 20, 2022  
Session 2, Tuesday, May 24, 2022  
Session 3, Wednesday, May 25, 2022

### **Workshop #2** (Virtual, over VTC)

Session 1, Tuesday, July 12, 2022  
Session 2, Tuesday, July 19, 2022  
Session 3, Wednesday, July 20, 2022

**Workshop #3** (In person, Bangkok, Thailand with portions by VTC for select participants)  
September 9-11, 2022

**Workshop #4** (In person, Singapore, with portions by VTC for select participants)  
November 11-13, 2022

**Workshop #5** (In person, Kuala Lumpur, Malaysia with portions by VTC for select participants)  
June 1-3, 2023

## **Preface**

In early 2022, the International Network for Governmental Science Advice (INGSA)—Asia Regional Chapter began a collaboration with the U.S. National Academies of Sciences, Engineering, and Medicine (the National Academies) to explore ways to help prevent and mitigate the consequences of “zoonotic spillover” of high-consequence pathogens (HCPs) that originate in the live animal supply chain in the Southeast Asian region. When the project began, the world was in the middle of the worst pandemic in a hundred years. COVID-19 has killed millions of people around the world and the consequences will reverberate for decades. It is in this context that INGSA and the National Academies decided to collaborate to jointly produce a guidebook for those working to prevent and mitigate zoonotic spillover, with a specific focus on Southeast Asia and China. The diverse interface among wildlife, livestock, pests, and people at live animal markets and in agricultural settings make the region a hotspot for zoonotic spillover events that could affect people in the region and beyond. The region contains a combination of environmental, social, and economic conditions such as rapid population growth, increased mobility, urbanization, and environmental impacts through deforestation and climate change that increase and accelerate the opportunities for spillover.

To inform the project, INGSA-Asia and the National Academies organized a series of data-gathering workshops to bring local, regional, and international experts together to discuss the mechanics of spillover, the essential elements and barriers to activities that address the risks of spillover, best practice measures to prevent and contain outbreaks, the strengths and weaknesses of operational tools to combat zoonotic diseases such as the WHO Tripartite Zoonoses Guide and One Health approaches, and engage experts and responsible parties who regulate or otherwise influence the management and operation of the animal supply chain in the region. In May and July 2022, INGSA-Asia and the National Academies gathered dozens of experts by video-conference (VTC) to discuss the state of knowledge about the problem, what might be improved, and what might be added to existing efforts. Meeting by VTC was the only way to gather a large international group of stakeholders together during the pandemic but allowed a wide range of subject-matter experts to engage and a broad set of voices from the region to be heard. Once COVID-19 travel restrictions eased, the group met sequentially—first in Bangkok, Thailand, and then in Singapore—to deepen knowledge sharing among disciplines and across levels of governance, extend conversation on potential recommendations and other guidance, and draft material based on the workshops. The group met in-person one final time in Sunway City, Malaysia in mid-2023 to give initial impressions and comments on a guidebook draft and conduct participatory exercises using the guidebook’s key messages. Overall, the workshop sessions—held in real time while global discussion on pandemic mitigation and response were happening—captured important and diverse perspectives on how to address the problem from key regional experts and project team members in Cambodia, China, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, Vietnam, the United States, and other countries. The in-person workshops were critical and allowed the group to gather to discuss the problem, hear from local health and regulatory authorities regarding the tailoring of solutions and training to the Southeast Asian region, and consider how to incorporate country-specific cultural perspectives to enhance potential for high uptake and impact.

The information gathered and advice offered during this process has informed the creation of this guidebook, and the guidebook represents the collective knowledge of the project participants. Modules 2 through 7 are designed as stand-alone documents focused on one or more aspects of the zoonotic spillover problem in the region. Module 8 is unique and is included as a tool to help users apply and tailor the lessons, messages, and recommendations

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from the guidebook modules to a wide range of individuals and experts involved in combating zoonotic diseases in the region.

Many experts assisted in the production of the guidebook, as members of the project advisory committees, as presenters and participants at the workshops, and as co-leaders, writers, editors, and reviewers of the modules. Their tireless work on this critical topic is foundational to this project and they are acknowledged in the front matter. In addition, each module lists key co-leaders who, along with the National Academies' and INGSA project staff, have the final responsibility for the contents of the guidebook. The guidebook is available for free download on the INGSA website. In the future, additional material designed for specific audiences will be derived from the guidebook modules and published in English and in several additional languages. This material will also be posted on the INGSA website and distributed to key stakeholders.

The goal of this project was to enhance existing efforts through regional adaptation and illustration, allowing those doing this critical work to see pathways for new opportunities and begin to address and overcome the barriers they face. The guidebook is designed to engage a broader audience, particularly in the science policy interface to bridge existing knowledge gaps, build trusted networks in the region, and develop effective policy instruments that will support and augment the ongoing efforts on the ground. Through its creation, we feel that the collaborative efforts of INGSA-Asia, the National Academies, and all participants involved in the project have contributed to strengthening efforts to prevent zoonotic spillover in the region and serve as an example for collaborative efforts by others in the region and internationally. We hope this guidebook—together with other international, regional, and national documents—will serve as a valuable resource to inform those working to combat zoonotic disease and zoonotic spillover in the Southeast Asian region and in the world.



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