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UGANDA PARTICIPATORY PLANNING USING OUTCOME MAPPING:

Summary Report

November 2022

STOP Spillover

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Contents

STOP SPILLOVER

Strategies to Prevent (STOP) Spillover enhances global understanding of the complex causes of the spread of a selected group of zoonotic viruses from animals to humans. The project builds government and stakeholder capacity in priority Asian and African countries to identify, assess, and monitor risks associated with these viruses and develop and introduce proven and novel risk reduction measures.

Through Outcome Mapping (OM), a structured participatory tool that uses a collaborative context-specific process, spillover ecosystem stakeholders (both traditional and non-traditional) will be empowered to identify and reduce zoonotic spillover risks at human-animal-environment interfaces and develop an outcome-oriented project action plan. This report outlines the details of the OM workshop activities in Uganda.

Acronyms

AFROHUN	Africa One Health University Network
CBO	Community-Based Organization
FBO	Faith-Based Organizations
FAO	United Nations Food and Agriculture Organization
FWA	Food, Water, Air, Climate, Livelihoods and Economics, and Policy and Security Resources
GHSA	Global Health Security Agenda
IACUC	Institutional Animal Care and Use Committee
IDI	Infectious Disease Institute
IDSR	Integrated Disease Surveillance and Response
IRB	Institutional Review Board
ISSP	Intervention/Study Selection Process
JSI	John Snow Research & Training Institute, Inc
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MU	Makerere University
NOHP	National One Health Platform
NADDEC	National Animal Disease Diagnostics and Epidemiology Centre
NGO	Non-governmental organization
OM	Outcome Mapping
RAC	Risk Analysis and Communication
SBC	Social and Behavior Change
STOP Spillover	Strategies to Prevent Spillover Project
SMM	Surveillance, Mapping, and Modeling
USAID	United States Agency for International Development
USAID IDDS	USAID Infectious Disease Detection and Surveillance
VHTs	Village Health Teams
WLE	Wildlife, Livestock, Epidemiology, Behavior Change, and Gender

Key Terms

Critical (boundary) partner: In OM, boundary partners are stakeholders or social actors with whom a project will work, support or influence to achieve the project's vision. STOP Spillover uses the label 'critical partners' for the selected boundary partners. These may be individual organizations, groups, or institutions (e.g., local cultural or religious leaders, government agents, partner organizations, business entities, or other societal actors). It is through them that the project expects to influence change in the wider society toward the agreed OM vision.

High-risk interface: A socio-economic, environmental, and biological area in which the transmission of infectious agents across species (human, livestock, and/or wildlife) is known to occur. This may include bat guano collection sites, wet markets, wildlife farms and restaurants, and tourist areas. Human behaviors in these zones are driven by livelihood and economic needs, cultural traditions, and norms that cause contact and thus transmission risk. Each STOP Spillover intervention focuses on a specific high-risk interface relevant to a targeted zoonotic disease.

High-risk interface node: A particular interactive space in an interface where there is potential for transmission of infectious agents across species (human, livestock and/or wildlife).

Intervention: Action taken by the project or other organizations to help critical partners achieve their outcome targets (also referred to as 'outcome challenges').

Outcome Mapping: A program design and implementation strategy that targets transformation in stakeholders to guide implementation, adaptive management, and evaluation. It is guided by how targeted ecosystem actors react to a project's interventions.

Outcome target: An outcome target (the challenge) is a statement of change that describes how the behaviors, relationships, activities, or actions of each critical partner will change if the project achieves its vision. Outcome targets capture partner behavior as anticipated in the vision.

Spillover: For the purposes of this project, spillover is defined as an event in which an emerging zoonotic virus is transferred from one animal host species (livestock or wildlife) to another, or to humans.

Vision: Conveys the large-scale, development-related changes that a project hopes to encourage in a given context. It is one or several statements and paragraphs that describe the economic, political, social, environmental, and relevant broad behavioral changes in selected critical partners.

Introduction

Uganda is considered a 'hot spot' for emerging and re-emerging infectious disease epidemics. Since 2000, Uganda has documented a total of five Ebola and four Marburg viral hemorrhagic fever outbreaks. Zoonotic spillover has been associated with activities that increase human-bat contact. Likely interfaces for humans and bats include caves and mines with roosting bats (especially R. *aegyptiacus*); human houses for tree-dwelling insectivorous bats; and bushmeat hunting, processing, and consumption (including of bats). Contact with migrating fruit bats (e.g., during major migration events when multiple bat species are roosting and feeding in high densities) may also facilitate cross-species transmission. Other identified and more generic activities that may increase spillover include land-use change, development, large-scale agricultural intensification, and deforestation. In 2020, STOP Spillover was launched to implement and validate interventions to reduce spillover risk in Uganda. The goal of the project is to enhance local capacity to design and implement interventions that contribute to USAID's goal of enhanced understanding and reduced risk of zoonotic and viral spillover, amplification, and spread by 2025. STOP Spillover's scope is limited to the following priority viruses: Ebola; Marburg; Lassa, Nipah; animal-origin coronaviruses (including SARS-CoV, SARS-CoV-2, and MERS-CoV); and animal-origin influenza viruses (such as highly pathogenic H5N1 avian influenza).

