

From: Brooke Genovese <bgenovese@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>; Elizabeth Leasure <ealeasure@ucdavis.edu>; Alisa Pereira <apereira@usaid.gov>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; Shana Gillette <sgillette@usaid.gov>
Sent: 6/22/2017 3:10:50 PM
Subject: Re: [predict] Revised Country Caps

To clarify, the call will be **June 23 (Friday)** at 9:00 am PDT – thank you!

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Andrew Clements
Date: Thursday, June 22, 2017 at 2:01 PM
To: Brooke Genovese
Cc: Elizabeth Leasure , Jonna Mazet , Alisa Pereira , Shana Gillette
Subject: Re: [predict] Revised Country Caps

I don't know Robbin's schedule, but let's talk without her on Friday.

*Andrew P. Clements, Ph.D.
Senior Scientific Adviser
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jun 22, 2017, at 6:32 PM, Brooke Genovese <bgenovese@ucdavis.edu> wrote:

Hi Andrew,

Just following up on the proposed call regarding the revised country caps. Any word from Robbin?

Thank you!

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Brooke Genovese <bgenovese@ucdavis.edu>
Date: Monday, June 19, 2017 at 4:16 PM
To: Jonna Mazet <jkmazet@ucdavis.edu>, Andrew Clements <aclements@usaid.gov>, "apereira@usaid.gov" <apereira@usaid.gov>
Cc: Elizabeth Leasure <ealeasure@UCDAVIS.EDU>, David John Wolking

<djwolking@ucdavis.edu>, "sgillette@usaid.gov" <sgillette@usaid.gov>

Subject: [predict] Revised Country Caps

Hello everyone,

I'm reaching out to schedule a call this week regarding the revised country planning budgets. Below are a few dates/times that work for Jonna and Liz – please let me know if any of these work with your schedules:

Wed. 6/21: 8:30 am PDT / 5:30 pm CEST

Thurs. 6/22: 9:00 am PDT / 6:00 pm CEST

Fri. 6/23 9:00 am PDT/ 6:00 pm CEST or 10:00 am PDT / 7:00 pm PDT

Jonna suggested that Robbin be on the call to discuss the revisions. Andrew – could you reach out to Robbin to coordinate?

If the proposed dates/times are not ideal for everyone, I can come up with some other options.

Thank you!

Best,

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Andrew Clements <aclements@usaid.gov>
Sent: Fri, 26 Jan 2018 19:10:28 +0100
Subject: Re: call with Sierra Leone regarding PREDICT
To: Brooke Genovese <bgenovese@ucdavis.edu>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, Brian Bird <bhbird@ucdavis.edu>, Tracey Goldstein <tgoldstein@ucdavis.edu>

Thanks, Brooke. It's good for me. Let me check with the Mission.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jan 25, 2018, at 8:05 PM, Brooke Genovese <bgenovese@ucdavis.edu> wrote:

Hi Andrew – Feb 8 at 9:00am PST works for Jonna, Brian, and Tracey (cc'ed here). Does this time work for you?

-Brooke

From: **REDACTED** > on behalf of Jonna Mazet <jkmazet@ucdavis.edu>
Date: Wednesday, January 24, 2018 at 9:25 AM
To: Brooke Genovese <bgenovese@ucdavis.edu>
Subject: Fwd: call with Sierra Leone regarding PREDICT

----- Forwarded message -----

From: Andrew Clements <aclements@usaid.gov>
Date: Wed, Jan 24, 2018 at 8:43 AM
Subject: Fwd: call with Sierra Leone regarding PREDICT
To: Jonna Mazet <jkmazet@ucdavis.edu>

Remember this call that was supposed to happen in December?

Are you available the week of Feb 5?

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: [1-571-345-4253](tel:1-571-345-4253)
Email: aclements@usaid.gov
Begin forwarded message:*

From: Kendra Chittenden <kchittenden@usaid.gov>
Date: January 24, 2018 at 5:35:51 PM GMT+1
To: Andrew Clements <aclements@usaid.gov>
Cc: "Carroll, Dennis(GH/HIDN)" <DCarroll@usaid.gov>
Subject: Re: call with Sierra Leone regarding PREDICT

Andrew-- thanks, sounds good. It might be best to aim for the week of Feb 5th. I'll let you know as soon as I get dates/times. Kendra

On Wed, Jan 24, 2018 at 10:54 AM, Andrew Clements <aclements@usaid.gov> wrote:
Thanks, Kendra.

I don't know her schedule, but Jonna will be at PMAC around the end of this month and the first few days of February. Might be hard to find a time during then that works for the 4 times zones.

I'm flexible on timing.

Let me know what Khadijat's preferences are and I'll work from there.

Andrew P. Clements, Ph.D.

Senior Scientific Advisor

Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health

U.S. Agency for International Development

Mobile phone: [1-571-345-4253](tel:1-571-345-4253)

Email: aclements@usaid.gov

On Jan 24, 2018, at 4:10 PM, Kendra Chittenden <kchittenden@usaid.gov> wrote:

Andrew

I talked to Khadijat yesterday about scheduling the call with PREDICT (HQ/local) & us to get updates & discuss next steps.

Khadijat said that the best time is the beginning of Feb and she'll said she'll send some preferred dates/times.

I wanted to check with you to see if there were good days and times for you and Jonna.

We'll finally lock in a call.

Kendra

--

Kendra Chittenden, Ph.D. | Senior Infectious Disease Advisor| USAID | mobile [703-209-5424](tel:703-209-5424))
KChittenden@usaid.gov

--

Kendra Chittenden, Ph.D. | Senior Infectious Disease Advisor| USAID | mobile [703-209-5424](tel:703-209-5424)) | KChittenden@usaid.gov

From: Kirsten Gilardi <kvgilardi@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, "predictmgt@usaid.gov" <predictmgt@usaid.gov>
Subject: Re: Question about assets - South Kivu, DRC
Sent: Fri, 16 Aug 2019 19:35:56 +0000

Thank you Andrew!

On Aug 16, 2019, at 12:19 PM, Andrew Clements <aclements@usaid.gov> wrote:

See my comment below.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

Begin forwarded message:

From: Andrew Clements <aclements@usaid.gov>
Date: August 16, 2019 at 12:41:04 PM EDT
To: Lisa Kramer <lkramer@usaid.gov>
Cc: bhaberer@usaid.gov, predictmgt@usaid.gov
Subject: Re: Question about assets - South Kivu, DRC

At this point we have no free budget in P2 and have not received all of the final year funding for the project so it would be a real long shot and have to be super emergency to reprogram for DRC via P2.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Aug 16, 2019, at 12:34 PM, Lisa Kramer <lkramer@usaid.gov> wrote:

Hi Bethany,
The PREDICT 2 (P2) project has described their assets below. P2 defers budget questions to their AOR, so I'm looping in Andrew, the AOR, and USAID P2 management team. If you want/need to call on the P2 assets, Andrew will need to advise on budget.

Lisa

Sent from my iPhone

Begin forwarded message:

From: Kirsten Gilardi <kvgilardi@ucdavis.edu>

Date: 16 August 2019 at 19:23:43 EAT

To: Lisa Kramer <lkramer@usaid.gov>

Cc: Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, Andrew Clements <aclements@usaid.gov>, PREDICTMGT <predictmgt@usaid.gov>, Eddy Kambale

REDACTED

Subject: Re: Question about assets - South Kivu, DRC

Lisa,

Our eastern DRC PREDICT CC is just a few-hours boat ride from Bukavu. We also staff the Primate Rehabilitation Center at Lwiro, about an hour from Bukavu and adjacent to Kahuzi-Biega National Park, with a veterinarian (Dr. Luis Flores Giron) who serves as a clinical capacity-building coordinator there (not PREDICT-funded). All of our DRC Gorilla Doctors staff and veterinary staff at Lwiro are now EV vaccinated (the Lwiro team just got vaccinated yesterday in Goma). Cc'ing Eddy Kambale, who is also aware of this situation.

-Kirsten

On Aug 16, 2019, at 8:00 AM, Lisa Kramer
<lkramer@usaid.gov> wrote:

Hello Jonna, Kirsten, and David,

USAID is gathering information about potential logistic and other assets that could be mobilized immediately to support some outbreak response activities in South Kivu Province, around Bukavu, DRC. Does P2 or MGVP have staff or logistic or other assets that could potentially be mobilized to the area around Bukavu? I recognize the current status of winding down is not the best time to be asking, but WHO has released a statement of possible EVD cases that traveled to the Bukavu area.

Please let me know at your earliest opportunity.

Thank you,
Lisa

Lisa Kramer
Regional Emerging Threats Advisor
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

REDACTED

| LKramer@usaid.gov

[USAID.gov](https://www.usaid.gov) | [@USAIDKenya](https://twitter.com/USAIDKenya) | [@USAIDEastAfrica](https://twitter.com/USAIDEastAfrica) | [Flickr](https://www.flickr.com/photos/usaid/) | [YouTube](https://www.youtube.com/user/usaid/)

From: Elizabeth Leasure <ealeasure@ucdavis.edu>
To: Shana Gillette <sgillette@usaid.gov>, David John Wolking <djwolking@ucdavis.edu>
Cc: Andrew <aclements@usaid.gov>, Alisa Pereira <apereira@usaid.gov>, "Jonna Mazet" <jkmazet@ucdavis.edu>
Subject: RE: Template for Determination and Findings
Sent: Mon, 23 Jan 2017 23:02:14 +0000

Thanks, Shana. I'll get started on this as soon as I can.

Elizabeth Leasure
One Health Institute
University of California, Davis
530-754-9034 (office)
[REDACTED] (cell)

From: Shana Gillette [mailto:sgillette@usaid.gov]
Sent: Monday, January 23, 2017 1:59 PM
To: Elizabeth Leasure; David John Wolking
Cc: Andrew; Alisa Pereira
Subject: Template for Determination and Findings

Hi Liz,

I am attaching a template for the Determination and Findings document. The text highlighted in yellow is text that you will need to add. The two pieces of text that are highlighted in green indicate areas where I still need confirmation on what exactly is needed in terms of text.

Let me know if you have any questions.

Best Regards,
Shana

--

Shana Gillette, PhD
Senior Risk Mitigation Adviser
Emerging Threats Division
Office of Infectious Disease
Bureau for Global Health
U.S. Agency for International Development (USAID)
Office Phone: 202-712-1456
Mobile: [REDACTED]
Email: sgillette@usaid.gov

From: Andrew Clements <aclements@usaid.gov>
Sent: Fri, 27 Jan 2017 18:26:02 +0100
Subject: Re: Any update on Noguchi subaward for Ghana??
To: Elizabeth Leasure <ealeasure@ucdavis.edu>
Cc: PREDICTMGT <predictmgt@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>

Sorry, I just sent the AOR checklist to Ryland today. I'll ask for an estimate of when he might be able to approve it.

*Andrew P. Clements, Ph.D.
Senior Scientific Adviser
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jan 26, 2017, at 7:55 PM, Elizabeth Leasure <ealeasure@ucdavis.edu> wrote:

Hi Andrew. Any update on the status of the subaward for Noguchi Memorial Institute for Medical Research in Ghana? The planned training is starting on Monday, and Terra has a meeting with the team tomorrow. Any update you can provide that she can share would be most helpful.

Thanks,
Liz

From: Terra Kelly [<mailto:trkelly@ucdavis.edu>]
Sent: Thursday, January 26, 2017 9:47 AM
To: Elizabeth Leasure
Subject: Re: FW: New PREDICT-2 subaward request for Noguchi Memorial Institute for Medical Research (Ghana, POP start 1/1/17)

Good morning!

Any news from USAID on this? Brett's training with this team starts on Monday and I have a meeting with Noguchi tomorrow morning to discuss.

Thanks!
Terra

Elizabeth Leasure
One Health Institute
University of California, Davis
530-754-9034 (office)
REDACTED (cell)

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.
To unsubscribe from this group and stop receiving emails from it, send an email to

predictmgt+unsubscribe@usaid.gov.

To post to this group, send email to predictmgt@usaid.gov.

To view this discussion on the web visit

<https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/BN1PR08MB123C0F5034BA7CCD63D1728A2770%40BN1PR08MB123.namprd08.prod.outlook.com>.

From: Elizabeth Leasure <ealeasure@ucdavis.edu>
To: William Karesh <karesh@ecohealthalliance.org>
Cc: Peter Daszak <daszak@ecohealthalliance.org>, Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, "Evelyn Luciano" <luciano@ecohealthalliance.org>, Ava Sullivan <sullivan@ecohealthalliance.org>, Molly Turner <turner@ecohealthalliance.org>
Subject: Additional \$200K for PREDICT/Jordan rec'd; budget needed
Sent: Fri, 3 Mar 2017 02:13:13 +0000

Hi Billy. We have received a modification to the prime award allocating \$200,000 for PREDICT in Jordan. The modification is still pending execution (with OAA now), but we'll need a budget for the \$200K being added in order for UCD to add the funds to the EHA subaward. Can you work on putting together a budget for the \$200,000 in Excel and send it to me?

Also, I believe you indicated previously that the \$200K is intended to support the expansion of existing (and approved) PREDICT activities in Jordan, but if that is not the case and these funds will be used to support a specific sub-project or activity not already covered by the approved Y3 work plan, we would also need an SOW to accompany the \$200K budget.

Happy to discuss if clarification is needed.

Thanks!
Liz

Elizabeth Leasure
One Health Institute
University of California, Davis
530-754-9034 (office)
REDACTED (cell)

From: Andrew Clements <aclements@usaid.gov>
Sent: Tue, 2 May 2017 13:34:16 +0200
Subject: Re: March 2017 Ebola Financial Report submission slightly delayed
To: Elizabeth Leasure <ealeasure@ucdavis.edu>
Cc: PREDICTMGT <predictmgt@usaid.gov>, "predict@ucdavis.edu" <predict@ucdavis.edu>, Jonna Mazet <jkmazet@ucdavis.edu>

Thanks

*Andrew P. Clements, Ph.D.
Senior Scientific Adviser
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On May 1, 2017, at 10:06 PM, Elizabeth Leasure <ealeasure@ucdavis.edu> wrote:

Hi everyone. Please note that I'm working on pulling together the March 2017 Ebola financial report (by country and budget category) as we speak. As you know, I've been out on vacation since April 20th, so completion of this report was slightly delayed. Jonna is also traveling (so PI review/approval may take a day or two depending on internet access), but we will submit the report as soon as we are able.

Thanks for your patience,
Liz

Elizabeth Leasure
One Health Institute
University of California, Davis
530-754-9034 (office)
REDACTED (cell)

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.

To unsubscribe from this group and stop receiving emails from it, send an email to

predictmgt+unsubscribe@usaid.gov.

To post to this group, send email to predictmgt@usaid.gov.

To view this discussion on the web visit

<https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CY4PR08MB274217E0E56EB5870B91B68CA2140%40CY4PR08MB2742.namprd08.prod.outlook.com>.

From: Jon Epstein <epstein@ecohealthalliance.org>
To: PREDICT-outbreak <predict-outbreak@ucdavis.edu>
CC: William B. Karesh, D.V.M <karesh@ecohealthalliance.org>; Peter Daszak
<daszak@ecohealthalliance.org>; Kevin Olival, PhD <olival@ecohealthalliance.org>
Sent: 5/12/2017 10:58:03 AM
Subject: [predict] [predict-outbreak] update on Ebola outbreak, DRC

In case you hadn't seen this...
-Jon

<http://www.who.int/mediacentre/news/statements/2017/ebola-drc/en/>

From: Jonna Mazet <jkmazet@ucdavis.edu>
To: PREDICT-outbreak <predict-outbreak@ucdavis.edu>
Sent: 5/17/2017 12:14:06 PM
Subject: Fwd: follow up on duck deaths

----- Forwarded message -----

From: **Jonna Mazet** <jkmazet@ucdavis.edu>
Date: Wed, May 17, 2017 at 12:13 PM
Subject: Fwd: follow up on duck deaths
To: AOTR/Grant Manager Andrew Clements <AClements@usaid.gov>, Alisa Pereira <apereira@usaid.gov>
Cc: PREDICT-outbreak <predict-outbreak@ucdavis.edu>

Just an update that info continues to change and develop,
J

----- Forwarded message -----

From: **Karen Saylor** <ksaylors@metabiota.com>
Date: Wed, May 17, 2017 at 11:12 AM
Subject: follow up on duck deaths
To: Jonna Mazet <jkmazet@ucdavis.edu>, "William B. Karesh" <karesh@ecohealthalliance.org>, "outbreak-predict@ucdavis.edu" <outbreak-predict@ucdavis.edu>
Cc: Prime Mulembakani <pmulembakani@metabiota.com>

Hi there.

A bit of follow-up from this morning's EB call:

Prime has talked to the FAO country team who is at the outbreak site and there is still no clear number of deaths among poultry. All he said is that 1 territory is affected in the Ituri province (along the Albert Lake) with more than 4,000 deaths of poultry (mainly ducks) over a 1-2 week period, and positive results from rapid test are showing H5. The team should be back to Kinshasa one of these days, depending on flight availability, and then PCR will be done at the Central Vet Lab and in Italy for confirmation.

Thanks,
Karen

Karen Saylor, Ph.D.
Vice President, Field Research | Metabiota
Deputy Director, PREDICT Behavioral Surveillance
425 California Street, San Francisco, CA 94104
Email: ksaylors@metabiota.com
Mobile: (+1) 310 994 5770

CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments), is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it

without copying or forwarding it, and notify the sender of the error by email reply.

From: Anna Willoughby <willoughby@ecohealthalliance.org>
Sent: Thu, 18 May 2017 17:20:44 -0400
Subject: Schedule for summer M&A calls
To: Damien Joly <djoly@metabiota.com>, Jonna Mazet <jkmazet@ucdavis.edu>, Chris Johnson <ckjohnson@ucdavis.edu>, Kevin Olival <olival@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>
Cc: Brooke Genovese <bgenovese@ucdavis.edu>, Alison Andre <andre@ecohealthalliance.org>

Dear all,
The next M&A call is currently scheduled for June 6th at 11 am PST/2pm EST. Jonna cannot make this time slot, or any other call during the month of June. Does everyone want to still have this call without Jonna?

Looking at everyone's travel schedule, there is no available time slot during the month of July (unless a call during international travel would be ok?). This would mean after June's call the next one would be August, with potential times:

August 3rd at 11 am/ 2 pm PST
August 8th at 11 am/ 2 pm PST
August 10th at 11 am/ 2 pm PST

Please let me know how we would like to proceed for the June/July calls and your August availability.

