

# Strategies to Prevent (STOP) Spillover

## Impact Brief

### Cambodia

#### Final Round of Bat Guano and Urine Sampling to Detect Coronaviruses in Bat Guano Farming Communities in Kang Meas District, Kampong Cham Province

##### Activity 1.2.6.1: Research on Bat Guano Farm and Prevalence of Pathogens Carried by These Species

### INTRODUCTION

STOP Spillover Cambodia has conducted research on bat guano farming and bat-borne pathogens since 2023 in three communities in Kang Meas district of Kampong Cham province. In total, four seasonally distributed rounds of bat guano and urine sampling have now been completed. The first three rounds of sampling were implemented between April and December 2023. The final round of sampling was conducted from 4<sup>th</sup> to 8<sup>th</sup> March 2024 by One Health Design, Research, and Mentorship working group (OH-DReaM WG) members comprising personnel from the Communicable Disease Control Department, General Directorate of Animal Health and Protection, Provincial Department of Agriculture, Forestry, and Fishery district administration, and a commune veterinarian. The total number of samples collected during the four rounds totaled 989 (361 urine and 628 guano samples). The samples from the first round have already been tested, analyzed, and reported. Meanwhile the testing of the other three rounds is pending.



*OH-DReam WG members collecting bat guano and urine samples in Varint village.*

The purposes of the research are to (i) assess the scale and distribution of bat guano farming in Kang Meas district, ii) identify the bat pathogens present at bat guano farms, iii) evaluate the frequency and seasonality of coronavirus shedding by bats at bat guano farms, and iv) provide scientific evidence to inform the design of interventions that reduce the risk of exposure to bat-associated pathogens and ultimately contribute to enhanced prevention and preparedness efforts for potential disease outbreaks.

### OUTCOMES AND RESULTS

#### Outcomes

Six OH-DReaM WG members participated in the final round of bat guano and urine sampling. In addition to sampling work, they had the opportunity to learn how to properly install a DVR camera system at bat guano farms for bat population estimation. The six team members continued to showcase their improved skills and adherence to strict safety protocols during the fieldwork. The study not only improves their skills, but also exemplifies the One Health approach fostering stronger collaboration and knowledge exchange among researchers/scientists, government agencies, and local communities. This collaborative effort strengthens local capacity for monitoring potential disease threats at the bat-human interface, specifically in Kang Meas district of Kampong Cham province in Cambodia.

"Bat guano farmers are now more engaged, understand the project's goals, and cooperate well with researchers and local authorities. Their attitudes shift. Initially they were apprehensive of the project. They are now actively participating and requesting sampling. This reflects improved collaboration among researchers, authorities, and farmers. This collaborative approach is key to tackling public health challenges. The project has also enhanced the skills of participating officials in public relations; sample collection, packing and labeling; and DVR camera installation for bat population study." (Mr. Lorn Sophal, Vice-Chief of PDAFF's Animal Health and Production Office)

## Results

During the five-day fieldwork, the OH-DReaM WG members collected 238 samples (82 urine and 156 guano samples) from 13 bat guano farms (7 in Varint 1 village, 3 in Varint 2 village, and 3 in Varint 3 village). All samples were meticulously prepared and labeled, and safely transported to the GDAHP/NAHPRI's laboratory in Phnom Penh for coronavirus testing. Additionally, the DVR camera system was installed at three farms that recorded bat emergence, allowing the team to estimate the bat population at each farm. This information will contribute to a more comprehensive understanding of potential disease risks and inform future prevention strategies.



OH-DReam WG members labelling the bat guano samples.

## STOP Spillover Cambodia support to Cambodia's GHSA and JEE scores

| Year 4 Activities   | GHSA priorities  | JEE score (2016)   |
|---|--|--|
| Activity 1.2.6.1 Bat guano farm study (continued from Y3)                         | Category 1: Preventing the emergence or release of pathogens with potential for international concern: Zoonotic diseases (1.2) and biosafety (1.4) | Indicator P.5.1 Surveillance of zoonotic diseases (JEE Score 2 for P4.1 surveillance systems in place for priority zoonotic diseases; and JEE Score 2 for P6.2 biosafety training and practices) |
| Activity 2.2.2.2 Coordination and capacity building of sentinel surveillance team |  |  |
| Activities 2.2.2.1 and 2.2.2.3: Community level risk reduction interventions      | 3.5 Risk Communications  | Risk Communication and Community Engagement (RCCE), Indicator R5.2: Risk Communication and R5.3 Community Engagement (JEE score 3 for R5.4 Communication engagement with affected communities)   |

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