Outcome Mapping Process

A core component of STOP Spillover is a participatory planning process based on OM. OM focuses on changes in targeted actors and in the spillover ecosystem as project outcomes to be influenced by STOP Spillover. Through participatory workshops, stakeholders identify and prioritize high-risk interfaces, describe current opportunities and knowledge gaps in zoonotic spillover risk pathways, and identify potential and relevant activities to reduce related risks. This section details the OM process adapted[1] for the STOP Spillover project in Uganda. National OM activities were preceded by a meeting on August 5, 2021, in which participants identified several high-risk interfaces for disease spillover in Uganda and priority stakeholders' ability to manage them. The national OM workshop was virtual and consisted of six 3-hours sessions over the last two weeks of August. The objectives of the national workshop were to prioritize the top-ranked zoonosis spillover high-risk interfaces and related viral pathogens in Uganda; categorize stakeholders to identify the project's critical partners; assess the role of gender functions in spillover risk; map gaps, barriers, and opportunities for spillover control; and prioritize knowledge gaps and initial research opportunities for the selected interface. Participants also brainstormed risk-reduction measures/opportunities and discussed spillover information sources, uses, and limitations. National OM prioritized the bat-human interface, with Bundibugyo district emerging as the region in which to focus initial STOP Spillover activities. The purpose of the in-person, interface-level OM workshop (Bundibugyo, September 28–30) was to identify the risks associated with direct bat-human interactions and risk-reduction research and interventions. After these workshops, the STOP Spillover global and country teams prioritized interventions to implement in Year 2 through an Intervention/Study Selection Process (ISSP). Figure 1 illustrates the sequence of OM activities.

Figure 1: OM-Related Activities in Uganda

1 OM was adapted to STOP Spillover needs as follows: the mission statement and organizational practices were left out. The vision statement is based on context opportunities, gaps, and barriers. 'Boundary partner' is referred to as 'critical partner,' and 'outcome target' is 'outcome challenge (Earl et al., 2001).' The development and use of progress markers has been deferred until the project monitoring process is designed.Earl, Sarah, Fred Carden, and Terry Smutylo. Outcome Mapping: Building learning and reflection into development programs. IDRC, Ottawa, ON, CA, 2001.

Workshop Participants

More than 200 people were engaged in the various OM workshop activities in Uganda. Thirty-seven attended the one-day consultative meeting, and 122 (a daily average of 80) attended the national workshops. These included national government, research, and training institutions, development and funder organizations, USAID, and STOP Spillover global representatives (Annex 1). The interface workshop was attended by 46 people, including cultural and local government leaders, veterinarians, agricultural officers, religious leaders, tourism workers, entrepreneurs, game wardens and rangers, farmers, school inspectors, village health team (VHT) members, non-governmental organizations (NGO)s, youth and women's groups, and traditional healers (Annex 2).

OM Workshop Output

Interface Prioritization

At the national OM workshop, attendees used a participatory prioritization process to select the bat-human interface (from a list of 16[2] interfaces) and related nodes (ecotourism sites, caves, households, mines with roosting bats, and wildlife hunters), for STOP Spillover to focus initial activities.

Associated Pathogens

Bats are a host to several pathogens. Workshop participants prioritized Ebola and Marburg viruses (Figure 2), which correspond with interfaces previously identified in the country's desk review. Participants cited numerous Marburg outbreaks associated with human contact with bats either in caves, mines, or at tourist sites. Other contact areas include communities sharing habitats with bats in households or farms, and close interactions between people and wildlife.