Thank you,
Anna

--

Anna Willoughby

Research Assistant

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.646.868.4713 (direct)
1.212.380.4465 (fax)
REDACTED (cell)

www.ecohealthalliance.org

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

From: Peter Daszak <daszak@ecohealthalliance.org>
To: Jonna Mazet <jkmazet@ucdavis.edu>, Alice Latinne <latinne@ecohealthalliance.org>, Molly Turner <turner@ecohealthalliance.org>
Cc: "predict@ucdavis.edu" <predict@ucdavis.edu>, Christine Kreuder Johnson <ckjohnson@ucdavis.edu>, Tracey Goldstein <tgoldstein@ucdavis.edu>, "Dr. Melinda Rostal" <rostal@ecohealthalliance.org>
Sent: Mon, 22 May 2017 17:57:34 +0000
Subject: [predict] RE: Cote d'Ivoire

Thanks for doing this Jonna and glad it went ahead without too many issues. I'll go through all of these with folks here and start setting up calls. One of the issues is IPC's selection of a country coordinator – it seems we need to rapidly get involved in that selection process, so I'll work on that also.

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

+1.212.380.4473 (direct)
+1.212.380.4465 (fax)
www.ecohealthalliance.org

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

From: [REDACTED] **On Behalf Of** Jonna Mazet
Sent: Monday, May 22, 2017 1:09 PM
To: Peter Daszak; Alice Latinne; Molly Turner
Cc: predict@ucdavis.edu; Christine Kreuder Johnson; Tracey Goldstein; Dr. Melinda Rostal
Subject: Cote d'Ivoire

Hi EHA CdI team,

Here are my notes from meeting this morning with Zandra and the Mission, as well as Andrew & Alisa:

- **Mission's primary concern is that we not disrupt any progress that they "finally" have going there**
- Therefore, they prefer that we maintain the Institute Pasteur Cote d'Ivoire (IPC) relationship -- it took IPC quite a long time to get their mechanisms in place to distribute funds to be able to go into the field, etc., so there was a lot of discussion that we don't want anything to disrupt that
- Mission is very happy with IPC and PI, Prof Mireille Dosso [REDACTED]. They credit success in getting on track recently with organization and clout of Prof Dosso.
- To that end, I reassured that we would maintain the existing subaward with Metabiota to IPC and flow funds through that mechanism, while starting the subaward process between IPC and EHA. That means we will need to work with Metabiota to process invoices until the EHA subaward is finalized **AND** IPC goes through their same procedures to move money through the new mechanism with EHA. We'll see how everything goes, but it may be most prudent to plan for an Oct. 1 start date on the new subaward to allow you to work with IPC for a while and determine your optimal scope and associated budget. Another option would be to start an identical sub to the one that is in place now, but I'm not sure how that will all work out if we have two awards with the same scope in existence at the same time. I'll leave those to discussions with your people and Liz on our end
- There are two approved subs with Metabiota: IPC & LANADA (animal side)

- IPC is currently doing a recruitment for a Country Coordinator
- **Zandra is very pleased to be working with Peter, so Peter, you're going to need to be an active presence over the next few months -- calls & trips, included** (I don't think it would be prudent to mention selection of another global lead in the near term until everything is moving smoothly. Both Andrew and Zandra asked for someone who is well-versed in PREDICT to be their contact and in charge of country management. They are excited to have Alice as the country liaison because of her native French and recent experience with other countries.)
- She expecting a call with you (Peter & Alice) and Karen by next week, so you all need to set that up. I'll also tell Karen to expect a reach out from you on logistics
- Zandra is currently receiving weekly bullets to keep her informed in CdI from MB and would like to see that continued, at least in the short-term. She also speaks with the IPC team regularly. She's happy with current information flow at the moment, so you should definitely get all of those details from Karen
- There also appears to be an "Activities Calendar" about which Zandra was asking if there would be any changes -- expect that to be a discussion point when you have your transition call
- There is apparently a country launch for all of the projects soon (this week?), and Zandra mentioned that it is good that all activities in-country, to-date, have been "branded" as "PREDICT" (not a partner institution). She mentioned that it will be important to keep that going for smooth transitions and future operations. So, we'll need to keep the EHA image to a minimum -- PREDICT first, and IPC next if implementing partner is discussed in-country
- Branding and Marking was a point of discussion. I explained that the Predict logo was approved at start of Cooperative Agreement, and that is what will be used for all official communications (unless USAID/DC directs us differently). She was fine with that, but discussion re-iterates that we need to be careful with logos and use the approved versions in CdI (she's watching)
- Interim country coordinator while IPC does their recruitment is:

Dr Kalpy Julien COULIBALY, MD, MSc FS, PhD
 Médecin Microbiologiste / Chargé de Recherche

REDACTED

Ball is in your court now -- I'll speak with Eddy about it tomorrow morning and Karen & Eddy again on Wednesday morning. So if you can set up a call with them at the end of the week and with the Mission end of this or beginning of next week, that would be optimal.

Have a good day,
 Jonna

From: Andrew Clements <aclements@usaid.gov>
Sent: Wed, 24 May 2017 11:47:55 +0200
Subject: Re: Urgent request (CDI): PREDICT Community engagement
To: Karen Saylors <ksaylors@metabiota.com>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, "Pereira, Alisa (GH/HIDN)" <apereira@usaid.gov>, Shana Gillette <sgillette@usaid.gov>, Billy Karesh <karesh@ecohealthalliance.org>, Eddy Rubin <erubin@metabiota.com>, Alice Latinne <latinne@ecohealthalliance.org>, Alison Andre <andre@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>

Thanks, all.

*Andrew P. Clements, Ph.D.
Senior Scientific Adviser
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On May 24, 2017, at 7:12 AM, Karen Saylors <ksaylors@metabiota.com> wrote:

Hi Jonna and Andrew.

I did speak briefly to Dr. Kalpy yesterday to let him know that there will be a management change coming within the PREDICT consortium, and I said that I believed that the IPCI relationship shouldn't be impacted. I didn't go into further details, as I knew there was an upcoming meeting with Zandra and she has more information directly from you two that she may be able to share.

Regarding the community engagement launch, Frantz has cancelled plans to travel there for the event, but we are awaiting a conversation with EHA about a transition plan before I can say more to the IPCI team about the scheduled June 1st launch. There are a number of coordination matters to be sorted, and we have scheduled a call with Peter and Billy later this week to discuss.

Karen

From: **REDACTED** > on behalf of Jonna Mazet <jkmazet@ucdavis.edu>
Date: Tuesday, May 23, 2017 at 8:23 PM
To: Andrew Clements <aclements@usaid.gov>, Peter Daszak <daszak@ecohealthalliance.org>, Karen Saylors <ksaylors@metabiota.com>
Cc: David John Wolking <djwolking@ucdavis.edu>, "Pereira, Alisa (GH/HIDN)" <apereira@usaid.gov>, Shana Gillette <sgillette@usaid.gov>, Billy Karesh <karesh@ecohealthalliance.org>, Eddy Rubin <erubin@metabiota.com>, Alice Latinne <latinne@ecohealthalliance.org>, Alison Andre <andre@ecohealthalliance.org>
Subject: Re: Urgent request (CDI): PREDICT Community engagement

I'm just seeing the message now, but I believe that Karen has spoken with Kalpy to let him know that a transition is coming and that the IPC relationship should not be impacted.
She can advise on communication status but may not see this message until after OOB in CdI, as that's in the middle of our night.

Jonna

On Tue, May 23, 2017 at 3:14 AM, Andrew Clements <aclements@usaid.gov> wrote:

Please see below and let us know ASAP if you will be able to touch base with the local PREDICT CDI team before OOB tomorrow (Abidjan time). Thanks!

----- Forwarded message -----

From: Zandra Andre <zandre@usaid.gov>
Date: Tue, May 23, 2017 at 12:09 PM

UCDUSR0005844

Subject: PREDICT Community engagement

To: Andrew Clements <aclements@usaid.gov>, sgillette@usaid.gov, Alisa Pereira <apereira@usaid.gov>

Cc: Regina Konan <nkoko@usaid.gov>, Marie Ahmed <mahmed@usaid.gov>

Hi All,

Thanks for the call yesterday to clarify the plans for moving forward with the PREDICT project. It is clear that you've got a good plan forward that maintains our progress/operations in country.

In continuing to move forward, we have a June 1st community engagement event for PREDICT in its final planning stages. Regina and I met with the project today in fact to go over the details of the event. Our folks on the ground here are under the impression that either Frantz or Karen are coming in for the event. We didn't disabuse them if this notion since as we discussed yesterday, PREDICT HQ will do so but this is a pressing issue.

We have a meeting with the PI here for PREDICT tomorrow to go over the hopefully penultimate version of the ceremony and it will be in our best interest to have everyone on the same page.

It would be greatly appreciated if someone from HQ could inform the project here about the impending plan for PREDICT by OOB tomorrow.

Please confirm if this is possible.

Thanks,

Zandra

Sent from my iPhone

--

Andrew Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: [1-571-345-4253](tel:1-571-345-4253)
E-mail: aclements@usaid.gov

For more information on USAID's Emerging Pandemic Threats program, see: <http://www.usaid.gov/ept2>

From: Brooke Genovese <bgenovese@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>
CC: Elizabeth Leasure <ealeasure@ucdavis.edu>;Jonna Mazet <jkmazet@ucdavis.edu>
Sent: 6/22/2017 9:30:34 AM
Subject: FW: [predict] Revised Country Caps

Hi Andrew,

Just following up on the proposed call regarding the revised country caps. Any word from Robbin?

Thank you!

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Brooke Genovese
Date: Monday, June 19, 2017 at 4:16 PM
To: Jonna Mazet , Andrew Clements , "apereira@usaid.gov"
Cc: Elizabeth Leasure , David John Wolking , "sgillette@usaid.gov"
Subject: [predict] Revised Country Caps

Hello everyone,

I'm reaching out to schedule a call this week regarding the revised country planning budgets. Below are a few dates/times that work for Jonna and Liz – please let me know if any of these work with your schedules:

Wed. 6/21: 8:30 am PDT / 5:30 pm CEST
Thurs. 6/22: 9:00 am PDT / 6:00 pm CEST
Fri. 6/23 9:00 am PDT/ 6:00 pm CEST or 10:00 am PDT / 7:00 pm PDT

Jonna suggested that Robbin be on the call to discuss the revisions. Andrew – could you reach out to Robbin to coordinate?

If the proposed dates/times are not ideal for everyone, I can come up with some other options.

Thank you!

Best,

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Brooke Genovese <bgenovese@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>, Elizabeth Leasure <ealeasure@ucdavis.edu>, Alisa Pereira <apereira@usaid.gov>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, Shana Gillette <sgillette@usaid.gov>
Subject: Re: [predict] Revised Country Caps
Sent: Thu, 22 Jun 2017 22:05:57 +0000

Hi everyone –

The call regarding PREDICT revised country caps will be at **9:00 am PDT/6:00 PM CEST**

Here is the call-in info:

Meeting ID: REDACTED

Join from PC, Mac, Linux, iOS or Android: <https://onehealth.zoom.us/j/367121776>

Or iPhone one-tap (US Toll): +14086380968,, REDACTED or +16465588656, REDACTED

Or Telephone:

Dial: +1 408 638 0968 (US Toll) or +1 646 558 8656 (US Toll)

International numbers available: <https://onehealth.zoom.us/join?m=wL6zy3WbHSNG8l-5eRIEorkQwPyvLe0k>

Thank you!

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Andrew Clements <aclements@usaid.gov>
Date: Thursday, June 22, 2017 at 2:01 PM
To: Brooke Genovese <bgenovese@ucdavis.edu>
Cc: Elizabeth Leasure <ealeasure@UCDAVIS.EDU>, Jonna Mazet <jkmazet@ucdavis.edu>, Alisa Pereira <apereira@usaid.gov>, Shana Gillette <sgillette@usaid.gov>
Subject: Re: [predict] Revised Country Caps

I don't know Robbin's schedule, but let's talk without her on Friday.

Andrew P. Clements, Ph.D.
Senior Scientific Adviser
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov

On Jun 22, 2017, at 6:32 PM, Brooke Genovese <bgenovese@ucdavis.edu> wrote:

Hi Andrew,

Just following up on the proposed call regarding the revised country caps. Any word from Robbin?

Thank you!

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Brooke Genovese <bgenovese@ucdavis.edu>

Date: Monday, June 19, 2017 at 4:16 PM

To: Jonna Mazet <jkmazet@ucdavis.edu>, Andrew Clements <aclements@usaid.gov>, "apereira@usaid.gov" <apereira@usaid.gov>

Cc: Elizabeth Leasure <ealeasure@UCDAVIS.EDU>, David John Wolking <djwolking@ucdavis.edu>, "sgillette@usaid.gov" <sgillette@usaid.gov>

Subject: [predict] Revised Country Caps

Hello everyone,

I'm reaching out to schedule a call this week regarding the revised country planning budgets. Below are a few dates/times that work for Jonna and Liz – please let me know if any of these work with your schedules:

Wed. 6/21: 8:30 am PDT / 5:30 pm CEST

Thurs. 6/22: 9:00 am PDT / 6:00 pm CEST

Fri. 6/23 9:00 am PDT/ 6:00 pm CEST or 10:00 am PDT / 7:00 pm PDT

Jonna suggested that Robbin be on the call to discuss the revisions. Andrew – could you reach out to Robbin to coordinate?

If the proposed dates/times are not ideal for everyone, I can come up with some other options.

Thank you!

Best,

Brooke Genovese
Project Manager
Executive Analyst
One Health Institute
School of Veterinary Medicine
Tel: 530-752-6459
bgenovese@ucdavis.edu

From: Cara Chrisman <cchrisman@usaid.gov>
Sent: Thu, 6 Jul 2017 11:23:45 -0400
Subject: GVP Mtg Today - Agenda
To: Peter Daszak <daszak@ecohealthalliance.org>, Eddy Rubin <erubin@metabiota.com>, Nathan Wolfe <nwolfe@metabiota.com>, Jonna Mazet <jkmazet@ucdavis.edu>, Brooke Watson <watson@ecohealthalliance.org>, **REDACTED**
Cc: Dennis Carroll <dcarroll@usaid.gov>

Hi All,
As far as I know, we're all on for the mtg today, with the exception of Jonna.

Here's our tentative agenda, with the London/Oslo trip as the primary discussion point:

- Outreach
 - London/Oslo (see previous email for details)
 - West Coast
 - NYC
 - DC - NSC
 - Dan Janzen (UPenn, regarding Costa Rica)
- Publications
 - WHO Bulletin
 - Science Paper
- Website
 - Updates to documents - 1 pager, etc.
- AOB

Talk to you all soon!

Best,
Cara

Cara J. Chrisman, PhD
Senior Infectious Diseases Technical Advisor
Emerging Threats Division
Office of Infectious Disease
Bureau for Global Health
U.S. Agency for International Development (USAID)

Desk: (202) 712-1161
Cell: **REDACTED**
E-mail: cchrisman@usaid.gov

From: Dominic Travis <datravis@umn.edu>
To: Kristine Smith, DVM, Dipl. ACZM <ksmith@ecohealthalliance.org>; Shaun Kennedy <skennedy@foodsysteminstitute.com>; Tracey Goldstein <tgoldstein@ucdavis.edu>; Amy Kricher <akircher@umn.edu>; Randy Singer <singe024@umn.edu>; Tiffany Wolf <wolfx305@umn.edu>; Stephen S <stephen@umn.edu>; Jonna Mazet <jkmazet@ucdavis.edu>; William Karesh <karesh@ecohealthalliance.org>
Sent: 7/28/2017 11:01:54 AM
Subject: today's draft

Amy,

Here a mostly full draft from our combined discussions to date. It is my understanding that you all want to provide feedback on these before you package them for the Center proposal. So, I'm giving you this version to peruse - it's too long, but I'm not sure where to tighten for this audience - I need guidance from Stephen?? I'm really not sure how to make this 4 pages, but conciseness is rarely my gift.

I'm back in the office on Monday and available to tighten, clean and finalize based upon you and Stephen's thoughts on above.

From our previous lessons, central to this work is a 100% post doc for two years, but there are many others here needed for the different deliverables. It is my understanding that we are allowed the full budget slot (200K/year), which will allow for just under 100K for the actual costs/year once all of the overhead costs are taken. With that in mind, it would be good to review the deliverables we have here for the money in that light. Maybe we can flesh them out more if chosen for full proposal.

All, please think about budget needs. I have estimates from Kristine already and our preliminary discussions said we would be no cost on Goldstein et al preprop, while Davis would be no cost on this one. We should confirm that final plan. Tiffany, Shaun and Randy, I'll contact you next week.

Thanks all for your patience this week. I will be traveling and out of touch now till Monday.

Dominic

--

Dominic Travis DVM, MS
Associate Professor, Epidemiology and Ecosystem Health, College of Veterinary Medicine
Adjunct Associate Professor, Environmental Health, School of Public Health
Fellow, Institute on the Environment
University of Minnesota

Phone: 612 626 5911
Skype: dominic.travis
www.facebook.com/biodiversitydoctors.

Instructions

The following instructions are provided to guide you in submitting a white paper for a project to be included in the University of Minnesota-led proposal to establish a new Department of Homeland Security (DHS) Science and Technology Directorate Center of Excellence (COE). This proposal is being submitted in response to Notice of Funding Opportunity (NOFO) DHS-16-ST-061-CBTS-Lead. The new COE will be a Center for Cross-Border Threat Screening and Supply Chain Defense (CBTS).

The full NOFO is available on grants.gov at <https://www.grants.gov/web/grants/view-opportunity.html?oppId=292506>. For your convenience and to aid in completing this project white paper template, we have excerpted the most directly relevant portions of the NOFO and provided them as separate documents. These include:

- Overview & Background
- Themes-Topics
- Transition

We strongly recommend reading all three of these documents before preparing your white paper.

Also, to help you with your responses, comments and instructions [appearing in brackets like this] have been added to some items. These can be deleted after you no longer need them.

Your completed white paper must be no longer than four pages and single-spaced, use 12-point Times New Roman font, and have one-inch margins. This template has been preformatted this way for your convenience.

White papers must be received by **July 1, 2017** to be reviewed with sufficient time to consult with you on potential revisions and to be included in the final full proposal.

If you have any questions regarding the white paper instructions or the proposal, please don't hesitate to contact Stephen Streng at stephen@umn.edu.

Project Title: Application of OIE Risk Analysis Framework to Trade of Wildlife: Phase II, addressing the gaps.

Principal investigator (name, title, institution): Dominic Travis, Associate Professor of Epidemiology and Ecosystem Health, College of Veterinary Medicine, University of Minnesota

Other key technical and project personnel

- 1) Kristine Smith, EcoHealth Alliance, NY, NY
- 2) Shaun Kennedy, Food Systems Institute, St. Paul, MN; and adjunct Associate Professor, College of Veterinary Medicine, University of Minnesota
- 3) Randall Singer, Professor of Epidemiology, College of Veterinary Medicine, University of Minnesota
- 4) Tiffany Wolf, Assistant Professor of Wildlife Epidemiology, College of Veterinary Medicine,
- 5) Tracey Goldstein, College of Veterinary Medicine, University of California, Davis
- 6) UMN Post Doctoral Fellow in Ecosystem Health

Significant partners and their roles

- 1) William Karesh, Vice President of Health Policy, EcoHealth Alliance, NY, NY – Dr. Karesh is a global expert on wildlife health, trade and policy. He is the Chair of the Wildlife Working Group of the OIE, and Co-Chair of the Veterinary Scientific Advisory Group of the International Union for the Conservation of Nature. He is also a lead partner in USAID PREDICT global wildlife disease surveillance program. He will act as lead for EcoHealth Alliance partner.
- 2) Jonna Mazet, Director, One Health Institute, University of California, Davis – Dr. Mazet is the Director of the UCD One Health Institute and Prime for the USAID PREDICT global wildlife disease surveillance program. She will act as advisor to the project and lead for UCD partner.
- 3) Amy Kircher, Director, Food Protection and Defense Institute, University of Minnesota – Dr. Kircher is the Center lead and will facilitate data sharing and working group relations with DHS CBP personnel.

Theme(s)/topic(s) the project addresses:

Topic Area One: Detecting Biological Threats and Disruptions to People and Global Supply Chains:

Topic Area Two: Data Integration and Analytics

Topic Area Three: Novel Operational Methods to Use Emerging Tools to Reduce Risk

Topic Area Five: Time Critical Response Support

Project abstract: The World Health Organization (WHO) reports that 26% of human deaths are caused by infectious disease and nearly 60% of infectious diseases are considered zoonotic (pathogens transmissible between animals and humans) - most of these (>70%) are caused by pathogens of wildlife origin (Taylor et al., 2001; Jones et al., 2008). Further, diseases affecting agriculture originating from the wildlife-livestock interface via anthropogenic drivers such as land use change, and wild animal and livestock translocation remain a significant challenge to food security in many areas of the world, including developed countries such as the United States (US). Miller et al. (2013) from the USDA performed a systematic review of diseases at the livestock-wildlife interface in the US and found that nearly 80% of the OIE-listed pathogens present in the US have a potential wildlife component. Additionally, they concluded that wildlife present the largest barrier to disease eradication programs in the US; that in-depth relationships do not currently exist at the regulatory levels needed to address this issue; and that a systems-based, adaptive management styled, approach is recommended. Unfortunately, of all the pathways included in this analysis, international trade was mentioned but the threat was not characterized.

According to the USDA Economic Research Service (ERS), the value of US agricultural exports increased from \$85 billion in 1995 to over \$144 billion in 2013. Agriculture and agriculture-related industries contributed \$835 billion to the US gross domestic product (GDP) in 2014. Thus, it is important to characterize the threat that infectious disease introduction poses to this vital business, as well as human, animal and ecosystem health. According to the US Department of Homeland Security (this RFP), “each year, more than 11 million maritime containers arrive at the Nation’s seaports. At land borders, another 11 million arrive by truck and 2.7 million by rail. In 2015, TSA screened more than 432 million checked bags, more than 1.6 billion carry-on bags, 708 million passengers, and 12.9 million airport employees.”

Wildlife trade is one of the largest and most complex commerce exchanges in the world. The legal global trade in wildlife and wildlife products involves the movement of billions of plants and animals comprising an economic value estimated at US \$300 billion per annum (Ahlenius, 2008;WWF / Dalberg, 2012). The illegal aspect of wildlife trade is estimated to be a \$5-20 billion-dollar industry, comparable to the international trade of narcotics and weapons (Wyler et al., 2008;Haken, 2011;WWF / Dalberg, 2012). There are no adequate estimates of the full scale of wildlife traded throughout the world given its diversity, scope, and partial underground existence. Even though it comprises one of the largest commodity groups traded globally, risks associated with this supply chain have rarely been characterized, especially where disease introduction potentially intersects with the domestic food supply and/or human health.

Through a series of pilot studies with the USG, including the development of a systems-based approach to prioritizing and characterizing the risks (Pathways, Threats, Vulnerabilities and Consequences) that the trade of wildlife and wildlife products pose to the US Food System (Travis et al., 2016), we find potential biological hazards associated with wildlife trade to pose a threat to human and animal health in the United States (Smith et al., 2012; Smith et al., 2017; Kircher report ebola; Travis report). For instance, 13.5 years examined, wildlife imports to the US included a total of 5,207,420 *individually identifiable shipments* between January 1, 2000 and August 6, 2013. These shipments involved a total of 11,033,468,322 *individual specimens/animals, plus an additional 977,109,143 kilograms of specimens/animals measured only in weight*. The majority of shipments contained mammals (27%), while the majority of total specimens imported were shells (57%) and tropical fish (25%). Of all wildlife imports, 3,028,647,093 (27.4%) individuals plus 24,449,892 (2.5%) kilograms were recorded as *live* upon entry (Smith et al., 2017).

We realize that it is not enough to show that a shocking volume of live wild animals enter the United States annually, we must address the obvious “so what” questions: 1) what diseases exist in imported wildlife (hazard identification and prioritization), b) where do imports go post-entry, and c) what is likely to happen as a result (exposure assessment)? Herein, we propose to continue our partnership with industry and USG stakeholders to design and pilot methods for addressing these gaps, thus allowing for a more complete assessment of this threat.

Project goals and objectives

Goal 1 - Design and test requirements for wildlife disease prioritization and surveillance at the US border.

Objective 1.1 – Design a tool to conduct real-time “hazard identification/prioritization” for emerging and zoonotic diseases that may be used on port-by port basis, or scaled up for more general use.

Objective 1.2 – Design flexible surveillance protocols (SOPs) that may be implemented as a part of ongoing work at the US border by qualified officials, including product identification, visual record-keeping, non-invasive sample collection, and occupational situational safety standards.

Objective 1.3 – Table top exercises for above in 1-2 ports.

Goal 2- *Design and pilot a pathway/network modelling approach to assess potential exposure between imported wildlife and food commodity pathways (to include both regulated and non-regulated pathogens of concern) using existing data*

Objective 2.1 – proof of concept – spatially explicit commodity mapping (the victim) of potential movement pathways for at least three substantially different wildlife import types to explore the limits of the accessible data sources for predicting movement.

Objective 2.2 – proof of concept – pilot mapping of a specific commodity import through to final disposition through accessible data vs. private sector partnership for evaluation of ease of execution of each in a timely fashion and potential complementary attributes of each.

Gap(s) addressed

The entire project supports Topic Area Two: Data Integration and Analytics

- How can the value of supply chain, environmental, health, social media, financial, and intelligence data sets be assessed quantitatively for inclusion in tools focused on providing insights into the health status of our Nation?
- How can DHS integrate existing surveillance data streams for animal (wild, domestic, and companion), plant and human health to develop a more holistic view of situations?

Goal 1:

Topic Area Two:

- How can specific information pertaining to location, classification of material, certification documentation, and threat assessment be easily referenced during the non-intrusive inspection process of goods?
- How can documentation on products that are seized, re-exported, or destroyed be improved? How can the aggregation of this data then be used in training or trend analysis?

Topic Area Five: Time Critical Response Support

- What information can be integrated into decision support tools that will quickly instruct a non-technical individual to determine how to identify and respond to a high consequence biothreat?

Goal 2:

Topic Area One:

- Detecting Biological Threats and Disruptions to People and Global Supply Chains: How do different supply chains work and where are the critical nodes within a supply chain where opportunities exist for mitigating risk posed by biological threats?

Topic Area Two:

- What is the state of the art in predicting geospatial, temporal, and directional movement of biological agents, persistent and emerging pests, and pathogenic high consequence diseases of animals, humans, and plants, through trade, travel, and/or natural atmospheric circulation pattern?

Outputs and outcomes

Goal 1	Output	Outcome and Relevance
1.1 – Disease prioritization tool development	A WL hazard identification tool/process	The ability to quickly develop science based high priority pathogen-risk targets for wildlife using criteria established by USG and industry partners
1.2 – Surveillance protocol design	Wildlife disease passive surveillance Protocols/SOPs	Increase emergency preparedness and response for wildlife related disease incursions; increase efficacy of data collected at POE
1.3 – Practice	Table top exercises/pilot in Haz ID and POE surveillance	Feasibility planning, learning and iterative improvement – training through participation
Goal 2	Output	Outcome

2.1	At least three different wildlife commodity movement pathway maps	Confirmation of the utility of accessible data for improving understanding of wildlife movement for identification of nodes of interest
2.2	Pilot mapping of a specific commodity import through to final disposition through accessible data vs. private sector partnership	Feasibility of either high level commodity pathway mapping or private sector partnership in enhancing situational awareness with respect to wildlife, and thus disease, movement

Knowledge context: To fill the information void surrounding the risk that wildlife trade poses to US food and people, we recently conducted the most comprehensive study to date in this area (sponsored by DHS via National Center for Food Protection and Defense) with the end goal of conducting quantitative risk assessments on the highest priority pathways of concern. The primary hypothesis for the utility of the project was that the trade in wildlife, both animals and products, had the potential to be a source of significant risk to US food & agriculture systems and public health. That held true throughout the project, driven in part by (1) the overwhelming magnitude and diversity of imported wildlife and source countries, and (2) limited controls upon entry to the US for wildlife focused on mitigating pathogen introduction. Perhaps the most important overall finding after the potential risk of wildlife trade are the limitations of the available data and knowledge in conducting a rigorous risk assessment. In all cases, risk assessments had significant uncertainties and/or knowledge gaps, which highlighted important opportunities for risk mitigation, more consistent and focused data collection, stakeholder collaboration and future research to improve capabilities in this area. This proposed work would focus on the following gaps identified in our previous DHS funded work:

- Many wildlife species and products such as fish, camelids and certain ruminants, for example, may be imported under several different labels/regulations (food, wildlife, domestic agriculture), each involving a different agency. Centralizing protocols to allow for enhanced data and specialty knowledge-sharing capabilities across USG agencies at the border will help either design a prospective disease surveillance system, or implement emergency measures.
- Most wildlife regulation is done by USFWS based upon conservation status/concerns (CITES law) – very few species are regulated based upon comprehensive disease risk. Adding wildlife pathogen considerations to a centralized wildlife importation monitoring framework would enhance capability to assess and mitigate risk.
- There is a lack of consistently utilized standardized/specific wildlife species identification codes/terms at import.
- There currently exists no standard mechanism to determine the pathways that wildlife and products take after import, including their final destination and utilization, as well as potential contact with native wildlife and the US food system; this was the single biggest data gap in our analyses.
- Sponsor and direct targeted research to advance knowledge/fill gaps in areas such as host pathogenesis (e.g., shedding characteristics), pathogen detection across species and pathogen viability in wildlife food products and wildlife-associated fomites.

Approach and hypothesis: We will further engage a multi-disciplinary stakeholder group created in phase I to specifically define the scope of each phase to best fit the needs of the USG and industry. The process undertaken for each objective includes:

G1 O1: Create decision support tool that incorporates “Hazard identification methodology” from OIE guidelines including stakeholder criteria survey of USG and industry for pathogen prioritization
 G1 O2: Review current decision making matrices and design risk-based surveillance protocols and SOPs for wildlife, including visual record keeping, passive sample collection when appropriate, and situational biosecurity safety protocols.

G1 O3: Design, conduct and evaluate table top exercises/pilots to test tools/protocols developed in terms of their feasibility within the current infrastructure of CBP.

G2 O1: Commodity mapping combining information from the EHA data base with publically available and subscription based data sources can provide a preliminary assessment of exposure potential at a city to region to state to national level. This will be evaluated through the integration of a series of data sources to determine their combined limitations in providing useful estimates of commodity movement and thus disease exposure.

G2 O2: Commodity mapping from data sources is limited relative to direct private sector engagement but can enhance private sector engagement by bridging gaps in firm or organization specific data on commodity movement.

Methods

G1O1 – OIE HID protocol will be translated into a programmable worksheet tool that allows for integration of source country status, spp imported and diseases of concern. Stakeholder survey will be conducted to further establish ranking criteria from previous work. Worksheet data and decision criteria will be integrated into decision tool and tested using CBP and EHA trade and confiscation data.

G1M1: Preliminary worksheet tool

G1M2: Stakeholder survey results

G1M3: Beta decision tool for testing with stakeholders

G1O2 – In conjunction with relevant USG partners, our team will build off of the lessons of Smith et al., and the Goldstein et al. proposal (this program), to design an enhanced passive surveillance/monitoring system for imported wildlife and products. We will then map, based on current knowledge where these imports go post-entry (methods G 2). From that data, we can highlight key gaps in information regarding post-entry exposure, and propose methodology options for gathering info in the future via tracking or other means

G1M4: Prototype passive surveillance/monitoring system

G1M5: Key information gaps and methodology options for closing them

G1O3 – a) a table top exercise will be conducted with process/tool developed in O1 using two different port case studies; b) an additional table top exercise will be conducted to evaluate the feasibility of implementing the surveillance plan in O2. This will integrate feedback from Goldstein et al proposed active surveillance pilot.

G1M6: Table top exercise of two port case studies

G1M7: Table top exercise for G1O2 feasibility

G2O1 – In addition to the EHA data base, identified data sources for evaluation and integration include but are not limited to employment (Bureau of Labor Statistics/state agencies), commercial operations (Department of Commerce/state Commerce departments), industry data services (Hoovers, IBIS World), trade associations (reef aquarium, fresh water aquarium, retail pet, exotic pet) and select social media. The utility of the data from each will be assessed for integration into a complimentary system of data sources for generation of the at least three commodity pathway maps which will be reviewed with stakeholders to assess their reasonableness and utility.

G2M1: Cleaning up of EHA data for the selected commodities

G2M2: Accessible data utility review completed and summarized

G2M3: At least three commodity pathway maps for stakeholder assessment

G2O2 – Commodity mapping and private sector partnership will be evaluated in real time through a functional exercise with respect to the ability to anticipate the movement of wildlife from point of import through to final disposition. The speed, accuracy and potential complimentary attributes of each will be evaluated as to their potential use as operational tools for identification of critical nodes and understanding potential human exposure.

G2M4: Private sector partner identified

G2M5: Requisite data sharing/protection protocols and agreements exercised

G2M6: Functional exercise completed

Software standards

Only COTS software will be used for this project.

Data access

G1O1 – The EHA wildlife importation data base will be used for this objective; the disease lists will be derived from regulatory lists and scientific literature, as well as unpublished information from the global PREDICT wildlife disease surveillance project led by partners UCD and EHA. If CBP confiscation data are made available, this information will be included.

G1O2 – USG data collection standards will need to be available to accomplish this objective, but we are expecting CBP, USDA, CDC, and USFWS to be part of the team with the presumption that they would be prepared to map their existing prioritization criteria, data standards and decision trees. If not, this exercise may be partially academic, built upon known current UGS protocols and some assumed protocols based on current regulations and staff capacity.

G2O1 – The EHA data base will be used for historic data on wildlife imports, including de-identified information on involved firms to provide geographic context. All other data utilized will be either publicly available (Bureau of Labor, etc.) or publically accessible (Hoovers, etc.). The currency of the data will be evaluated to assess, by source, how useful it is for probabilistic pathway maps vs. more granular assessments.

G2O2 – In addition to the data utilized in G2O1, private sector data will be included from the designated partner to provide information on the portions of the supply chain that they either control or have insight into.

Transition

Pathway: Our overall goal of placing the question of disease risks associated with wildlife trade into the OIE Risk Analysis process itself exemplifies the “Stage-Gate Process.” The fact that this proposal – Phase II – represents an attempt to create methods and tools to fill the most important gaps in the overall process, shows that we are inherently in line with this thinking.

Stages and Gates: As a set of data analytics and methodological deliverables, the stages and gates are driven primarily by data access and review, methodology development, functional tool prototyping and stakeholder evaluation. Each Goal progresses through these general conceptual stages and clears the associated gates, with the advantage that data access and review has already been completed for a subset of the goals. The identified milestones effectively correlate with a stage leading to a clearance gate as progress to the subsequent milestone is contingent upon successful completion of the identified milestone.

Evidence of fit of mission comes from the fact that Phase I was funded through DHS, which included at the client’s request a broad stakeholder engagement process for product review and further prioritization of next phase deliverables. Included in this proposal are objectives that meet specific needs of the community while contributing to the overall goal of quantitative import risk analysis modeling of wildlife trade. Each of the Goals (1,2) is aimed at a major gap in the overall process and has objectives and milestone endpoints that result in a useful deliverable to the community:

G1O1 – A preliminary Hazard Identification/Prioritization worksheet tool will provide CBP with a user friendly approach for any scale needed, but will be useful on an independent port basis. An expanded (from Phase I) survey of criteria used to rank hazards from different perspectives within the USG and

Industry will allow for insight into the priorities of different stakeholders and allow for the goal of a more inclusive/robust approach to this problem

G1O2 – the design of an idea surveillance platform for wildlife trade at US POE will allow for CBP and partners to assess feasibility and cost efficiency of implementing this task. By interfacing with Goldstein et al. pilot (this Center proposal), feasibility will be piloted with already established high priority animals and pathogens.

G1O3 – Table top exercises will allow for practice using the above for: a) iterative improvement of protocols, tools and recommendations; as well as serve as an extended multi-disciplinary focus group platform for collaboration in this area among the USG and with industry and SMEs.

G2O1 – Evaluating the accessible data sources and obtaining the desired data from the EHA data base are establish the total data resource. These will be used to develop commodity pathways which provide probabilistic maps of where products (wildlife) could go based on a specific set of assumptions. Each of the at least three commodity pathway maps developed will be reviewed with representative stakeholders to ensure that they represent reasonable estimates of where the wildlife may transit. A further round of feedback will be sought from DHS component agencies and other Homeland Security Enterprise potential end users so that the commodity pathway maps, and the means of maintaining them as up to date as is reasonable, can be utilized across the Enterprise.

G2O2 – The data resource from G2O1 and the baseline commodity maps are key inputs. The specific logic trees are added to build beyond the basic mapping approach for projected pathways following a specific wildlife entry into the U.S. For private sector engagement, specific parameters on data sharing and data protection are perhaps equally as important as the characteristics of the types of data that could be available from the private sector. The pilot serves as the evaluation of the utility of one or an integration of both approaches for enhanced understanding of wildlife pathways and potential human exposure. DHS component agencies will be invited to observe and/or participate in the pilot where all tools and strategies will be reviewed. A final set of best practices, logic trees and the output from G2O1 will be tailored as required for the appropriate DHS component agencies and other Homeland Security Enterprise participants.

Commercial partnership(s)

[Identify (if applicable) the commercial partners with the necessary complementary assets to realize the technology/approaches/concepts.]