Bat-human Interface Nodes

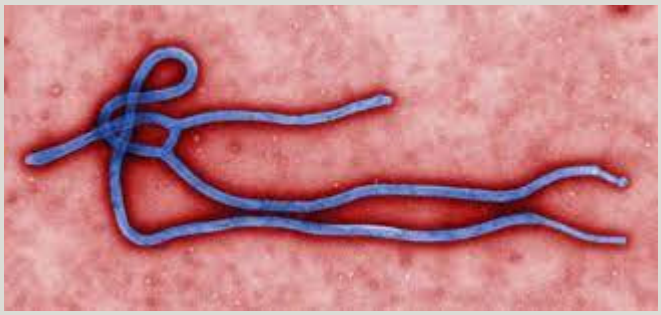
Bundibugyo District, where people have long co-existed with bats, was selected as the location for STOP Spillover to focus initial activities. Bundibugyo is faced with increasing bat-human interactions, partly driven by deforestation in and around the national parks and livelihood activities. Participants mentioned that bat-human interactions occur:

1. When humans pass through the neighboring forests, national parks, and caves.

2. As a result of bats living in or coming into residential structures (roofs and ceilings of homes, schools, and religious buildings).

3. When bats dwell in fruit trees and other plants.

Figure 2. Associated Pathogens



Ebola Virus

Marburg Virus

2 non-human primate-to-primate; human-wildlife in frontline communities in protected areas; wetlands and forestry encroachment areas and populations; waste-water animal and human; formal and informal ports of entry for animals and humans; shared transportation systems for livestock, humans, and wildlife; human-livestock-wildlife watering points; wildlife-livestock-human near national parks and game reserves; health care and research facilities; zoos and wildlife centers; markets and slaughterhouses; cattle corridors; wild bird/waterfowl-poultry-human; cultural and ritual sites; animals and humans in peri-urban production systems; and waste disposal sites near wildlife.

Credits from left to right: https://www.cdc.gov/vhf/ebola/index.html and https://www.verywellhealth.com/marburg-virus-4771923

This co-existence has benefits including 1) certain species of bats are hunted/caught and eaten by some communities; 2) insect control (especially against mosquitoes and flies); 3) bat guano is fertilizer and a rich source of nitrogen in livestock and human feed; 4) guano is used as traditional medicine, applied topically on wounds and some injuries; and 5) some communities believe that children's consumption of fruit with bat bites leads to tooth eruption and strength. Other uses include witchcraft and, through ingestion, to increase virility.

Key Gaps and Barriers

Participants explored gaps and challenges that need to be addressed in order to reduce spillover risk (Table 1). The main gaps identified at the national level included lack of understanding of bat ecology and factors that lead to viral spillover; poor diagnosis of bat-borne diseases; insufficient resources and, in some instances, inadequate allocation of resources for managing spillover; inadequate coordination among stakeholders in disease surveillance and research; and limited community engagement for increased awareness of disease risk from bats. Gaps identified at the interface level included poor harvest handling techniques; lack of proper farming protective gear; lack of house construction/design that repels bats; deforestation of national parks and buffer zones; bat encroachment on agricultural fields; human encroachment on bats' natural habitats; and witchcraft and other cultural activities that increase contact with bats.

Vision

After identifying critical gaps and barriers to reducing zoonotic spillover risk, workshop participants developed the following OM vision statement:

All stakeholders understand zoonotic spillover risks associated with bat-human interaction. The One Health Platform provides a well-coordinated and integrated approach to understand and minimize or mitigate zoonotic spillover risk in the bat-human interface. Relevant and responsible actors identify gaps in data collection and communication and develop interoperable health information systems. Researchers, research institutions, NGOs, and government ministries establish collaborative information-sharing practices or systems. The goal is to fill knowledge gaps, making data/information quickly available for public use. All resident communities understand risks associated with bat contact and adopt practices and systems to minimize them.

Table 1. Findings from the National and Interface Workshops

GAPS AND BARRIERS

- Lack of understanding of bat biology and ecology and factors leading to spillover
- Poor diagnosis of bat pathogens/diseases
- Insufficient resources and lack of political will and resource prioritization for spillover.
- Inadequate coordination in surveillance and research
- Limited community engagement and awareness of spillover risks from bats

CHALLENGES

- Collaborating and sharing information, between national and local levels and among disciplines
- Involving the community and targeted communication
- Changing practices in light of local knowledge and beliefs (including witchcraft)
- Acquiring funds to conduct baseline research
- Operationalizing One Health strategies at the local level
- Climate change
- Encroachment on natural habitats and deforestation

Critical Partners

The national workshop identified the following critical partners for realizing the vision: the National One Health Platform (NOHP), training institutions, local governments, forest organizations, NGOs, community-based organizations (CBOs), frontline communities, faith-based organizations (FBOs), VHTs, media, tourist companies,[3] as discussed below. At the interface level, the critical partners identified were the VHTs, extension workers, community leaders, Uganda Wildlife Authority (UWA), the Forestry Department, community members, NGOs, and CBOs (Figure 3).

Outcome Target and Proposed STOP Spillover Support

For each critical partner at national and interface levels, outcome targets (outcome challenges) and proposed supporting interventions were developed. Table 2 below shows the partners' outcome targets and proposed interventions for each. Some of the proposed interventions would be cross-cutting and aimed at more than one partner.

Figure 3. Critical Partners

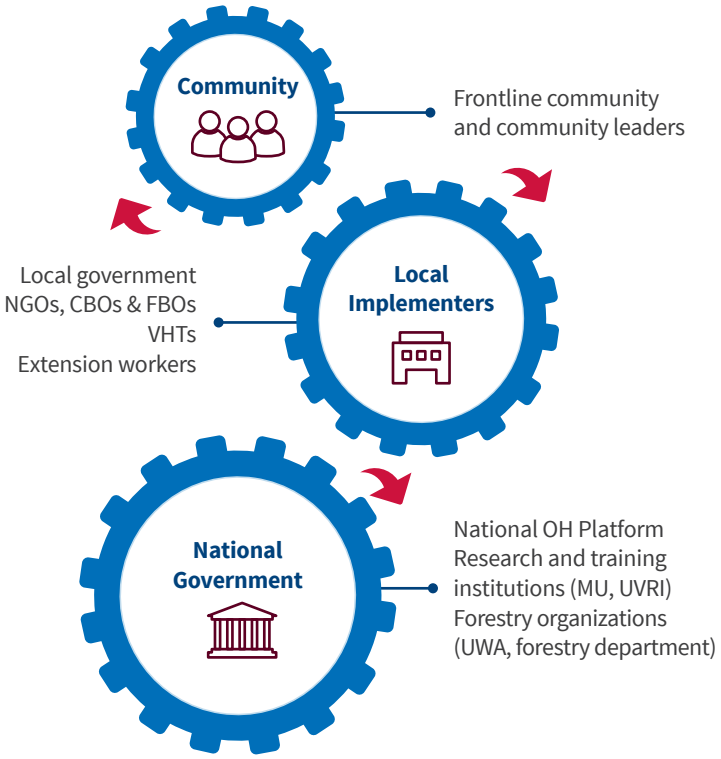


Table 2: Outcome Targets and Proposed STOP Spillover Interventions

CRITICAL PARTNER	OUTCOME TARGET	PROPOSED INTERVENTION
National One Health Platform (NOHP)	NOHP maintains an early warning and response system. NOHP maintains risk communication and community involvement strategies and disseminates information and communication materials. NOHP establishes and maintains communication systems about bats and roosts that influence behavior to reduce bat-human transmission of viruses. NOHP establishes proper structures for OH operations at the district level.	Support in developing and implementing an early warning and response system (community-based disease surveillance and events-based system) and community risk communication and involvement strategies; developing and disseminating information and communication materials; and establishing proper structures for OH operationalization at the district level.
Research and training institutions	Research and training institutions maintain programs for citizens to be knowledgeable about bat roosts and behavior to reduce virus transmission. They maintain communication systems and databases that enhance collaboration, and conduct rigorous research to support intervention design, implementation, and evaluation.	Support technical research collaboration, convene workshops on developing policy briefs, and communicate with government partners to translate research into policies. Fund technical and research activities. Create and support social media groups such as WhatsApp for easy and interactive communication and information flow. Identify university champions for citizen science.

3 Media and tourist organizations were among the critical partners due to their role in public communication and guiding users of national parks, respectively. However, they are now referred to as 'strategic partners' because they will support STOP Spillover interventions working with the other critical partners.