Milestones and Schedule

Milestones: Year 1

	Description	Target
G1M1:	Preliminary worksheet tool	MM/YYYY
G1M2:	Stakeholder survey results	
G1M4:	Prototype passive surveillance/monitoring system	
G1M5	Key information gaps and methodology options for closing them	
G2M1	Cleaning up of EHA data for the selected commodities	
G2M2	Accessible data utility review completed and summarized	

Schedule: Year 1

Task	Start	End
	MM/YYYY	MM/YYYY

Project White Paper Template

Milestones: Year 2

	Description	Target Date
G1M3	Beta decision tool for testing with stakeholders	
G1M6	Table top exercise of two port case studies	
G1M7	Table top exercise for G1O2 feasibility	
G2M3	At least three commodity pathway maps for stakeholder assessment	
G2M4	Requisite data sharing/protection protocols and agreements exercised	
G2M5	Functional exercise completed	

Schedule: Year 2

Task	Start	End
	MM/YYYY	MM/YYYY

[Add more rows and/or tables as necessary]

Budget

The total cost of this work is 200 K USD per annum to develop tools and create table top exercises; scaling up over five years would depend upon scope (number of ports or scope of question) or the inclusion of pilot studies resulting in diagnostic data. For instance, diagnostic costs for a proposed surveillance pilot study are included in Goldstein et al proposal.

References and citations

[Please use Chicago author-date reference list style.]

Taylor et al., 2001;

Jones et al., 2008

Miller et al. (2013)

Ahlenius, 2008;

WWF / Dalberg, 2012

(Wyler et al., 2008;

Haken, 2011;

Travis (report final)

Smith, K.M., Zambrana-Torrel, C., White, A. et al. EcoHealth (2017) 14: 29.

<https://doi.org/10.1007/s10393-017-1211-7>

Kircher report

SMITH, K.M., Anthony S.J., Switzer W.M., Epstein J.H., Seimon T., et al. 2012. Zoonotic viruses. PLoS ONE 7(1): e29505. doi:10.1371/journal.pone.0029505

From: David J Wolking <djwolking@ucdavis.edu>
To: Prof. Jonna Mazet <jkmazet@ucdavis.edu>; Kevin Olival
<Olival@ecohealthalliance.org>; Peter Daszak <daszak@ecohealthalliance.org>; Brian Bird
<bhbird@ucdavis.edu>; Corina Grigorescu Monagin <cgmonagin@ucdavis.edu>; Tracey
Goldstein <tgoldstein@ucdavis.edu>; Simon Anthony <sja2127@columbia.edu>; Christine
Kreuder Johnson <ckjohnson@ucdavis.edu>; Megan Doyle <mmdoyle@ucdavis.edu>; Prof.
Woutrina Smith <wasmith@ucdavis.edu>; Tammie O'Rourke
<torourke@metabiota.com>; Leilani Franciso <francisco@ecohealthalliance.org>; William
Karesh <karesh@ecohealthalliance.org>; Catherine Machalaba
<Machalaba@ecohealthalliance.org>
Sent: 9/13/2017 11:23:43 AM
Subject: Slides from semi-annual meeting

Hi there,

We would like to archive the presentations from the semi-annual meeting and Andrew would also like to have them to create a shortened semi-annual meeting slide deck to share with USAID colleagues.

Could you please email me your presentation when you have a chance?

Thanks!

David

From: "Smith, Laura Ann (CDC/OID/NCEZID)" <wj19@cdc.gov>
To: Andrew Dobson <dobber@Princeton.edu>, Bruce Kaplan <bkapdvm@verizon.net>, Camille Hopkins <mchopkins@usgs.gov>, Cheryl Stroud <cstroud@onehealthcommission.org>, Chris Vanlangendonck <c.vanlangendonck@onehealthplatform.com>, Christopher Johnson <cjohnson@usgs.gov>, "Buttke, Danielle (CDC nps.gov)" <Danielle_Buttke@nps.gov>, David de Pooter <d.depooter@onehealthplatform.com>, "dcarroll@usaid.gov (CDC usaid.gov)" <dcarroll@usaid.gov>, Elaine Bond <elaine_bond@ios.doi.gov>, "Elizabeth Mumford" [REDACTED] "Gomez, Thomas M. (CDC/OID/NCEZID)" <tmg1@cdc.gov>, Guillaume Belot <[REDACTED]>, J Donlin <jdonlin@avma.org>, Jane Rooney <Jane.A.Rooney@aphis.usda.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, "Lubroth, Juan (CDC [REDACTED])" <[REDACTED]>, Kendra Chittenden <kchittenden@usaid.gov>, "Lance, Susan (CDC/OID/NCEZID)" <sel0@cdc.gov>, Laura Kahn <lkahn@Princeton.edu>, Lisa Conti <Lisa.Conti@freshfromflorida.com>, Megan Mehafeey <Mehaffey.Megan@epa.gov>, Michael Costin <MCostin@avma.org>, Ottorino Cosivi <cosivio@paho.org>, "Peter Costa" <pcosta@onehealthcommission.org>, Ricardo Echalar <rechalar@usaid.gov>, Richard Greene <rgreene@usaid.gov>, S Gillette <sgillette@usaid.gov>, "Sara Martins" [REDACTED] Sarah Paige <spaige@usaid.gov>, "Shadomy, Sean (CDC/OID/NCEZID)" <auf4@cdc.gov>, "Sinclair, Julie (CDC/OID/NCEZID)" <bwg5@cdc.gov>, Stephanie de la Rocque de Severac [REDACTED] Thomas Yuill <thomas.yuill@wisc.edu>, Tiffany Cain <tcain@wghalliance.org>, Tom Monath <tmonath@linkp.com>, Tracey Dutcher <Tracey.V.Dutcher@aphis.usda.gov>, William Karesh <karesh@ecohealthalliance.org>
Cc: "One Health (CDC)" <onehealth@cdc.gov>
Subject: 5th International One Health Congress
Sent: Mon, 11 Dec 2017 20:53:16 +0000

Dear colleagues,

From June 22-25, 2018, the 5th International One Health Congress will be held in Saskatoon, Canada, and will host One Health advocates from all over the globe. The conference will include four days of lectures, debates, workshops and symposia.

To capture the multifaceted One Health paradigm, the Congress will have distinct program tracks on One Health Science (zoonoses, climate change, food and water safety), antimicrobial resistance, and science/policy. Visit the Congress website to [view the updated program](#) or to [register for the Congress](#).

Abstracts for the Congress will be accepted until February 15, 2018. They are looking for contributions on a variety of One Health themes. Visit [the conference webpages](#) for an overview of the session topics and the abstract submission instructions.

Sincerely,

Laura Smith, MA

Health Communication Specialist
Office of the Director & One Health Office
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease Control and Prevention

(O) 404-639-7704

(M) [REDACTED]

From: Andrew Clements <aclements@usaid.gov>
To: <undisclosed-recipients:>
Sent: 2/5/2018 4:24:28 AM
Subject: February 5, 2018 Emerging Pandemic Threat update

Summary: 62 poultry outbreaks, 27 wild bird outbreaks, and 67 human infections with 12 pathogens (various avian and swine influenza viruses, Lassa, MERS-CoV, and monkeypox) were reported by 19 countries between January 8 and February 4, 2018. These outbreaks/infections occurred between August 2017 and January 2018.

Specific pathogens and countries affected:

-

H1N1v Swine Influenza – 1 new confirmed human case (Switzerland)

A total of 28 human infections (0% average case fatality rate) have been reported by 5 countries between 2005 and 2018.

H3N2v Swine Influenza – 1 new confirmed human case (USA)

A total of 436 human infections (0.2% average case fatality rate) have been reported by 3 countries between 2009 and 2018.

H5N1/Asia Highly-Pathogenic Avian Influenza (HPAI) – 2 new poultry outbreaks (Bangladesh, Cambodia)

A total of 23,645 bird outbreaks (more than 250 million birds affected) and 880 human infections (52% average case fatality rate) have been reported by 67 countries since virus first detected in 1997.

H5N2/Asia HPAI – 21 new poultry outbreaks (China)

A total of 1,048 bird outbreaks (more than 72.7 million birds affected) have been reported by 4 countries since virus first detected in 2012; no human infections reported to date.

H5N6/Asia HPAI – 1 new confirmed human case (China*)

A total of 684 bird outbreaks (29.3 million birds affected) and 19 human infections (37% average case fatality rate) have been reported by 7 countries since virus first detected in 2014.

** No genetic data available; assumed to be same lineage as previous H5N6 virus from Asia.*

H5N6/Asia (variant) HPAI – 7 new poultry outbreaks and 1 new wild bird outbreak (China, Japan, South Korea)

A total of 29 bird outbreaks (0.8 million birds affected) have been reported by 3 countries since virus first detected in 2017; no human infections reported to date.

H5N6/Europe (variant) HPAI – 10 new wild bird outbreaks (Germany, Netherlands, UK)

A total of 16 bird outbreaks (16,193 birds affected) have been reported by 4 countries since virus first detected in 2017; no human infections reported to date.

H5N8 (variant) HPAI – 32 new poultry outbreaks and 16 new wild bird outbreaks (Afghanistan*, India, Iraq, Saudi Arabia, South Africa)

A total of 2,613 bird outbreaks (more than 25.7 million birds affected) have been reported by 51 countries since virus first detected in 2016; no human infections reported to date.

** Neuraminidase typing not reported and no genetic data available; assumed to be same lineage as previous H5N8 variant virus from Asia.*

H7N9/Asia Low Pathogenicity Avian Influenza (LPAI) and HPAI – 1 new confirmed human infection (China)

A total of 23 bird outbreaks (1.0 million birds affected) and at least 1,566 human infections (39% average case fatality rate) have been reported by 3 countries since virus first detected in 2013.

Lassa – 34 new confirmed human cases (Benin, Liberia, Nigeria)

At least 2,213^ human infections (20% average case fatality rate) have been reported by 13 countries between 2000 and 2017. ^ Total includes confirmed, probable, and suspected cases.

MERS-CoV – 22 new confirmed human cases (Malaysia, Saudi Arabia)

A total of 26 camel outbreaks and 2,160 confirmed human infections (35% average case fatality rate) have been reported by 27 countries since virus first detected in 2012.

Monkeypox – 7 new confirmed human cases (Nigeria)

At least 1,039^ human infections (3% average case fatality rate) have been reported by 12 countries between 1970 and 2018.

^ Total includes confirmed, probable, and suspected cases.

à Next update on/about March 5, 2018

Data sources:

<http://www.who.int/csr/don/en/>

http://www.who.int/influenza/human_animal_interface/en/

<http://www.afro.who.int/en/clusters-a-programmes/whe/outbreaks-and-other-emergencies-updates.html>

http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI

<http://empres-i.fao.org/cipws3g/>

<https://www.cdc.gov/flu/weekly/index.htm>

<http://www.moh.gov.sa/en/CCC/pressreleases/pages/default.aspx>

<http://newsletters.afro.who.int/outbreak-dashboards/p36fcklqc0ylqqvybnloqp?email=true>

<http://www.chp.gov.hk/en/index.html>

<http://www.gcs.gov.mo/showNews.php?DataUcn=119808&PageLang=P>

--

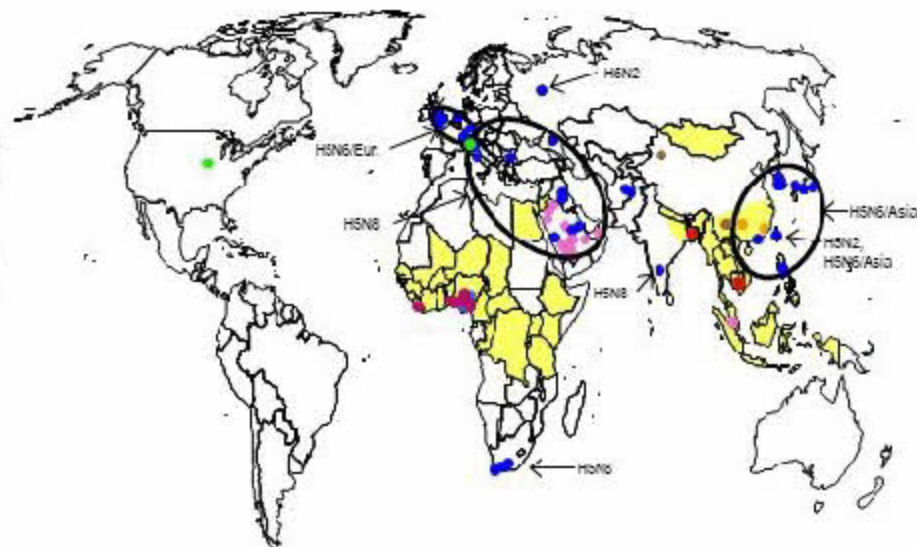
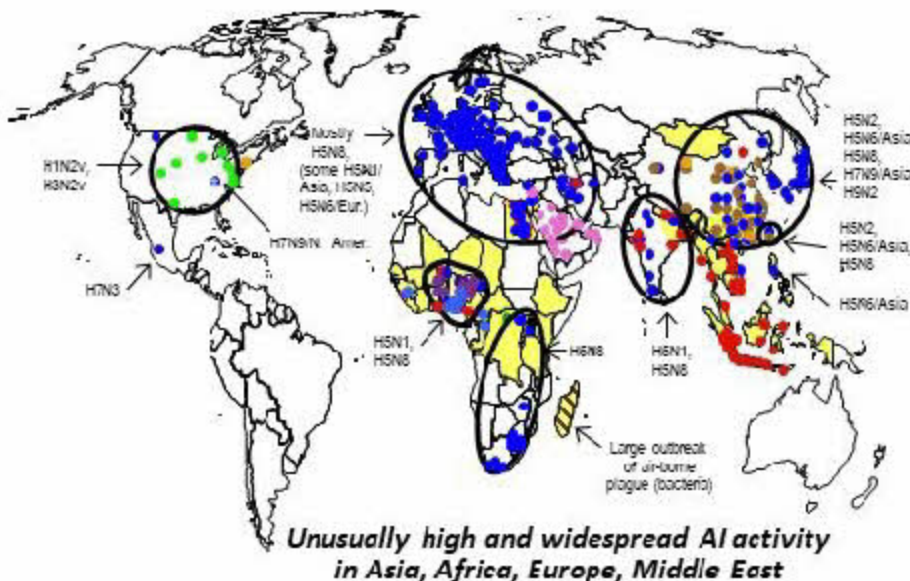
Andrew Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
E-mail: aclements@usaid.gov

For more information on USAID's Emerging Pandemic Threats program, see: <http://www.usaid.gov/ept2>

Detection of Specific Viruses with Potential to Infect and Directly Spread among Humans[^]

Nov 2016-Oct 2017

Nov 2017-Oct 2018



- = H5N1/Asian lineage HPAI* (poultry, wild birds, humans)
- = H7N9 LPAI/Asia*** (poultry, wild birds, or humans)
- = other HPAI or LPAI (humans)
- = other HPAI including H5N1/Eur. lineage, H5N1/NA lineage (poultry, wild birds)
- = H1N1v, H1N2v, and H3N2v swine influenza (humans)
- = Ebola (humans)
- = Marburg (humans)
- = Lassa (humans)
- = Nipah (humans)
- = Middle East Respiratory Syndrome-Coronavirus (humans or animals)
- = monkeypox (primates, humans)

Sources = OIE, WHO, CDC, Ministry of Agriculture/FAO (Egypt, Indonesia), and IEDCR (Bangladesh) reports between 11/1/16 and 2/4/18. [^] While these reports reflect known infections with these viruses, there may be additional viral circulation in these and other countries that is not detected due to limitations in surveillance and/or detection. All of these viruses are from viral families with at least one member that is capable of infecting people and spreading directly from person to person without using food, water or insects as vectors. *Highly-pathogenic avian influenza. *** Low-pathogenicity avian influenza. ■ = countries (including eastern/southeastern China, northeastern India, and most of Indonesia) using USAID avian influenza, Ebola, or other emerging pandemic threats funding between FY2016 and FY2018 for prevention, detection, and response. * = location where a new virus first detected.

From: Peter Daszak <daszak@ecohealthalliance.org>
To: Anna Willoughby <willoughby@ecohealthalliance.org>; Kevin Olival, PhD (olival@ecohealthalliance.org) <olival@ecohealthalliance.org>; Jonna Mazet (jkmazet@ucdavis.edu) <jkmazet@ucdavis.edu>; Johnson Christine Kreuder (ckjohnson@ucdavis.edu) <ckjohnson@ucdavis.edu>; David McIver (dmciver@metabiota.com) <dmciver@metabiota.com>; MurrayS@si.edu" <MurrayS@si.edu>
Sent: 4/11/2018 3:25:02 PM
Subject: IMPACT projects - latest version and timeline!

Dear P2-wide Modeling & Analytics team,

Following our discussion at the Semi-Annual meeting in Napa just now, I'm attaching a proposed edit to the latest version of the IMPACT project list - Essentially, removing #6, and incorporating that aspect into all projects.

In addition – I proposed the following timelines, so I just want to ask you to talk to your teams and find out how much interest there is for any one of these projects and let us know – email Anna Willoughby – so we can track this and make sure we make progress within the timeframe.

IMPACT – Intervention Modeling Projects ACross Teams are 3, 6, or 12 month projects: to be completed by May 31st 2019.

- By May 31st 2018 need to agree on any additional data collection for IMPACT projects (e.g. DRC/Cameroon/Sulawesi market project discussion or Ecotourism counts), and begin collecting data!
- Field sampling and uploading to EIDITH ends: Sept 30, 2018
- Laboratory testing ends: March 30, 2019
- IMPACT projects should be completed at August 31st 2018 (3 mo); November 30th (6 mo); May 31st 2019 (12 mo).

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

Tel. +1 212-380-4474
www.ecohealthalliance.org
[@PeterDaszak](#)
[@EcoHealthNYC](#)

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that prevent pandemics and promote conservation.

Sent: Thu, 12 Apr 2018 14:57:29 +0200
To: cclary@metabiota.com
From: IOHC 2018 Organizers <IOHC2018@conftool.com>
Cc: ckumakamba@metabiota.com, ingay@metabiota.com, **REDACTED**,
finkawa@metabiota.com, ksaylors@metabiota.com, pmulembakani@metabiota.com,
mmakuwa@metabiota.com, agillis@metabiota.com, sharris@metabiota.com, arimoin@ucla.edu,
cgmonagin@ucdavis.edu, jayukekbong@metabiota.com, erubin@metabiota.com,
nwolfe@metabiota.com, clange@metabiota.com, jkmazet@ucdavis.edu
Subject: IOHC 2018

Dear Catherine Clary

CONTRIBUTION DETAILS

ID: 782

Title: DNA of human bocavirus origin detected in non-human primates in the Democratic Republic of the Congo

It is my utmost pleasure to inform you that the instructions for your poster presentation are now available online. Please go to our website to read the guidelines:
<https://onehealthplatform.com/iohc/presentation-guidelines/poster-presentations>

Posters will be up in the poster exhibition area for 4 days, the entire duration of the congress. Additionally, we have programmed a dedicated poster presentation session on Saturday evening 23 June from 18:00 until 19:30. This will be your opportunity to interact with other congress delegates, elaborating on your research results, while enjoying some wine and cheese offered by the organizers.

Please make sure you are registered and have paid for your registration before 30 May in order to secure your place at the poster exhibition. Failure to complete your registration by 30 May will result in the removal of your abstract from the exhibition and the congress abstract book.