CRITICAL PARTNER	OUTCOME TARGET	PROPOSED INTERVENTION
Local government	Local governments introduce and maintain efficient systems to manage samples, share information, and report and provide feedback. They develop and implement policies on zoonotic disease control for OH operations. They develop and maintain improved surveillance systems. They sensitize staff to the importance of using the OH approach and set up structures to implement it at the district level.	Provide funds to improve or establish labs where they do not exist. Support local governments to ensure health facilities have adequate equipment and resources in the collection of livestock and wildlife samples e.g., reagents, personal protective equipment, field equipment, fuel, and maintenance services. Support awareness programs for communities, training, mobilizing, teaching courses, and formation of risk management groups. Support in policy review and the recruitment and training of Village Health Teams and livestock control committee members.
Forest organizations, UWA, the Forestry Department	UWA and forest department officials sensitize the community to factors that lead to spillover and the need to set and uphold regulations. UWA establishes community-led and -sensitive conservation activities.	Support activities that enhance community's capacity in understanding risk and implement SBC interventions to reduce risk.
CBOs, NGOs and FBOs	These organizations have the capacity to be OH change agents. NGOs participate in NOHP by identifying needs, mapping, and generating interest in STOP Spillover goals, and participate in advocacy campaigns and field/exchange visits. FBOs conduct rituals and traditional practices that help change communities' mindsets, behaviors, and practices to reduce spillover risk.	Develop a shared vision for OH. Develop an OH tool kit/guide and mentorship program for NGOs. Raise community awareness of and funds for CBOs, NGOs and FBOs to establish risk-reduction interventions, especially household and community practices. STOP Spillover could identify and train willing local religious leaders about spillover issues, and give them resources (funds, training materials, brochures, flyers, leaflets, posters and recordings) to disseminate to their congregations.
Village Health Teams	Village Health Team members detect, report, and manage disease (especially zoonotic) where possible and teach community members to identify symptoms and seek appropriate treatment. They collect and forward information that MOH and other organizations use to improve community health.	Develop Village Health Team member skills in the use of smartphones and other technological tools for risk reporting; provide tools and/or equipment such as gloves and overalls to fulfill their mandate (detection, control, and disease case management); and train on infectious disease safety and how they can convey this knowledge to communities, including by creating training manuals and posters.
Extension workers	Extension workers mobilize and train farmers /communities on risks of spillover. They advise farmers on the use of protective gear and where to get it. They promote agro-ecology activities that support bat-human coexistence (e.g., use of bat-repellent plants)	Support community sensitization activities.
Communities and community leaders	Communities/leaders have increased knowledge about the risks of eating bats and greater access to facilities, resources, and infrastructure, security, and alternative sources of protein. Communities reduce demand for bat meat and increase household hygiene practices (e.g., covering water sources) and comply with existing laws on wildlife hunting and selling. They apply agro-ecology knowledge and skills for activities that ensure safe coexistence with the bats.	Use community radio and engage local government in disease risk spillover message content development; strengthen links between local government and community action; support community champions and train people to bat-proof houses and harvest guano safely. Increase awareness of hygiene practices among schools/ teachers, and women's groups. Support activities that reduce bat contact in buildings (e.g., install wire mesh around ventilation systems, door and window screens, and lights in ceilings). Use a transparent plastic iron sheet to allow light in ceilings.

Intervention/Study Selection Process

Because the proposed interventions were numerous and some beyond STOP Spillover's mandate and scope, STOP Spillover conducted an ISSP to synthesize the information collected during OM and to facilitate the decision-making process about the most appropriate interventions and studies. The following criteria were used to prioritize interventions and associated research areas (detailed in the section below) from the proposed list in Table 2.

1. Extent to which it will reduce exposure to one or more hazards
2. Extent to which it will result in a health benefit
3. Evidence of scientific coherence
4. Feasibility in terms of cost and availability
5. Acceptability to stakeholders
6. Extent to which it reflects community needs and interests

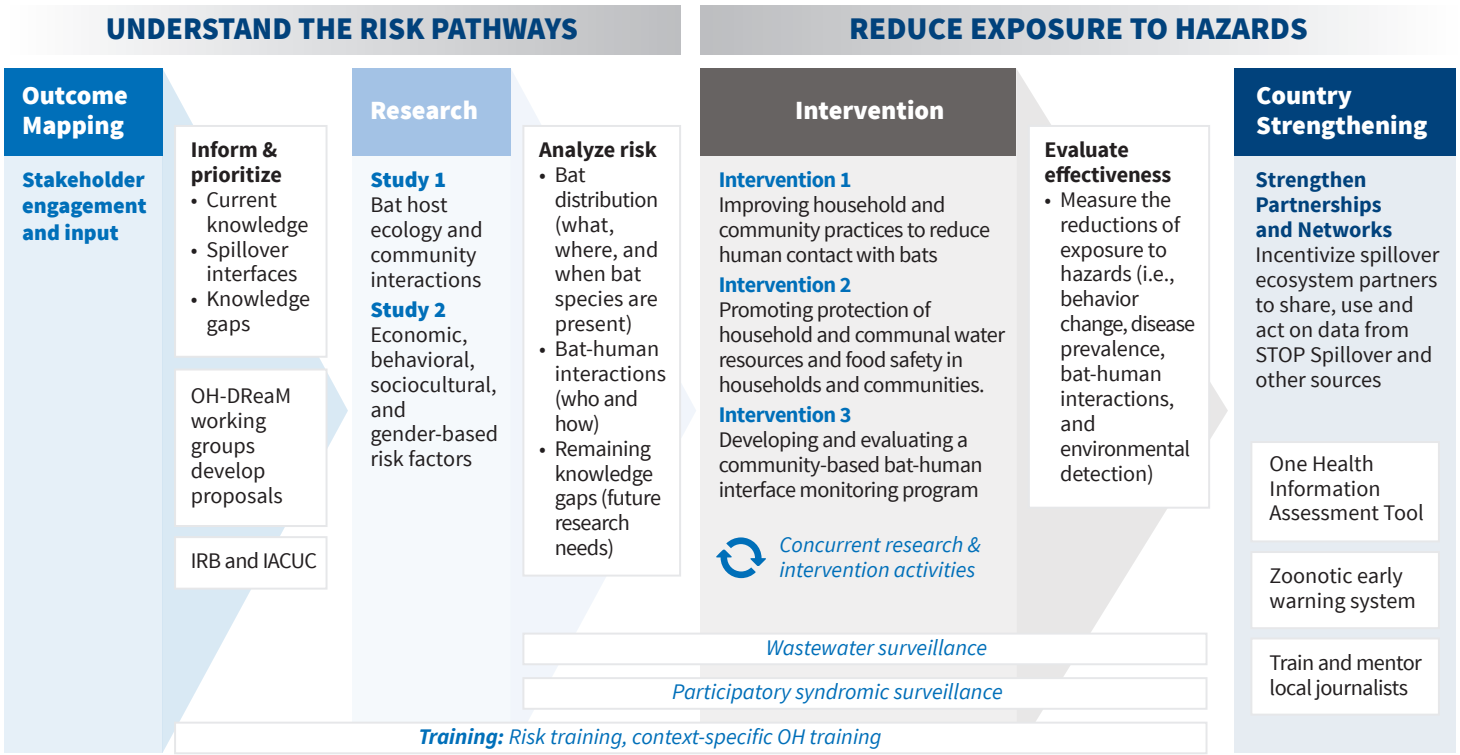
Selected STOP Spillover Interventions and Research