Looking forward to seeing you in Canada!

Kind regards

IOHC18 management

--

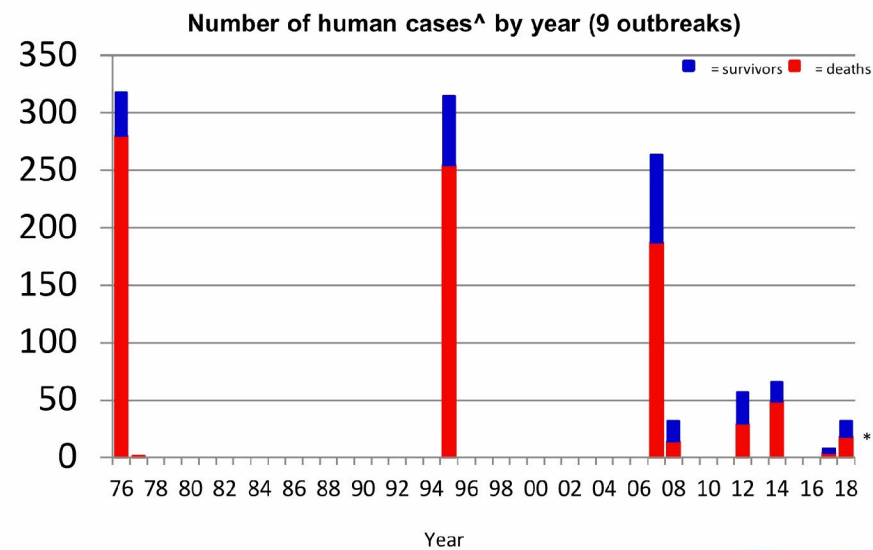
The 5th International One Health Congress 2018 Organizers
<https://www.conftool.com/onehealthplatform2018/>
<http://onehealthplatform.com/international-one-health-conferences/home/>

From: Andrew Clements <aclements@usaid.gov>
To: Jonna Mazet <jkmazet@ucdavis.edu>; bhbird@ucdavis.edu
<bhbird@ucdavis.edu>; ksaylor@metabiota.com <ksaylor@metabiota.com>
Sent: 5/11/2018 9:06:20 AM
Subject: Ebola outbreaks in DRC by year and month

FYI

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

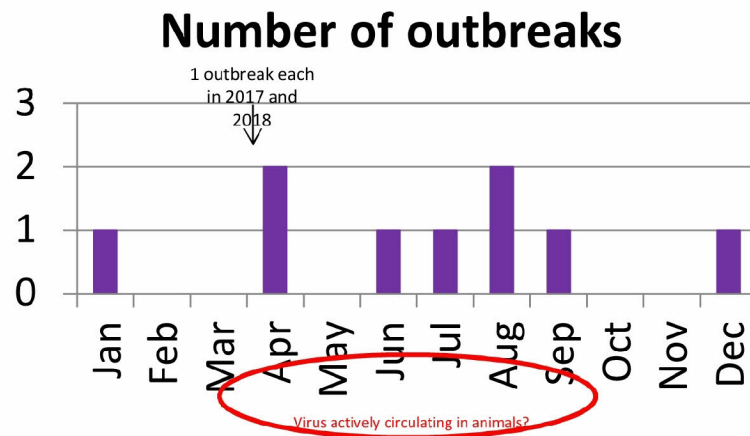
Ebola Human Outbreaks in DR Congo, 1976-2018



Sources = CDC, WHO reports through 5/10/18. [^]Includes confirmed, probable, and suspected cases.
* Initial number of cases and deaths.



Month of Apparent Start of Human Ebola Outbreaks in DRC



Sources: CDC and WHO. Total of 9 outbreaks between 1976 and 2018.



From: Andrew Clements <aclements@usaid.gov>
To: Karen Saylors <ksaylors@metabiota.com>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; Brian Bird <bhbird@ucdavis.edu>; Dennis Carroll <dcarroll@usaid.gov>; Alisa Pereira <apereira@usaid.gov>; Cara Chrisman <cchrisman@usaid.gov>
Sent: 5/26/2018 12:46:05 PM
Subject: Re: From the DRC mission

Thank you, Karen. Great stuff!

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On May 26, 2018, at 1:34 PM, Karen Saylors <ksaylors@metabiota.com> wrote:

Hi everyone.

Yes, during our meeting with the USAID DRC Mission on Friday, I briefed them on this INRB animal sampling team deployment and they were very excited to hear about it.

I included details in the Friday report, but to capture that here:

As part of an ecological study initiated by the INRB, two members of INRB Team were sent to Bikoro. Their objective is to sample bats in order to research this potential Ebolavirus reservoir. One of these INRB team members, Guy Midingue, has been trained by PREDICT on animal sampling protocols and regularly works with the PREDICT team on wild animal sampling in bushmeat markets and with hunters and trappers. The animal sampling team intends to conduct field sampling until June 9th.

In addition to Guy Midingue, please also recall that our previous PREDICT staff, Dr. Placide Mbala is now running the mobile lab in Mbandaka, so that would certainly merit a mention as a PREDICT success, as well. (Dr. Mbala is a medical doctor who left PREDICT a couple of months ago to work full-time on his PhD at University of Montpellier, but he has a joint field/lab arrangement with INRB and Montpellier, so as soon as the outbreak began, he came back to DRC to run the mobile lab.)

best wishes,
Karen

On May 26, 2018, at 3:55 AM, Andrew Clements <aclements@usaid.gov> wrote:

If Predict trained him/her, then yes.

If you have any additional information please provide. I think the Mission would like to know.

Thanks!

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On May 25, 2018, at 11:17 PM, Jonna Mazet <jkmazet@ucdavis.edu> wrote:

Yep, that's going to be in today's update.

One of our previous Predict team members is going out for INRB -- success story?

J

On Fri, May 25, 2018 at 1:32 PM, Andrew Clements <aclements@usaid.gov> wrote:

FYI

· A team from the National Lab has been deployed to perform animal sampling with a focus on bats in the affected areas.

Andrew P. Clements, Ph.D.

Senior Scientific Advisor

Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health

U.S. Agency for International Development

Mobile phone: 1-571-345-4253

Email: aclements@usaid.gov

From: [REDACTED]
To: Jonna Mazet <jkmazet@ucdavis.edu>, Dennis Carroll <dcarroll@usaid.gov>, Cara Chrisman <cchrisman@usaid.gov>, Eddy Rubin <erubin@metabiota.com>, Nathan Wolfe <nwolfe@metabiota.com>, Peter Daszak <daszak@ecohealthalliance.org>
Subject: Fwd: [gvp] Form Submission - New Form - Interview Request
Sent: Tue, 3 Jul 2018 10:06:12 +0000

Hi everyone,

This inquiry is from a Canadian 'green' online web magazine. After checking their website, my assessment is that they are lower priority. Please let me know if you'd like to talk to them.

Best,

[REDACTED]

Sent from my iPhone, please excuse any typos.

From: 32571124140n behalf of
Sent: Monday, July 2, 2018 22:49
To: gvp@ucdavis.edu
Subject: [gvp] Form Submission - New Form - Interview Request

Name: David Kattenburg

Email Address: kattenbu@mts.net

Subject: Interview Request

Message: Hello ... Just following up on my email note of 24 June, inquiring about the possibility of an audio-Skype interview with someone from the Global Virome Project. I would incorporate our conversation into my Green Blues Show - the weekly news service of my Green Planet Monitor web magazine. If you reply to my email address, I can provide further details.

Regards ...

David Kattenburg
www.greenplanetmonitor.net

(Sent via [Global Virome Project](#))

From: Andrew Clements <aclements@usaid.gov>
Sent: Wed, 12 Sep 2018 03:20:28 -0400
Subject: Fwd: OHW and PREDICT workplans and timeline for workplan development
To: djwolking@ucdavis.edu, ealeasure@ucdavis.edu, Jonna Mazet <jkmazet@ucdavis.edu>
Cc: predictmgt@usaid.gov

FYI
Comments from Kenya mission.
I asked Andrew to share the comments directly with the local Predict team.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

Begin forwarded message:

From: Andrew Thaiyah <athaiyah@usaid.gov>
Date: September 11, 2018 at 10:54:21 AM GMT+2
To: Sarah Paige <spaige@usaid.gov>
Cc: Lisa Kramer <lkramer@usaid.gov>, Amanda Paust <apaust@usaid.gov>, Andrew Clements <aclements@usaid.gov>, Marilyn Crane <mcrane@usaid.gov>
Subject: Re: OHW and PREDICT workplans and timeline for workplan development

Hi Sarah,
I have reviewed the work plans and made some comments. These are in the attached folder which contains the work plans with tracked comments.

Regards

Andrew

 Kenya GHSA/EPT2 work plans 2019 with edits

On Thu, Sep 6, 2018 at 9:32 PM, Sarah Paige <spaige@usaid.gov> wrote:

Hi Lisa and Andrew,

I hope you

are great!
Please see the
below timeline
for information regarding IP workplans and review. I have attached a Cameroon file that contains all of the country
specific workplans for Cameroon.

Except for

FAO
, IFRC, and IDDS
. FAO

has asked for an extension until Sept 15.
IFRC and IDDS will be sent by Oct 1.
We will upload their workplan

S
to the drive once we get it.

If you could please send any edits/comments on
OHW and PREDICT's
workplan by Sept 12, that would be appreciated!et me or


Mandy know if you have any questions!

Thank you!

Date	Action
Workplanning	
August-September	Conduct GHSA Workplanning meetings with EPT2 and GHSA partners, and give input into workplan activities
August 22	OHW EPT-2 workplan due to HQ AOR
August 31	Predict EPT-2 workplan due to HQ AOR
August 31	FAO EPT-2 workplan due to HQ AOR
September 3	Backstops create country-specific google folders and share EPT-2 workplans submitted to HQ with field
September 12	Any additional feedback from field on EPT-2 workplans due to AORs
October 1	EPT2 AORs finalize workplans
October 1	GHSA Non-EPT2 partners workplans due to AORs (countries with bilaterals, need to make sure partners are aware of this deadline)
October 3	All GHSA workplans sent to field
October 3-31	Receive GHSA workplans for interagency discussions and aggregation, get approval from interagency and DCM/Ambassador.*
November 1	GHSA Interagency Workplans due to NSC

Reporting timeline	
October 1	All GHSA reports for Phase I countries due to AORs (countries with bilaterals, need to make sure partners are aware of this deadline)
October 5	AOR, backstops, others review complete. Backstops create country-specific google folders and share with field
October 5-31	Receive GHSA reports for interagency discussions and aggregation, get approval from interagency and DCM/Ambassador*
November 1	GHSA Interagency Reports due to NSC

Sarah Paige, PhD, MPH
Senior Infectious Disease Advisor
USAID Africa Bureau/Health Division
Desk: + [REDACTED]
Mobile: [REDACTED]
E-mail: spaige@usaid.gov

 [Kenya](#)

--
Andrew G. Thaiyah, PhD
Global Health Security Advisor,
USAID/Kenya and East Africa [REDACTED]
Desk: + [REDACTED] Cell: + [REDACTED]

From: Nita Madhav <nmadhav@metabiota.com>
To: Jonna Mazet <jkmazet@ucdavis.edu>; dcarroll@usaid.gov <dcarroll@usaid.gov>
CC: Ben Oppenheim <boppenheim@metabiota.com>; Dean Jamison <djamison@uw.edu>; Karen Saylor <ksaylor@metabiota.com>; Beth Edison <bedison@metabiota.com>; Patrick Ayscue <payscue@metabiota.com>
Sent: 10/17/2018 12:44:15 PM
Subject: Update on GVP BCA budget and timeline

Dear Jonna and Dennis,

We are still currently in the process of finalizing the budget and timeline for the GVP BCA. We should be able to provide these to you by the middle of next week after we have had a chance to discuss with Dean on Monday 10/22. We apologize for the slight delay, but need to ensure enough time to properly coordinate with Dean to finalize the remaining decision points.

Please let us know if you have any questions or concerns.

Best regards,

Nita

--

Nita Madhav
Vice President of Data Science
Metabiota
425 California St. #1200
San Francisco, CA 94104
Email: nmadhav@metabiota.com
Phone: +1-281-723-3025

CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments), is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it without copying or forwarding it, and notify the sender of the error by email reply.

From: "K.Syaluha Eddy" [REDACTED]
Sent: Wed, 7 Nov 2018 12:10:38 +0200
Subject: Re: [predict-coordinators] No surveillance call this week -- next call Thurs, Nov 15th
To: Megan M Doyle <mmdoyle@ucdavis.edu>
Cc: predict-surveillance Sympa List <predict-surveillance@ucdavis.edu>, predict-coordinators Sympa List <predict-coordinators@ucdavis.edu>, Catherine Machalaba <machalaba@ecohealthalliance.org>, "William B. Karesh" <karesh@ecohealthalliance.org>, Jonna Mazet <jkmazet@ucdavis.edu>

Thank you,
Eddy

On 11/7/18, Megan M Doyle <mmdoyle@ucdavis.edu> wrote:

> Hi PREDICT surveillance team,
> With many people traveling to IMED this week, we've decided to postpone
> surveillance call to next Thursday, November 15th. We'll circulate notes
> later this week, and in the meantime please let us know if you have any
> agenda items.
>
> Also, please see attached announcement and text below for 2019 Rx One Health
> Summer Institute course - copying our country coordinators here too for
> broader reach.
>
> Have a great week!
> Megan
>
>
> Dear Colleague,
>
> Greetings from the Rx One Health Organizing Committee. In celebration of
> World One Health Day, we are excited to announce the 2019 Rx One Health
> Summer Institute course dates and new website<<http://www.rxonehealth.org/>>
> launch!
>
> 2019 Dates: June 24-July 19, 2019
>
> Location: Tanzania
>
> Rx One Health Summer Institute is a 4-week long, field-based experiential
> course designed to provide a "prescription" for advanced students and early
> career professionals to prepare them for immediate engagement in global
> health careers that will demand effective problem-solving skills,
> cross-disciplinary engagements, and solid foundations in field and
> laboratory activities. Over the course of the program, participants train
> on the principles of One Health-the approach that recognizes that the health
> of people, animals, and their environments are interconnected, and that
> problem solving to address health challenges is best achieved through
> transdisciplinary collaboration. Through hands-on, practical learning
> experiences, case studies, lectures, group discussions and field exercises,
> the Rx One Health program develops participants' skills for addressing
> complex challenges using a One Health approach.
>
> Website: www.rxonehealth.org<<http://www.rxonehealth.org/>>
>
> Email: rxonehealth@ucdavis.edu<<mailto:rxonehealth@ucdavis.edu>>
>

> Applications are open to graduate students, professional students (MD, DVM,
> JD, RN, etc.) and early career professionals from a wide variety of fields
> of study including medicine, public health, veterinary medicine,
> agriculture, animal science, international development, laboratory science,
> environmental resources, wildlife conservation, law, engineering, social
> sciences, etc.
>
>
> The application period will open in mid-November; applications are due
> January 30, 2019.
>
> Please distribute information about the course widely through your networks,
> list serves or distribution lists you might manage. A printable flyer is
> included in this email.
>
> If you are interested in sponsoring a qualified participant, course
> activities, or contributing to a scholarship fund, please get in touch with
> us.
>
>
> Warm regards,
>
> The Rx One Health Organizing Committee
>
> Woutrina Smith, Jonna Mazet & Jennie Lane
> UC Davis One Health Institute
>
>
>

--
Eddy Syaluha, DVM
Head Veterinarian/Gorilla Doctors
USAID-EPT2 PREDICT Coordinator/Eastern DRC
REDACTED
www.gorilladoctors.org

Sent: Thu, 13 Dec 2018 14:17:02 -0800
Subject: Re: Predict findings
From: Jonna Mazet <jkmazet@ucdavis.edu>
To: "AOTR/Grant Manager Andrew Clements" <aclements@usaid.gov>
Cc: Cara Chrisman <cchrisman@usaid.gov>, Alisa Pereira <apereira@usaid.gov>

Will do,
Jonna

On Thu, Dec 13, 2018 at 12:56 PM Andrew Clements <aclements@usaid.gov> wrote:

See message back from Tara. Sounds like we're on the same page.

Can you poll your HQ people (including Jon) to find a good time next week to have a phone chat with Tara? Thanks.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

Begin forwarded message:

From: Tara Milani <tmilani@usaid.gov>
Date: December 13, 2018 at 5:44:13 PM GMT+1
To: Andrew Clements <aclements@usaid.gov>
Cc: Cara Chrisman <cchrisman@usaid.gov>, Alisa Pereira <apereira@usaid.gov>, Dennis Carroll <dcarroll@usaid.gov>
Subject: Re: Predict findings

Hi Andrew

Greetings. Hope all is well with you.

Yes, Jim called me today to give me a heads up. As you know John was here over a month ago and we met with DG of National Public Health Institute of Liberia. At the time, they were going to run some more tests and get back to us.

I am currently out of Liberia on short TDY, but will be in the office on Monday. We can talk sometime next week, if that is not too late. I believe PREDICT knows the drill. I recommend they start drafting the materials using samples from Sierra Leone, we can then vet and share with GOL and see how they want to revise and proceed. We can discuss options and next steps.

We need to discuss timing. Jim mentioned that he will be away from Dec 17-Jan 19. If we need to work on this with GOL during the next month, we will need some senior level representation from PREDICT/Liberia to work with GOL and lead the process. But we can talk and see.

Let me know if next week is okay or you prefer to talk sooner.

Thanks, tara

*Tara Milani
Health Office Director
USAID/Liberia*

Office Tel: **REDACTED**
Mobile Tel: **REDACTED**
tmilani@usaid.gov

On Thu, Dec 13, 2018 at 4:23 PM Andrew Clements <aclements@usaid.gov> wrote:

Hi Tara,
We meet yet again on emerging diseases! Hope you are well.

I wanted to let you know that Predict is available to provide assistance to the Mission, Embassy, and GoL related to the recent viral finding in bats. This includes FAQs, slides, bullet points, guidance, and write-ups for ProMED, State cables, and press releases.

As you may know, Predict has recently gone through this process in Sierra Leone concerning the discovery of the new Ebola/Bombali virus so they have some relevant experience.

If you would like to have a phone call between Predict and USAID (Mission and GH) to discuss options, possible next steps, etc. please let me know.

Thanks!

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

From: David J Wolking <djwolking@ucdavis.edu>
Sent: Mon, 7 Jan 2019 09:19:00 -0800
To: Peter Daszak <daszak@ecohealthalliance.org>, Ava Sullivan <sullivan@ecohealthalliance.org>, Molly Turner <turner@ecohealthalliance.org>, Evelyn Luciano <luciano@ecohealthalliance.org>, Aleksei Chmura <chmura@ecohealthalliance.org>, Hongying Li <li@ecohealthalliance.org>
Cc: Katherine Leasure <kaleasure@ucdavis.edu>, "predict@ucdavis.edu" <predict@ucdavis.edu>
Subject: [predict] Fwd: [rms-travel] FW: China Travel Advisory

Hi EHA team,

Just FYI - we received this note from our travel security team at UC Davis, some new State Department guidance for travel to China. Given your tenure I'm sure it's not a huge concern but passing along in case it's informative.

David

----- Forwarded message -----

From: **Gabriella G Renteria** <ggrenteria@ucdavis.edu>
Date: Mon, Jan 7, 2019 at 9:12 AM
Subject: [rms-travel] FW: China Travel Advisory
To: rms-travel Sympa List <rms-travel@ucdavis.edu>

Please see important message below.

Sincerely,

Gaby

Gabriella Renteria

Risk Manager

O 530-752-2629

C: REDACTED

ggrenteria@ucdavis.edu

rms@ucdavis.edu

UC DAVIS
Safety Services



From: Risk Management Leadership Council List [mailto:RMLEADERSHIPCOUNCIL-L@LISTSERV.UCOP.EDU] **On**
Behalf Of Gary Leonard

UCDUSR0005882

Sent: Monday, January 07, 2019 9:04 AM
To: RMLEADERSHIPCOUNCIL-L@LISTSERV.UCOP.EDU
Subject: China Travel Advisory

Hi All,

Last week, the U.S. State Department increased its travel advisory level for China to a Level 2 – Exercise Increased Caution. There have been several news reports online regarding this change, including the following from Business Insider:
<https://www.businessinsider.com/us-china-travel-advisory-2019-1>

In addition to the information provided in the State Department advisory (<https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories/china-travel-advisory.html>), we have received the following recommendations and advice from WorldAware for travelers in China:

1. Do Not sign anything.
2. Do Not give up your Passport unless forced to do so.
3. Immediately ask to speak with and report any detention to the US Embassy and continue to ask until granted or released.
4. Be cautious of lengthy Q&A or interrogation to avoid inadvertently providing any information that may be distorted to deny departure or facilitate an arrest.
5. While the use of What'sApp, WeChat and like messaging Apps are legal in China we have seen in the latest Espionage charge of a US Citizen in Russia where the use of What'sApp has been cited in his Espionage charges. Our concern here is the possibility China could use this condition similarly against western travelers to levy charges or an excuse to deny departure. We recommend not using these messaging Apps in China at this time.
6. As always, do not make any unfavorable political statements or postings on social media and do not take photos of any government Facilities without permission.
7. Keep in mind, the right to a phone call does not exist in China therefore, we recommend establishing a check-in procedure for arrival and departure with a responsible party.

Please let me know if you have any questions.

Thank you,

Gary Leonard
Executive Director, Liability and Property Programs

University of California, Office of the President

1111 Franklin St., 10th Floor, Oakland, CA 94607

T: 510-987-9824

UCDUSR0005883

C: REDACTED

E-mail: gary.leonard@ucop.edu

From: Andrew Clements <aclements@usaid.gov>
To: Jonna Mazet <jkmazet@ucdavis.edu>; djwolking@ucdavis.edu
<djwolking@ucdavis.edu>; William Karesh
<Karesh@ecohealthalliance.org>; dawson@ecohealthalliance.org
<dawson@ecohealthalliance.org>; Christine Kreuder Johnson <ckjohnson@ucdavis.edu>
CC: predictmgt@usaid.gov <predictmgt@usaid.gov>
Sent: 2/28/2019 7:50:08 AM
Subject: PPT Template for FAO MERS update

Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

MERS-CoV update

PREDICT-2 / FAO [select one]
[date]

Overview of MERS-CoV Work

- Implemented in: [Egypt](#), [Ethiopia](#), [Jordan](#), [Kenya](#)
- Activity areas [\[select all that apply and add any others\]](#):
 - Biological surveillance
 - Behavioral surveillance
 - Laboratory
 - Policy
 - [Others]

Egypt Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Ethiopia Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Jordan Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Kenya Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Gaps and Recommendations

- Gaps in knowledge and/or implementation identified by MERS-CoV activities:
- Recommendations for future activities based on findings:

From: David J Wolking <djwolking@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; Wolking David <djwolking@ucdavis.edu>; William Karesch <Karesch@ecohealthalliance.org>; Patrick Dawson <dawson@ecohealthalliance.org>; Christine Kreuder Johnson <ckjohnson@ucdavis.edu>; PREDICTMGT <predictmgt@usaid.gov>
Sent: 2/28/2019 3:29:11 PM
Subject: Re: PPT Template for FAO MERS update

Hi Andrew, received. I'll be in touch with any questions as we digest this template and request.

David

On Thu, Feb 28, 2019 at 7:50 AM Andrew Clements <aclements@usaid.gov> wrote:
Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

From: William B. Karesh <karesh@ecohealthalliance.org>
To: Andrew Clements <aclements@usaid.gov>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; David Wolking <djwolking@ucdavis.edu>; Patrick Dawson <dawson@ecohealthalliance.org>; Chris Johnson <ckjohnson@ucdavis.edu>; predictmgt@usaid.gov <predictmgt@usaid.gov>
Sent: 2/28/2019 6:39:30 PM
Subject: Re: PPT Template for FAO MERS update

Jordan and Egypt included here just so you see what it is looking like. We have pretty extensive behavioral survey data also, but that was not in the template.

UCD will most likely want to combine with others and give you a final version.

BK

On Feb 28, 2019, at 10:50 AM, Andrew Clements <aclements@usaid.gov> wrote:

Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

<Mail Attachment.html><MERS-CoV update template.pptx>

MERS-CoV update

PREDICT-2 / FAO [select one]
[date]

Overview of MERS-CoV Work

- Implemented in: [Egypt](#), [Ethiopia](#), [Jordan](#), [Kenya](#)
- Activity areas [\[select all that apply and add any others\]](#):
 - Biological surveillance
 - Behavioral surveillance
 - Laboratory
 - Policy
 - [Others]

Egypt Summary

- Implementing partners in-country: Egypt National Research Centre
Center of Scientific Excellence for Influenza Viruses, EcoHealth Alliance

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	1,003	Virology: 601 Serology: NA	Virology: 402 Serology: NA
Humans	1,097	Virology: 481 Serology: 1,097	Virology: 363 Serology: 0

Key findings:

- All Bats were PCR negative for MERS-CoV
- All humans tested were seronegative for MERS-CoV

- Significance of findings: Active Infection and/or exposure was not detected in the populations tested.

Ethiopia Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Jordan Summary

- Implementing partners in-country: Jordan University of Science and Technology, EcoHealth Alliance

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	1,080	Virology: 950 Serology: NA	Virology: 130 Serology: NA
Humans	1,084	Virology: 1,084 Serology: 1,084	Virology: 0 Serology: 0

Key findings:

- Two people were confirmed seropositive for MERS-CoV with low antibody titers; one was a camel worker.

- Significance of findings: Evidence of active Infection was not detected in bats but evidence of exposure was found in two people.

Kenya Summary

- Implementing partners in-country:

Animal type	Number of individuals sampled	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	Key findings:	Virology: Serology:	Virology: Serology:
Humans		Virology: Serology:	Virology: Serology:

- Significance of findings:

Gaps and Recommendations

- Gaps in knowledge and/or implementation identified by MERS-CoV activities:
- Recommendations for future activities based on findings:

From: Andrew Clements <aclements@usaid.gov>
To: William B. Karesh <karesh@ecohealthalliance.org>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; David Wolking <djwolking@ucdavis.edu>; Patrick Dawson <dawson@ecohealthalliance.org>; Chris Johnson <ckjohnson@ucdavis.edu>; predictmgt@usaid.gov <predictmgt@usaid.gov>
Sent: 3/1/2019 1:39:22 AM
Subject: Re: PPT Template for FAO MERS update

Thanks, Billy. Please include number of people interviewed in each country for the behavioral studies as well as any key findings from those.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Mar 1, 2019, at 3:39 AM, William B. Karesh <karesh@ecohealthalliance.org> wrote:

Jordan and Egypt included here just so you see what it is looking like. We have pretty extensive behavioral survey data also, but that was not in the template.

UCD will most likely want to combine with others and give you a final version.

BK

On Feb 28, 2019, at 10:50 AM, Andrew Clements <aclements@usaid.gov> wrote:

Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

From: David J Wolking <djwolking@ucdavis.edu>
To: Andrew Clements <aclements@usaid.gov>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; William Karesh
<Karesh@ecohealthalliance.org>; Patrick Dawson
<dawson@ecohealthalliance.org>; Christine Kreuder Johnson
<ckjohnson@ucdavis.edu>; PREDICTMGT <predictmgt@usaid.gov>; predict@ucdavis.edu
<predict@ucdavis.edu>
Sent: 3/14/2019 9:07:58 AM
Subject: Re: PPT Template for FAO MERS update

Hi Andrew,

Please find attached the requested MERS template with P2 information.

Let us know if you have any questions,

David

On Thu, Feb 28, 2019 at 7:50 AM Andrew Clements <aclements@usaid.gov> wrote:
Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

MERS-CoV update

PREDICT-2
March 12, 2019

Overview of MERS-CoV Work

- Implemented in: [Egypt](#), [Ethiopia](#), [Jordan](#), [Kenya](#)
- Activity areas [\[select all that apply and add any others\]](#):
 - **Biological surveillance**
 - **Behavioral surveillance**
 - **Laboratory**
 - Policy
 - [Others]

P2 Summary

- Samples have been tested by cPCR using two assays targeting the coronavirus family and detected alpha and beta coronaviruses. None of the beta coronaviruses detected to date are related to MERS.
- The one MERS-related finding was in Uganda, where we detected a MERS-related coronavirus in a *Pipistrellus* bat, previously shared and published (Anthony et al., 2017*)
- To date, MERS serology has been conducted in Egypt and Jordan on human sera (specific details in the country slides below).
- Behavioral risk data analyses are in progress to evaluate risky behaviors and practices identified by interviews of at-risk populations.

*Anthony, S.J., K. Gilardi, V. D. Menachery, T. Goldstein, B. Ssebide, R. Mbabazi, I. Navarrete-Macias, E. Liang, H. Wells, A. Hicks, A. Petrosov, D. K. Byarugaba, K. Debbink, K. H. Dinnon, T. Scobey, S. H. Randell, B. L. Yount, M. Cranfield, C. K. Johnson, R. S. Baric, W. I. Lipkin, and J. A. K. Mazet. **Further Evidence for Bats as the Evolutionary Source of Middle East Respiratory Syndrome Coronavirus.** *mBio*, April 2017 DOI: [10.1128/mBio.00373-17](https://doi.org/10.1128/mBio.00373-17)

Egypt Summary

- Implementing partners in-country: Egypt National Research Centre
Center of Scientific Excellence for Influenza Viruses, EcoHealth Alliance

Animal type	Number of individuals sampled and interviewed	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	1,003	PCR: 601 Serology: NA	PCR: 402 Serology: NA
Humans	1,003	PCR: 601 Serology: 1,003	PCR: 402 Serology: 0

- Key findings:
 - Bat and human samples are still being tested with two cPCR assays for the coronavirus family
 - Three known bat CoVs have also been detected from samples collected from Egyptian fruit bats (details in notes below)
 - All humans tested were seronegative for antibodies to MERS-CoV
- Significance of findings: Active infection and/or exposure has not yet been detected in the populations tested.

Ethiopia Summary

- Implementing partners in-country: Addis Ababa University, Ethiopia
Public Health Institute, UC Davis

Animal type	Number of individuals sampled and interviewed	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels	0	Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	39	PCR: TBD Serology: 0	PCR: TBD Serology: NA
Humans	312	PCR: 0 Serology: 0	PCR: 312 Serology: 54

- Key findings:
- Bat and human samples are being tested with two PCR assays for the coronavirus family
 - Interviewer test results have not yet been cleared by the Government of Ethiopia for public release

- Significance of findings: TBD

Jordan Summary

- Implementing partners in-country: Jordan University of Science and Technology, EcoHealth Alliance

Animal type	Number of individuals sampled and interviewed	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels		Virology: Serology:	Virology: Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	1,080	PCR: 950	PCR: 130
Humans	1,084 sampled and interviewed	PCR: 1,084 Serology: 1,084	PCR: 0 Serology: 0

- Key findings:**
 - Bat samples are still being tested with two PCR assays for the coronavirus family
 - Five coronaviruses have been detected in samples from horseshoe bats (including a known strain of a human CoV), and one known CoV was detected in an Egyptian fruit bat (details in notes below).
 - Two people were positive for antibodies to MERS-CoV with low antibody titers; one was a camel worker.
- Significance of findings: Evidence of active infection was not detected in bats but evidence of exposure was found in two people.

Kenya Summary

- Implementing partners in-country: Institute for Primate Research (IPR), Smithsonian Institution

Animal type	Number of individuals sampled & interviewed	Number of individuals with samples tested (to date)	Number of individuals with samples to be tested in next 6 months
Camels	514	Virology: 514 Serology:	Virology: NA Serology:
Other livestock		Virology: Serology:	Virology: Serology:
Bats	370	PCR: 370 Serology:	PCR: NA Serology:
Humans	327 sampled and interviewed	PCR: 324 Serology:	PCR: NA Serology:

- Key Findings:**
 - Bat and human samples were tested with two cPCR assays for the coronavirus family.
 - Two CoVs have been detected in samples collected from Little free-tailed bats including 1) a known-Charephon Bat coronavirus/Kenya/KY22/2006 (a common bat alphacoronavirus found in bats many countries in Africa), and 2) PREDICT_CoV-90 (an alphacoronavirus that we have found in bats).
- Significance of findings: There is no evidence at this time to suggest these CoVs have an impact on human health.

Gaps and Recommendations

- Gaps in knowledge and/or implementation identified by MERS-CoV activities:
 - Bats are likely sources for known and potentially zoonotic coronaviruses but uncertainty remains with respect to the role of wildlife in transmission of MERS and other coronaviruses to camels and susceptible livestock populations. Knowledge of the geographic extent, and epidemiologic zones, for MERS and related coronaviruses in camels and other species is also still incomplete.
- Recommendations for future activities based on findings:
 - Implement best practices in disease recognition, prevention, and control for zoonotic diseases in livestock, including routine testing of herds, prevention of disease transmission to camel workers, food safety measures, and vaccination if/when appropriate.

From: Andrew Clements <aclements@usaid.gov>
To: David J Wolking <djwolking@ucdavis.edu>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; William Karesh
<Karesh@ecohealthalliance.org>; Patrick Dawson <dawson@ecohealthalliance.org>; Christine
Kreuder Johnson <ckjohnson@ucdavis.edu>; PREDICTMGT
<predictmgt@usaid.gov>; predict@ucdavis.edu <predict@ucdavis.edu>
Sent: 3/14/2019 9:33:48 AM
Subject: Re: PPT Template for FAO MERS update

Btw: WHO is planning a global MERS meeting in EMRO region in October 2019.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Mar 14, 2019, at 5:07 PM, David J Wolking <djwolking@ucdavis.edu> wrote:

Hi Andrew,

Please find attached the requested MERS template with P2 information.

Let us know if you have any questions,

David

On Thu, Feb 28, 2019 at 7:50 AM Andrew Clements <aclements@usaid.gov> wrote:
Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

Sent: Thu, 21 Mar 2019 08:39:26 -0700
Subject: Re: Call for Nominations: Experts for workshop on "Understanding and Responding to Global Health Security Risks from Microbial Threats in the Arctic"
From: Jonna Mazet <jkmazet@ucdavis.edu>
To: "Ogawa, V. Ayano" <VOgawa@nas.edu>
Cc: "david.brett-major@usuhs.edu" <david.brett-major@usuhs.edu>, "david.nabarro@undp.org" <david.nabarro@undp.org>, "Elizabeth D. Hermsen" <elizabeth.hermsen@merck.com>, "Dennis Carroll" <dcarroll@usaid.gov>, "Hermesen, Elizabeth D" <elizabeth.hermsen@merck.com>, "emily.erbelding@nih.gov" <emily.erbelding@nih.gov>, "espinalm@paho.org" <espinalm@paho.org>, "eharris@berkeley.edu" <eharris@berkeley.edu>, "gary.roselle@va.gov" <gary.roselle@va.gov>, "battles@mx0a-00171101.pphosted.com" <battles@mx0a-00171101.pphosted.com>, "jane.battles@va.gov" <jane.battles@va.gov>, "jsiegel2@its.jnj.com" <jsiegel2@its.jnj.com>, "jlg251@georgetown.edu" <jlg251@georgetown.edu>, "Kent.Kester@sanofi.com" <Kent.Kester@sanofi.com>, "Anderson, Kevin" <Kevin.Anderson@hq.dhs.gov>, "Michael Mair" <michael.mair@fda.hhs.gov>, "Peter Daszak" <daszak@ecohealthalliance.org>, "Suerie Moon" <suerie.moon@graduateinstitute.ch>, "twscott@ucdavis.edu" <twscott@ucdavis.edu>, "timothy.burgess@usuhs.edu" <timothy.burgess@usuhs.edu>, "nasemmgmt@usaid.gov" <nasemmgmt@usaid.gov>, "paige.e.waterman.mil@mail.mil" <paige.e.waterman.mil@mail.mil>, "Zahn, Matthew" <MZahn@ochca.com>, "Shah, Cecilia" <cshah@nas.edu>, "Lubin, Natalie" <NLubin@nas.edu>

I recommend Morten Tryland, <https://www.arcus.org/researchers/37941/display>, at the Norwegian Vet School. I don't know him, but I understand he's great, productive, and responsive.
Have a nice day,
Jonna

Jonna AK Mazet, DVM, MPVM, PhD

Professor of Epidemiology & Disease Ecology
Executive Director, One Health Institute
Global Director, PREDICT Project of USAID Emerging Pandemic Threats Program

School of Veterinary Medicine
University of California
1089 Veterinary Medicine Drive
Davis, CA 95616, USA
+1-530-752-3630
onehealthinstitute.net

For scheduling and logistical issues, please contact:
Ms. Brooke Genovese
bgenovese@ucdavis.edu
[+1-530-752-3630](tel:+15307523630)

On Fri, Mar 15, 2019 at 8:45 AM Ogawa, V. Ayano <VOgawa@nas.edu> wrote:

Dear Forum Members,

The Polar Research Board, Board on Life Sciences, and Board on Global Health of the National Academies of Sciences, Engineering, and Medicine are requesting nominations for experts to be considered for membership on the planning committee for a new workshop on "Understanding and Responding to Global Health Security Risks from Microbial Threats in the Arctic."

Please see the full call for nominations below and consider submitting ideas for workshop planning committee members here: <https://www.surveycuzmo.com/s3/4881964/call-for-nominations-arctic-microbial-risks>. The organizers also appreciate your help sharing this call for nominations with your interested colleagues and networks. Thank you in advance for your nominations.

Workshop Announcement and Call for Nominations

An international workshop on “**Understanding and Responding to Global Health Security Risks from Microbial Threats in the Arctic**” will be held on **November 6-7, 2019** in **Hanover, Germany**.