Intervention 1: Improving household and community practices to reduce human contact with bats. This intervention aims to reduce the risk of exposure by testing locally available materials for deterring bats from entering houses and buildings, as well as improving household and community safety practices through an SBC strategy once the bats have already entered.

Intervention 2: Promoting protection of household and communal water resources and food safety in households and communities.

This intervention will promote the protection of household and communal water resources and food safety among women and other community members whose role is to collect, store, and protect water and food.

Figure 4. Prioritized Interventions and Research Activities Across Prioritized Critical Partners



Intervention 3: Developing and evaluating a community-based bat-human interface monitoring program. This intervention will build community capacity to implement a monitoring program to facilitate the identification of bat roosting and feeding sites as well as bat-human interactions that pose a risk for spillover events.

Research Activity 1: Investigating bat host ecology and human behavioral risk factors to inform the community-based bat-human interface monitoring program. This will entail a systematic literature review of bat-human interactions to identify evidence and knowledge gaps, and participatory community science approaches and surveillance to identify bat species through physical characteristics, behaviors, and species-specific calls.

Research Activity 2: Conducting research to characterize spillover risk. Research behavioral, sociocultural, gender-specific, and economic risk factors to inform interventions that improve household and community practices to reduce human contact with bats.

Addressing OM Interventions

Upon prioritization of the interventions, the Uganda country and the global OM teams developed a conceptual diagram (Figure 4) showing the link between OM workshops output, proposed interventions, and research studies. This was conceptualized into a holistic approach showing the prioritized interventions and research activities across the prioritized critical partners.

Conclusion and Next Steps

Overall, the objectives of stakeholder engagement through OM dialogue were achieved. Workshop participants prioritized bat-human as the top high-risk interface and identified gaps, barriers, and critical partners for reducing the risk of spillover at the selected high-risk interface. The top research gaps for the bat-human interface are: 1) behavioral risk assessment related to culture, economics, and gender; 2) community knowledge on behavioral risks and perception; and 3) bat and viral ecology (e.g., habitats, population, migration patterns, species interaction). STOP Spillover support for the selected critical partners includes capacity strengthening; enhancing surveillance through collaborative research studies; mentorship; and facilitation of dialogue to enhance collaboration.