This activity is being planned as a cooperative effort among three boards of the U.S. National Academies of Sciences, Engineering, and Medicine [the Polar Research Board, the Board on Life Sciences, and Board on Global Health] in partnership with the InterAcademy Partnership and the European Academies Science Advisory Council.

Motivation. A rapidly warming climate is leading to widespread thawing of permafrost and ice across Arctic and sub-Arctic regions. Among the many concerns this raises are growing questions about bacteria and viruses that could possibly emerge from these thawing environments, raising infectious microbial risks for animal and human populations. This interest grew in 2016, when Siberia’s Yamal Peninsula saw an outbreak of anthrax that infected dozens of people and killed more than 2300 reindeer, which some speculated may have resulted from anthrax spores released from a thawing reindeer carcass. Also in recent years there have been numerous instances where researchers have recovered from permafrost soil samples various fragments of DNA/RNA from diseases such as smallpox, bubonic plague, and the 1918 influenza virus. This raises concerns, given that many currently or previously populated high-latitude regions contain buried remains of humans and animals that died from such diseases. Studies have shown that bacteria and viruses frozen in the environment can remain viable for thousands and even millions of years; and this raises questions about whether permafrost may harbor microbes that are human pathogens, and for which modern immune systems have no protection. Given the very limited studies to date, it is difficult to characterize the magnitude and nature of these potential risks; yet understanding and preparing for “low-probability, high-consequence” events is one of the hallmarks of a robust public health protection strategy.

Workshop Plans. This workshop will bring together an international, interdisciplinary group of experts to explore what is known, and what critical knowledge gaps remain, regarding existing and possible future risks of harmful infectious agents emerging from thawing Arctic environments. Discussions will encompass topics such as:

- known risks such as anthrax, and other unknown human and animal microbial health risks that could conceivably be harbored in ice and permafrost;
- key research needs and critical tools for improving observations and surveillance, to advance our understanding of these risks, and to develop effective early warning systems;
- relevant lessons learned from efforts to address emerging/re-emerging microbial threats elsewhere in the world; and
- opportunities to facilitate interagency and international cooperation on such efforts, and to build upon existing programs and platforms for cooperation.

The workshop may also consider broader “One Health” perspectives on the changing Arctic environment and infectious disease dynamics and questions about whether research on particular pathogens raises new biosafety/biosecurity concerns. We hope to convene active researchers from numerous disciplines, public health officials, and representatives from key Arctic-region indigenous communities (such as reindeer herders).

Seeking Nominations. This workshop will be planned and facilitated by a small appointed committee with expertise in areas such as: *arctic climate change and terrestrial ecology (soil, plants, animals); permafrost monitoring and modeling; emerging and re-emerging microbial threats; human and zoonotic infectious disease dynamics; and public health surveillance and response systems*. Nominations for people to serve on this planning committee are currently invited, and may be suggested [here](#). The submission deadline for these nominations is **5 April 2019**. Suggestions for people to consider as workshop speakers are also welcome, and can be provided [here](#). Self-nominations are welcome. This event

will be open to the public, but space will be limited.

This event is made possible with support from the CDC Arctic Investigations program, the USAID Emerging Pandemic Threats Program, the Volkswagen Foundation, and the National Academies' Raymond and Beverly Sackler Science Fund.

Best regards,

Ayano

V. Ayano Ogawa, S.M.

Program Officer

Board on Global Health | Health and Medicine Division

The National Academies of Sciences, Engineering, and Medicine

500 Fifth Street NW, Office 852

Washington, DC 20001

Phone: 202.334.1349

From: Elizabeth Leasure <ealeasure@ucdavis.edu>
To: Beth Edison <bedison@metabiota.com>
Cc: Shaun Tse <stse@metabiota.com>, Hannah R Chale <hrchale@ucdavis.edu>, predict Sympa List <predict@ucdavis.edu>
Sent: Tue, 2 Apr 2019 19:47:18 +0000
Subject: [predict] RE: Contract mod

Hi Beth. I need to look more closely at the numbers, but I think there is another obligation in the cards for Lao PDR (other than the one I sent to you for review), I'm just not sure of the exact amount yet. I've sent some preliminary estimates for what we can manage to Jonna and am waiting for feedback. We'll also need to get the go ahead from USAID before we do anything, so stay tuned.

Are we okay to proceed with your rebudget and 25% obligation amendment?

Thanks,
Liz

Elizabeth Leasure
Financial Operations Manager
One Health Institute
REDACTED (cell)
530-754-9034 (office)
Skype: ealeasure

From: Beth Edison <bedison@metabiota.com>
Sent: Monday, April 1, 2019 10:01 AM
To: Elizabeth Leasure <ealeasure@UCDAVIS.EDU>
Cc: Shaun Tse <stse@metabiota.com>; Hannah R Chale <hrchale@UCDAVIS.EDU>; predict Sympa List <predict@ucdavis.edu>
Subject: Re: Contract mod

Hi Liz,

This looks good. One question about Laos. Does this mean our total budget for the year will be our carry-over plus this partial obligation and that we should not expect any more funds to come in for this country? Once I have that confirmed I can send you a runway for how long we should be able to maintain operations there.

Thanks!
Beth

On Wed, Mar 27, 2019 at 3:52 PM Elizabeth Leasure <ealeasure@ucdavis.edu> wrote:

Hi Beth. Please take a look at the rebudget and coming amendment for PREDICT. Basically, we're rebudgeting from Core to Ebola to zero out all transitioned countries (resolving the overdraft for the Ebola countries in the process) and moving GVP carryover to Lao PDR, the idea being that these are FY17 funds that are not subject to the TVPA restriction, and we'll use FY18 money to fund the full GVP budget. Please take a look and let me know what you think. I'll need to process the rebudget with the amendment to add funds, so Hannah will hold off on processing the amendment until you confirm everything looks okay.

The Y5 funding obligation includes 25% of your full GVP budget for Y5 (excluding BCA funds-which will come separately), the balance of your Y5 Ebola budget (so you will now have your full Ebola budget in hand inclusive of carryover), and enough Core funds to ensure that you have 25% of your core budget in hand for Y5 (inclusive of carryover). Hopefully that makes sense. Let me know if you have any questions.

Thanks,
Liz

Elizabeth Leasure
Financial Operations Manager
One Health Institute
REDACTED (cell)

530-754-9034 (office)

Skype: ealeasure

From: Beth Edison <bedison@metabiota.com>

Sent: Thursday, February 28, 2019 10:50 AM

To: Elizabeth Leasure <ealeasure@UCDAVIS.EDU>

Cc: Shaun Tse <stse@metabiota.com>

Subject: Contract mod

Hi Liz,

Do you have any thoughts on when we might expect a contract mod that includes the Ebola funds and GVP? I know we'll have to wait a while for core funds.

Thanks!

Beth

--

Beth Edison

Program Manager | Metabiota

(250)739-8987

--

Beth Edison

Program Manager | Metabiota

(250)739-8987

From: Andrew Clements <aclements@usaid.gov>
Sent: Tue, 4 Jun 2019 21:23:41 +0200
Subject: Re: PREDICT Ebola Financial Report for April 2019
To: Elizabeth Leasure <ealeasure@ucdavis.edu>
Cc: Amalhin Shek <ashek@usaid.gov>, Alisa Pereira <apereira@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, predict Sympa List <predict@ucdavis.edu>, Hannah R Chale <hrchale@ucdavis.edu>, Lindsay Parish <lparish@usaid.gov>

Thanks

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jun 4, 2019, at 6:34 PM, Elizabeth Leasure <ealeasure@ucdavis.edu> wrote:

Hi Andrew. Please find attached the PREDICT Ebola financial report for April 2019. Please let me know if you have any questions.

Thanks!
Liz

*Elizabeth Leasure
Financial Operations Manager
One Health Institute
REDACTED (cell)
530-754-9034 (office)
Skype: ealeasure*

<PREDICT Ebola Financial Report_April2019_final.pdf>

From: Peter Daszak <daszak@ecohealthalliance.org>
To: "cchrisman@usaid.gov" <cchrisman@usaid.gov>, "jkmazet@ucdavis.edu" <jkmazet@ucdavis.edu>, **REDACTED**, "Samtha Maher" <maher@ecohealthalliance.org>, "erubin@metabiota.com" <erubin@metabiota.com>, "dcarroll@usaid.gov" <dcarroll@usaid.gov>, "nwolfe@metabiota.com" <nwolfe@metabiota.com>
Subject: URGENT - request to rescheduled GVP call -tomorrow
Sent: Wed, 14 Aug 2019 19:28:16 +0000

Everyone – I just realized that we're on for a GVP call tomorrow at 1pm Eastern, but I have a meeting from 12-3pm Eastern with a group of Board-related people here in the office that I can't duck out of and that's been scheduled for weeks.

Could we re-schedule for any time between 3 and 6pm Eastern or even later would work for me?

Many apologies for the last minute request!!

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

Tel. +1 212-380-4474
Website: www.ecohealthalliance.org
Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that prevent pandemics and promote conservation.

From: Google Calendar [mailto:calendar-notification@google.com] **On Behalf Of** cchrisman@usaid.gov
Sent: Thursday, August 1, 2019 10:33 AM
To: jkmazet@ucdavis.edu; **REDACTED**; Samtha Maher; erubin@metabiota.com; cchrisman@usaid.gov; Peter Daszak; dcarroll@usaid.gov; nwolfe@metabiota.com
Subject: GVP call - Agenda

Hi All,

Looking forward to speaking today, it's been too long! We have a relatively short agenda today, please see below.

Best,
Cara

- Thailand
- Berkeley meeting + GVP side mtg
- MacArthur
- AOB

GVP call

When Thu Aug 1, 2019 1pm – 2pm Eastern Time - New York

Where call in line 1-719-785-9461, passcode **REDACTED** ([map](#))

Who

- watson@ecohealthalliance.org - organizer
- cchrisman@usaid.gov
- **REDACTED**
- jkmazet@ucdavis.edu
- nwolfe@metabiota.com
- erubin@metabiota.com
- dcarroll@usaid.gov
- Peter Daszak

Sent: Fri, 16 Aug 2019 14:31:25 -0700
Subject: Re: Question about assets - South Kivu, DRC
From: Jonna Mazet <jkmazet@ucdavis.edu>
To: Kirsten Gilardi <kvgilardi@ucdavis.edu>
Cc: Andrew Clements <aclements@usaid.gov>, David John Wolking <djwolking@ucdavis.edu>, "predictmgt@usaid.gov" <predictmgt@usaid.gov>

Yes, thank you very much!
J

On Fri, Aug 16, 2019 at 12:35 PM Kirsten Gilardi <kvgilardi@ucdavis.edu> wrote:

Thank you Andrew!

On Aug 16, 2019, at 12:19 PM, Andrew Clements <aclements@usaid.gov> wrote:

See my comment below.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

Begin forwarded message:

From: Andrew Clements <aclements@usaid.gov>
Date: August 16, 2019 at 12:41:04 PM EDT
To: Lisa Kramer <lkramer@usaid.gov>
Cc: bhaberer@usaid.gov, predictmgt@usaid.gov
Subject: Re: Question about assets - South Kivu, DRC

At this point we have no free budget in P2 and have not received all of the final year funding for the project so it would be a real long shot and have to be super emergency to reprogram for DRC via P2.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Aug 16, 2019, at 12:34 PM, Lisa Kramer <lkramer@usaid.gov> wrote:

Hi Bethany,
The PREDICT 2 (P2) project has described their assets below. P2 defers budget questions to their AOR, so I'm looping in Andrew, the AOR, and USAID P2 management team. If you want/need to call on the P2 assets, Andrew will need to advise on budget.

Lisa

Sent from my iPhone

Begin forwarded message:

From: Kirsten Gilardi <kvgilardi@ucdavis.edu>
Date: 16 August 2019 at 19:23:43 EAT
To: Lisa Kramer <lkramer@usaid.gov>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, Andrew Clements <aclements@usaid.gov>, PREDICTMGT <predictmgt@usaid.gov>, Eddy Kambale
Subject: Re: Question about assets - South Kivu, DRC

Lisa,
Our eastern DRC PREDICT CC is just a few-hours boat ride from Bukavu. We also staff the Primate Rehabilitation Center at Lwiro, about an hour from Bukavu and adjacent to Kahuzi-Biega National Park, with a veterinarian (Dr. Luis Flores Giron) who serves as a clinical capacity-building coordinator there (not PREDICT-funded). All of our DRC Gorilla Doctors staff and veterinary staff at Lwiro are now EV vaccinated (the Lwiro team just got vaccinated yesterday in Goma).
Cc'ing Eddy Kambale, who is also aware of this situation.

-Kirsten

On Aug 16, 2019, at 8:00 AM, Lisa Kramer
<lkramer@usaid.gov> wrote:

Hello Jonna, Kirsten, and David,

USAID is gathering information about potential logistic and other assets that could be mobilized immediately to support some outbreak response activities in South Kivu Province, around Bukavu, DRC. Does P2 or MGVP have staff or logistic or other assets that could potentially be mobilized to the area around Bukavu? I recognize the current status of winding down is not the best time to be asking, but WHO has released a statement of possible EVD cases that traveled to the Bukavu area.

Please let me know at your earliest opportunity.

Thank you,
Lisa

Lisa Kramer
Regional Emerging Threats Advisor
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

REDACTED | LKramer@usaid.gov
[USAID.gov](https://www.usaid.gov) | [@USAIDKenya](https://twitter.com/USAIDKenya) | [@USAIDEastAfrica](https://twitter.com/USAIDEastAfrica) | [Flickr](https://www.flickr.com/photos/usaid/) | [YouTube](https://www.youtube.com/user/USAID)

From: Federico Castillo <f.castillo@berkeley.edu>
To: Terra Kelly <trkelly@ucdavis.edu>; Woutrina A Smith <wasmith@ucdavis.edu>
CC: Oladele Ogunseitan <oladele.ogunseitan@uci.edu>; alexandra zuber <alexandrazuber@atahealthstrategies.com>; Judy Khanyola <jkhanyola@icapkenya.org>; McNeil, Carrie S. <csmcnei@sandia.gov>; Jutta Lehmer <JLehmer@salud.unm.edu>; Jon Epstein <epstein@ecohealthalliance.org>; Omar Romero-hernandez <oromero@haas.berkeley.edu>; Ndola PRATA <ndola@berkeley.edu>; David John Wolking <djwolking@ucdavis.edu>; Rabkin, Miriam <mr84@cumc.columbia.edu>; Jaber Amine Belkhiria <jabelkhiria@ucdavis.edu>; Corina Grigorescu Monagin <cgmonagin@ucdavis.edu>; Kirsten Gilardi <kgilardi@ucdavis.edu>; Brian H Bird <bhbird@ucdavis.edu>; Tracey Goldstein <tgoldstein@ucdavis.edu>; onehealthnextgen Sympa List <onehealthnextgen@ucdavis.edu>
Sent: 10/7/2019 7:39:24 PM
Subject: [onehealthnextgen] Re: OHW-NG OHCEA Working Group

Terra,

Thursdays work better for me. Any time as of today

Thanks,

Federico

On 10/6/2019 8:47 PM, Terra Kelly wrote:
Hi All and greetings from Tanzania!

I look forward to working with all of you! It would be wonderful if we could schedule a meeting for the latter part of next week or the following week to touch base before we are scheduled to have our initial discussions with OHCEA. Given the different time zones for our group, we will shoot for a meeting in the morning US time/evening East Africa time. Could each of you reach out to me and let me know if there are slots that **do not** work for you for a meeting on Wed and Thurs, Oct. 16th and 17th and the week of October 21st (morning US time/evening East Africa time)?

In the meantime, I have pulled together a folder with resources on OHW and OHCEA that I have been able to compile from various online sources. Here is a link to that folder: <https://ucdavis.box.com/s/66li3i9s0gyu1en3k17o22ci30us98ky>. Please feel free to add any resources that you come across.

Thank you!
Terra

On Fri, Oct 4, 2019 at 10:27 AM Woutrina A Smith <wasmith@ucdavis.edu> wrote:
Hi Terra,

To make it easier for you, in the main email line I've added folks from our core OHW-NG consortium organizations that are listed as lead organization reps for the OHW-NG OHCEA Working Group in our draft Management Structure table. I've only listed Judy from ICAP and Jon from EHA for now, as I wasn't sure whether and when messaging with internal team members has or will happen to get the additional folks involved who are listed in the management structure table from their groups, but it doesn't have to be right away and they can let you know when to broaden the email list. I've added Ndola Prata who is our gender lens lead so she can participate at least initially.

Please feel free to reach out to this group to coordinate a call in the next week or two where you can discuss what you want to learn from the OHCEA organization, what we already know based on publicly available documents, what should be proposed

as part of our initial scope of work activities to initially support the networks over the next 6 months, and what beyond that may be possible as additional funding becomes available in Year 1. For call timing, I think Judy is based in Nairobi so trying for a morning meeting slot might be helpful given time zones. I look forward to working with all of you!

Best wishes, Woutrina

Woutrina Smith, DVM, MPVM, PhD
Professor of Infectious Disease Epidemiology
Associate Director, UCD One Health Institute
Technical Director, USAID One Health Workforce - Next Gen
Co-Director, UCGHI Planetary Health Center of Expertise
School of Veterinary Medicine, UC Davis
1089 Veterinary Medicine Dr
Davis, CA 95616 USA
wasmith@ucdavis.edu
+1 530 219-1369

--

Federico Castillo
University of California
Department of Environmental Science, Policy and Management
Berkeley, CA 94720
+(510) 643-2748
f.castillo@berkeley.edu
<http://nature.berkeley.edu/~fcfallas>
Deputy Director, Planetary Health Center of Expertise
<http://www.ucghi.universityofcalifornia.edu/centers-of-expertise/planetary-health>

From: alexandra zuber <alexandrazuber@atahealthstrategies.com>
To: [REDACTED] "brpsmith@ucdavis.edu" <brpsmith@ucdavis.edu>, "jklane@ucdavis.edu" <jklane@ucdavis.edu>, "f.castillo@berkeley.edu" <f.castillo@berkeley.edu>, "oromero@haas.berkeley.edu" <oromero@haas.berkeley.edu>, Elizabeth Leasure <ealeasure@ucdavis.edu>, Peter Daszak <daszak@ecohealthalliance.org>, "ndola@berkeley.edu" <ndola@berkeley.edu>, "tgoldstein@ucdavis.edu" <tgoldstein@ucdavis.edu>, Matthew Blake <mblake@ucdavis.edu>, "oladele.ogunseitan@uci.edu" <oladele.ogunseitan@uci.edu>, [REDACTED] [REDACTED] "aarmistad@salud.unm.edu" <aarmistad@salud.unm.edu>, "djwolking@ucdavis.edu" <djwolking@ucdavis.edu>, "onehealthnextgen@ucdavis.edu" <onehealthnextgen@ucdavis.edu>, "karesh@ecohealthalliance.org" <karesh@ecohealthalliance.org>, "sfh9@georgetown.edu" <sfh9@georgetown.edu>, Terra Kelly <trkelly@ucdavis.edu>
Sent: Thu, 21 Nov 2019 21:35:07 +0000
Subject: [onehealthnextgen] Re: Invitation: Obj 3 Call: SEAOHUN Work Planning @ Fri Nov 22, 2019 12pm - 1pm (EST) (alexandrazuber@atahealthstrategies.com)
[SEAOHUN Strategic Plan \(at a glance\).pdf](#)
[SEAOHUN-OHW-NG Work Planning 11-12NOV2019 v1.pptx](#)
[NUPAS instructions.pdf](#)
[The Actual NUPAS Survey.docx](#)
[OHW-NG-Y1-WORKPLAN-TEMPLATE_Obj 3 only.docx](#)

Hi all,
For our call tomorrow, I wanted to share some key documents. Please take quick look if you can (in order of priority).