Annex 1. National OM Participants

	NAME	ORGANIZATION/TITLE
	USAID	
1	Patti Bright	USAID
2	Padma Shetty	USAID
3	Dorothy Peprah	USAID
4	Alisa Pereira	USAID
	USAID partners	
5	Susan Ndyanabo	FAO
6	Willington Bessong Ojong	FAO
7	Thomas Ssemakadde	USAID IDDS
8	Derrick Mimbe	USAID IDDS
9	Joseph Kasekende	USAID IDDS
	STOP Spillover Consortium	
10	Deborah Kochevar	Tufts University
11	Hellen Amuguni	Tufts University
12	Meghan Stanley	Tufts University
13	Meredith Grady	Tufts University
14	Elaine M. Faustman	University of Washington
15	Patrick Webb	Tufts University
16	Gaia Bonini	Tufts University
17	Ryan Evans	Tufts University
18	Jeff Mariner	Tufts University
19	Liz Gold	JSI
20	Colin Gerrity	Tufts University
21	Kristin Cabrera	Tufts University
22	David Boone	JSI
23	Luca Nelli	University of Glasgow
24	Dyan Mazurana	Tufts University
25	Stella Paul	Internews
26	Gaia Bonini	Tufts University
27	Karissa Lowe	Tufts University
28	Jen Peterson	Tetra Tech
29	Liz Creel	JSI
30	Katie Prager	University of California, Los Angeles
31	Jessie Pechmann	Humanitarian Open Street Map
32	Esther Kihoro	Right Track Africa
33	Julius Nyangaga	Right Track Africa

	NAME	ORGANIZATION/TITLE
	AFROHUN	
34	Doreen Wandera	Regional Lead Africa
35	Birungi Doreen	Country Team Lead, Uganda
36	Susan Babirye	Communication and knowledge management officer
37	James Muleme	FWA
38	Shamilah Namussi	RAC
39	Terence Odoch	WLE
40	Kato Charles D	SMM
41	Elizabeth Alunguru	M&E
42	Irene Naigaga	Regional program manager
43	Lucy Umutesi	Regional finance officer
44	Timothy Wakabi	M&E
45	Irene Murungi	Regional Administrator, AFROHUN
	Makerere University/research institutions	
46	Clovice Kankya	Head, Biosecurity Department
47	Juliet Kiguli	Senior lecturer, School of Public Health
48	Okello Justine	Research associate
49	Benard Matovu	Research associate, lecturer
50	Majalija Samuel	Deputy principal, College of Veterinary Medicine, Animal Resources and Bio-security
51	John Bosco Nizeyi	Senior lecturer
52	Denis K. Byarugaba	Head, Influenza Laboratory
53	John Bosco Isunju	Public school health specialist
54	Christine Mpyangu	Social scientist, School of Sociology and Gender Studies
55	Robert Kityo	College of Natural Sciences, Zoology
56	Andrew Kambugu	Executive director, Infectious Disease Institute
57	Kakoooza Francis	Infectious Disease Institute, Deputy, Global Health Security Project
58	Muhumuza Gerald	Uganda Virus Research Institute
59	Ntungire Dickson	Research associate
60	Lydia Alinde	Research associate
61	Karungi Viola	Lecturer
	Ministry of Health	
62	David Mutegeki Kahuka	Risk communication specialist
63	Felix Ocom	Deputy manager, Emergency Operations Center
64	Muwanguzi David	One Health focal person
65	Joy Nguna	Senior epidemiologist
66	Rogers Wambi	Laboratory technologist
67	Bernard Lubwama	Senior epidemiologist
68	Opolot John	Assistant commissioner veterinary public health
69	Dativa Aliddeki	Senior epidemiologist
70	Zainah Kabami	Senior epidemiologist
71	Joshua Kayiwa	IDSR specialist, EOC
72	Alfred Wejuli	Veterinary officer
73	Alice Asio	Covid Response Team
74	Ekuka Godfrey	Senior laboratory technologist

	NAME	ORGANIZATION/TITLE
	National One Health Platform	
75	Musa Sekamatte	Coordinator
76	Abdulrazak Sekamatte	National One Health Platform
	Ministry of Agriculture, Animal Industry and Fisheries	
77	Fred Monje	One Health focal person
78	Paul Lumu Johnson	Senior veterinary officer, NADDEC
79	Nabbaale Christine	MAAIF
80	Mwanja Moses	Senior veterinary officer
81	Hannington Kato Juuko	MAAIF-NADDEC
82	Joseph Serugga	Animal health specialist, Market Oriented and Environmentally Sustainable Beef Meat Industry Project
83	Robert Mwebe	Head epidemiology, NADDEC
84	Michael Kimaanga	Senior vet inspector
	Ministry of Water and Environment	
85	Takuwa Nuubu	Wetland officer
86	Betty Mbolanyi	One Health focal person
	Private organizations/NGOs	
87	Emily Otali	Kibaale Chimpanzee Project
88	Innocent Rwego	Senior advisor, Global Health Security-Core group partners
89	Balaam Jeffer	Food Associates Limited
90	Rubanga Stephen	Conservation through Private Health
91	Hakim B. Mufumbiro	Uganda National Bureau Standards
92	Muhindo Tadeo Mathwese	Uganda Wildlife Research and Training Institute governing council
93	Gloria Arinaitwe	Food Associates Ltd
95	Bugeza James	National Agricultural Research Organization
96	Suudhir Barmutya	Uganda Red Cross
97	Allan Atwiine	Sunrise Capital
98	James Mununa	National Forestry Authority
99	Robert Bitariho	Institute for Tropical Forest Conservation
100	Sheila K Agaba	Siga Produce Limited Uganda
101	Asuma Stephen	Fauna and Flora International Kampala, country program manager
102	Paul Mugisha	Agape Agro Ltd, CEO
103	Yunia Musaazi	Uganda Water and Sanitation NGO Network
	Local government	
104	Lugoloobi Mathias	District health officer, Wakiso
105	Lawrence Kisuule Lunyomo	District veterinary officer, Nakaseke
106	Nsamba David	Production officer, Nakasongola
107	Samson Ndyanabaisi	District health officer, Bundibugyo
108	Bameka Ronald	District veterinary officer, Lyantonde
109	Levi Cheptoyek	District health officer, Kween
110	Sanini Tusiime Kwizera	Kampala Capital City Authority
	Digital Visualization	
111	Micheal Lubega	Illustrator

Annex 2. Interface OM Participants

S/N	NAME	DEPARTMENT
1.	Baluku Edson	Semliki, Western Rwenzori tours company
2.	Mahigha Joseph	Veterinary Extension Worker -Ntandi Town Council
3.	Kihangwa Bwambale Ven	Community Development Officer- Burundo
4.	Junior Godfrey (Bisoro Andrew)	District Youth Council Chairperson
5.	Maate Solex	VHT Karambi Parish
6.	Asiimwe Juliet	Local Council III Chairperson -Burundo
7.	Kasereka Luke	VHT Coordiantor
8.	Birahule Eddie	Enrolled Nurse- Harugale sub-county
9.	Asaba Timothy	Local Council III Chairperson Ntandi Trading Centre
10.	Isekalombi Moses	Veterinary Extension worker- Burondo
11.	Biwite Longo Muhindo	Development-FM Radio
12.	Kagaramki Aranatha	Inspector Of Schools- (Bwanda)
13.	Shki Ashiraf Kibwama	Uganda Muslim Supreme Council-District
14.	Alipher Asuman	Local Council III Chairperson Harugale
15.	Hon. Kamuhanda Tomasi	Kingdom Representative-Deputy Prime minister -Obusinga Bwa Rwenzururu
16.	Tumwesigye paul	Kulakula Community Based Organization
17.	Rusamba Johnson Ndyanabo	Rwenzori Eco-Tourism
18.	Nyamutwsa Charles	VHT Kihoko
19.	Kasimoto David	Youth Group Karabi
20.	Kule Joshua	Uganda Red Cross-Bundibugyo Volunteers coordinator
21.	Biira Harriet	Inspector of Schools-Bughenderera
22.	Kabagenyi Alice	Youth Representative-Councillor Harugale sub-county
23.	Kabalwani Eva	Akuwa Farmers group
24.	Kabasinguzi Kurususmu	Environment officer
25.	Kerungi Margret	Tourism Officer
26.	Murungo Misaki	Seventh Day Adventist -Zone coordinator
27.	Murungi Paul	Harugale sub-county Agricultural Officer
28.	Turyashemererwa Alex	Ranger Semliki National Park
29.	Richard Chandiga	Vector Control Officer
30.	Nambuba Conelius	Ranger Semliki National Park
31.	Mbusa Solomon	Ranger Incharge Rwenzori National Park
32.	Basikania Abel	Ranger Rwenzori Mountain National Park
33.	Kule Korone	Chairperson-Rwenzori National Park
34.	Bahemeka Hannington	Bishop Charismatic Church
35.	Bwambale Robert	Veterinary Extension Worker
36.	Basaliza Alex	Uganda Broadcasting Cooperation -Radio
37.	Kamalabe Costa	Project Officer- Community Epidemic and Pandemic Preparedness Coordinator

38.	Kainta Wilson	Batwa Representative
39.	Micheal Owen	Community Representative
40.	Kule Joshua	Red Cross Volunteers
41.	Mutooro Jeremiah	Privy Committee member -Obusinga Bwa Rwenzururu
42.	Mugisa Bamaga	Chairperson Bamagzi resources
43.	Masika Kezia	Community Development Officer -Harugale
44.	Ndyanabaisi Samson	District Veterinary Officer
45.	Asaba Wilson	Surveillance Officer
46.	Masika Annet	Community Development Officer Ntandi Trading Centre

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