1. SEAOHUN's Strategic Plan at a Glance (full report on Box)
2. SEAOHUN's PPT summary of challenges and lessons learned from OHW
3. The actual NUPAS survey and guidance
4. Year 1 workplan guidance with illustrative language for Objective 3

Agenda:

12:00-12:15

Alexandra shares key take-aways from SEAOHUN discussions on Objective 3
Q&A

12:15-12:30

Work-planning template and timeline, next steps

12:30-12:55

Strategic business planning retreat- methods, location & dates

12:55-1:00

AOB

Alexandra Zuber, MPP, DrPH
Founder and CEO, Ata Health Strategies, LLC
Email: alexandrazuber@atahealthstrategies.com
Phone: +1 (617) 680-3950
LinkedIn: [alexandrazuber/](#)
Website: www.atahealthstrategies.com
Twitter: [@alexandrazuber](#)

From: [REDACTED]
Sent: Thursday, November 21, 2019 9:23 AM
To: [REDACTED] brpsmith@ucdavis.edu <brpsmith@ucdavis.edu>; jklane@ucdavis.edu <jklane@ucdavis.edu>; f.castillo@berkeley.edu <f.castillo@berkeley.edu>; oromero@haas.berkeley.edu <oromero@haas.berkeley.edu>; Elizabeth Leasure <ealeasure@ucdavis.edu>; alexandra zuber <alexandrazuber@atahealthstrategies.com>; Peter Daszak <daszak@ecohealthalliance.org>; ndola@berkeley.edu

<ndola@berkeley.edu>; tgoldstein@ucdavis.edu <tgoldstein@ucdavis.edu>; Matthew Blake <mblake@ucdavis.edu>; oladele.ogunseitan@uci.edu <oladele.ogunseitan@uci.edu>; **REDACTED** aarmistad@salud.unm.edu <aarmistad@salud.unm.edu>; djwolking@ucdavis.edu <djwolking@ucdavis.edu>; onehealthnextgen@ucdavis.edu <onehealthnextgen@ucdavis.edu>; karesh@ecohealthalliance.org <karesh@ecohealthalliance.org>; sfh9@georgetown.edu <sfh9@georgetown.edu>; Terra Kelly <trkelly@ucdavis.edu>
Subject: Invitation: Obj 3 Call: SEAOHUN Work Planning @ Fri Nov 22, 2019 12pm - 1pm (EST)
(alexandrazuber@atahealthstrategies.com)
When: Friday, November 22, 2019 12:00 PM-1:00 PM.
Where: https://zoom.us/**REDACTED**

You have been invited to the following event.

Obj 3 Call: SEAOHUN Work Planning

When Fri Nov 22, 2019 12pm – 1pm Eastern Time - New York

Where https://zoom.us/**REDACTED** ([map](#))

Calendar alexandrazuber@atahealthstrategies.com

- Who
- **REDACTED** - organizer
 - brpsmith@ucdavis.edu
 - jklane@ucdavis.edu
 - f.castillo@berkeley.edu
 - oromero@haas.berkeley.edu
 - Elizabeth Leasure
 - alexandrazuber@atahealthstrategies.com
 - Peter Daszak
 - ndola@berkeley.edu
 - tgoldstein@ucdavis.edu
 - Matthew Blake
 - oladele.ogunseitan@uci.edu
 - **REDACTED**
 - aarmistad@salud.unm.edu
 - djwolking@ucdavis.edu
 - onehealthnextgen@ucdavis.edu
 - karesh@ecohealthalliance.org
 - sfh9@georgetown.edu
 - Terra Kelly

[more details »](#)

Hello all,
The objective of this call is to digest the SEAOHUN work plan visit last week and discuss next steps on the Year 1 work plan and quarter 1 activities.

Agenda

12:00 -12:15 pm Alex summarizes SEAOHUN work plan visit and key takeaways

12:15-12:30 pm Workplan next steps

12:30-1:00 pm Strategic business planning retreat, NUPAS tool

I have uploaded a number of relevant documents to our Box.com. I'll also compile select documents and send to the group today.

Alexandra Zuber is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting

<https://zoom.us> REDACTED

Meeting ID: REDACTED

One tap mobile

+16465588656, REDACTED US (New York)

+16699006833, REDACTED US (San Jose)

Dial by your location

+1 646 558 8656 US (New York)

+1 669 900 6833 US (San Jose)

Meeting ID: REDACTED

Find your local number: <https://zoom.us/j/ahO8Ei8U0>

Going (alexandrazuber@atahealthstrategies.com)? [Yes](#) - [Maybe](#) - [No](#) [more options »](#)

Invitation from [Google Calendar](#)

You are receiving this courtesy email at the account alexandrazuber@atahealthstrategies.com because you are an attendee of this event.

To stop receiving future updates for this event, decline this event. Alternatively you can sign up for a Google account at <https://www.google.com/calendar/> and control your notification settings for your entire calendar.

Forwarding this invitation could allow any recipient to send a response to the organizer and be added to the guest list, or invite others regardless of their own invitation status, or to modify your RSVP. [Learn More](#).

YEAR 1 WORK PLAN TEMPLATE TO COMPLETE

Instructions: Each Secretariat and country OHUN must complete this OHW-NG Year 1 work plan template. Activities highlighted in green are global activities that all countries will participate in as part of the regional networks. Activities highlighted in gray are optional activities that countries may select from and prioritize based on needs and anticipated funding levels. Additional activities beyond those listed may be proposed as long as they are consistent with listed objectives and strategies; all newly proposed activities will be considered during work plan review. Workplan strategies are aligned with Joint External Evaluation Second Edition (JEE 2.0) Technical Areas and Indicators and existing Global Health Security Agenda (GHSa) Action Packages. The JEE 2.0 tool can be accessed [at this link](#).

OBJECTIVE 3: ORGANIZATIONAL SUSTAINABILITY

JEE 2.0 Technical Area: Human Resources

GHSa 2019 Action Package: Workforce Development

STRATEGY 3.1: Assessment, benchmarking, and strategic planning.

JEE 2.0 Indicators:

- D.4.1 An up to date multisectoral workforce strategy is in place
- D.4.2 Human resources are available to effectively implement IHR
- D.4.3 In-service trainings are available
- D.4.4 FETP of other applied epidemiology training program is in place

GHSa Action Package:

- D.4.1 Human resources are available to implement IHR core capacity requirements

Justification: A paramount objective of OneHealth Workforce Next Generation is to enable SEAOHUN to receive USAID direct funding on or near year 3, to support the overarching agenda of organizational sustainability. To this end, several organizational capacity standards must be met by SEAOHUN. An assessment of SEAOHUN's present organizational capability and a strategic plan for addressing any deficiencies in these required standards is thus a key priority for Year 1. Additionally, OHW-NG intends to support the organizational capacity-building of country OHUNs to the extent possible, and this support is best guided by similar assessment of organizational capacity and planning for capacity building over time, using a tool that benchmarks progress in a systematic manner.

Activity 3.1.1 Title: Evaluate existing assessments, audit performance, and strategic plans to benchmark the previous status and the process for meeting NUPAS criteria.

Activity Description: Previous organizational assessments and strategic plans have been conducted by SEAOHUN; however these were conducted before OHW-NG and, as a result, will not fully document, nor ensure a pathway to build the capacity of, the specific criteria required to

facilitate the transition USAID direct funding to SEAOHUN. For this reason, OHW-NG proposes a multi-modal assessment to understand the contextual and organizational factors affecting SEAOHUN performance. This assessment includes: 1) a baseline NUPAS survey to benchmark SEAOHUN against the organizational capacity standards required for passage; 2) international audit; 3) stakeholder analysis; 4) key informant interviews with leadership at SEAOHUN and OHUNs to understand strengths, weaknesses, opportunities, and threats; 5) political, economic, social and technological analysis of SEAOHUN context. These instruments will be made available to interested OHUNs for use in their context in future years. SEAOHUN Secretariat staff will provide staff time appropriate to respond to requests for documentation and host up to two site visit teams (international audit team) and (NUPAS team).

Activity Details:

Estimated Activity Date(s): December 1, 2019- February, 2020

Lead & Participating Institutions: Ata Health, UC Irvine, UC Berkeley, UC Davis, SEAOHUN Secretariat

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): SEAOHUN Secretariat

Expected output and MEL indicator (with assistance from prime in Y1): Baseline NUPAS completed, % of planned organizational development baseline assessments completed

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1): Advancement by stages across NUPAS tool

Products/Deliverables (if applicable): Organizational Development Assessment Report, NUPAS Report

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

Activity 3.1.2 Title: Conduct workshops and activities to establish new benchmarks and update existing business plans with a five-year vision.

Activity Description: Upon completion of the assessment stage, OHW-NG will facilitate a business planning retreat in the U.S. of key consortium staff and SEAOHUN Secretariat staff. Results from the NUPAS survey and assessments will be presented. Through subsequent working sessions, the team will create a new SEAOHUN Business Plan for 2020-2025, which has a key priority to advance organizational capacity in the NUPAS domains. A priority will be on meeting the standard provisions for transition of direct USAID funding on or near Year 3. An appendix to this plan will be the OHW-NG strategy for supporting this business plan for the same time period. SEAOHUN will provide staff time as well as cover their travel costs.

SEAOHUN will present the business plan for approval to the Executive Board at the next EB meeting.

Activity Details:

Estimated Activity Date(s): April 1-3, 2020

Lead & Participating Institutions: Ata Health, UC Irvine, UC Berkeley, UC Davis, SEAOHUN, EcoHealth Alliance

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): SEAOHUN Secretariat

Expected output and MEL indicator (with assistance from prime in Y1): **Completion of 5 year strategic business planning retreat, Completion of 5 year Strategic Business Plan**

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1):
Products/Deliverables (if applicable):

Budget Details:

Cost:

Location: *(Venue, City, Country)*

Total Number of Participants & Attendees (if applicable): *(including support staff)*

Duration/Number of Days (if applicable):

Travel and hosting needs: *(e.g. flights, lodging, meals)*

Supply and/or Service Needs: *(e.g. translation services, supplies)*

STRATEGY 3.2: Build network organizational capacities.

JEE 2.0 Indicators:

D.4.1 An up to date multisectoral workforce strategy is in place

D.4.2 Human resources are available to effectively implement IHR

D.4.3 In-service trainings are available

D.4.4 FETP of other applied epidemiology training program is in place

GHSA Action Package:

D.4.1 Human resources are available to implement IHR core capacity requirements

Justification:

Activity 3.2.1 Title: Create an organizational sustainability community of practice to share best practices, discuss challenges, and build competencies across the university networks.

Activity Description: Once the SEAOHUN business plan is established, OHW-NG will assist the SEAOHUN Secretariat to launch an “ECHO Organizational Leadership and Sustainability” learning collaborative. The ECHO OLS is a virtual learning collaborative that brings together SEAOHUN Secretariat staff with staff from AfrOHUN Secretariat and the global OHW-NG consortium on routine videoconference calls, designed to provide “low dose, “high frequency” peer learning on organizational capacity. Through expert presentations, discussions of structured “cases” of organizational challenges, and sharing of lessons learned and best practices, the ECHO OLS aims to build the organizational capacity of the SEAOHUN and

AfrOHUN Secretariats along the NUPAS domains and in priority areas from their respective business plans.

Additionally, routinely (e.g. every months) SEAOHUN will work with AfrOHUN and OHW-NG consortium staff to make certain calls open to OHUNs and AfrOHUN country networks, to help expand access to the organizational capacity-building content. Illustrative topics for these “expanded” calls include partnership development, stakeholder mapping, grant-writing

The ECHO OLS will carry-on for the length of the consortium, however the meeting frequency and content will change over time. OHW-NG will assist SEAOHUN to convene and facilitate the calls, so that they are capable to leading similar ECHO learning collaboratives on other topics in the region independently in Years 2 onward. SEAOHUN will dedicate staff time to working with OHW-NG staff to develop a ‘curriculum’ for Year 1 (i.e. a schedule of calls, topic areas, learning objectives and planned speakers), scheduling calls, and completing documentation of participation and call content. SEAOHUN will also procure any hardware or software needed to ensure adequate connectivity.

Activity Details:

Estimated Activity Date(s): June- September, 2020 (will repeat in Years 3-5)

Lead & Participating Institutions: SEAOHUN, University of New Mexico, Ata Health, UC Irvine, UC Berkeley, UC Davis, EcoHealth Alliance, Georgetown University

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): SEAOHUN Secretariat; AfrOHUN Secretariat; OHUNs; AfrOHUN country networks

Expected output and MEL indicator (with assistance from prime in Y1): Number of ECHO OLS calls, total number of participants in ECHO OLS calls (by country/ Secretariat), average number of participants in each ECHO OLS call; (Participant survey, end of each Year): % participants rating the quality of the calls “good” or “very good”, % of participants stating that they “agree” or “strongly agree” that participation in **Long-term outcome/impact and MEL indicator (with assistance from prime in Y1):** the ECHO OLS directly advanced their organizational capacity; and movement across the NUPAS domains

Products/Deliverables (if applicable): End of year 3 and End of program reports on ECHO OLS in particular, including topics, summaries, evaluation results.

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

Activity 3.2.2 Title: Conduct onsite and virtual technical assistance to advance organizational capability of SEAOHUN Secretariat across the NUPAS domains

Activity Description: OHW-NG consortium staff will work with SEAOHUN Secretariat staff to arrange for any needed virtual or on-site technical assistance that may be needed to further help SEAOHUN Secretariat build its organizational capacity in the NUPAS domains and in key priority areas of the business plan. Illustrative examples of technical assistance include: a site visit to draft a partnership development strategy or to assess a business process, or special calls and emails to trouble-shoot questions with new accounting or sub-award procedures. SEAOHUN will make staff time available for this technical assistance. SEAOHUN may also set aside resources to hire consultants locally or in the region for this same purpose. OHUNs may also set aside resources for virtual or onsite technical assistance by OHW-NG consortium staff or by local or regional consultants in key organizational development domains, based on their interest and need.

Activity Details:

Estimated Activity Date(s): April- September 2020

Lead & Participating Institutions: UC Irvine, UC Berkeley, UC Davis, Georgetown University, EcoHealth Alliance

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): SEAOHUN Secretariat

Expected output and MEL indicator (with assistance from prime in Y1): # of technical assistance calls; # of technical assistance site visits, # of organizational capacity assessments completed

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1): Progress along the NUPAS domains (Year 3)

Products/Deliverables (if applicable):

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

STRATEGY 3.3: Develop new and diversified partnerships with a five-year vision.

JEE 2.0 Indicators:

D.4.1 An up to date multisectoral workforce strategy is in place

D.4.2 Human resources are available to effectively implement IHR

D.4.3 In-service trainings are available

D.4.4 FETP of other applied epidemiology training program is in place

GHSA Action Package:

D.4.1 Human resources are available to implement IHR core capacity requirements

Justification:

Activity 3.3.1 Title: Identify and secure new public and private partners that can work closely with the university networks to train and foster One Health workforce opportunities.

Activity Description: <Illustrative country OHUN example>. The Country OHUN recognizes that donor dependence for funding is a critical threat to organizational sustainability. To address this, the Country OHUN intends to work with OHW-NG staff (and/or local or regional consultants) to develop an OHUN partnership development strategy for Years 2-5. This strategy development process would include: 1) mapping of donor or funding sources; 2) documentation of requirements; 3) prioritization of opportunities; 4) convening introductory partnership meetings with key donors and any follow-up steps.

Activity Details:

Estimated Activity Date(s): May- September, 2020

Lead & Participating Institutions: Country OHUN

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): Country OHUN

Expected output and MEL indicator (with assistance from prime in Y1): Development of partnership development strategy; priority donor / funding sources identified, # of stakeholder meetings

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1):
Products/Deliverables (if applicable):

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

Activity 3.3.2 Title: Build partnership development capabilities within the university networks.

Activity Description: <Illustrative narrative for Country OHUN> To advance organizational sustainability, Country OHUN aims to build the partnership development capacity of its organization. To this end, Country OHUN will hire a full time staff person to lead partnership development efforts. This staff person will be responsible for developing a partnership strategy, mapping funding sources, scheduling partner meetings, and participating in SEAOHUN wide partnership development activities.

Activity Details:

Estimated Activity Date(s): November 1, 2019-September 30, 2020

Lead & Participating Institutions: Country OHUN

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1):

Expected output and MEL indicator (with assistance from prime in Y1):

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1):

Products/Deliverables (if applicable):

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

STRATEGY 3.4: Pilot and scale revenue-generating mechanisms for the university networks.

JEE 2.0 Indicators:

D.4.1 An up to date multisectoral workforce strategy is in place

D.4.2 Human resources are available to effectively implement IHR

D.4.3 In-service trainings are available

D.4.4 FETP of other applied epidemiology training program is in place

GHSA Action Package:

D.4.1 Human resources are available to implement IHR core capacity requirements

Justification:

Activity 3.4.1 Title: Institutionalize One Health training into university as well as continuing professional development (CPD) programs of member countries.

Activity Description: <Illustrative Narrative for Country OHUNs> Working to ensure national health professional regulatory bodies- such as nursing councils – recognize and accredit OneHealth training courses is an important method to ensure sustainability and visibility for OneHealth training. Students are also more likely to pay for coursework that offers credits that count toward their re-licensure than courses that do not. Country OHUN has already attained some success working with national professional councils to accredit some OneHealth training. This year, Country OHUN aims to apply for continuing education credit of its key training modules (X, Y, and Z) among the nursing, medical, and laboratory boards. This includes dedicating staff time to completing the paperwork and conducting any meeting as necessary.

Activity Details:

Estimated Activity Date(s):

Lead & Participating Institutions:

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1):

Expected output and MEL indicator (with assistance from prime in Y1):

Long-term outcome/impact and MEL indicator (with assistance from prime in Y1):

Products/Deliverables (if applicable):

Budget Details:

Cost:

Location: (Venue, City, Country)

Total Number of Participants & Attendees (if applicable): (including support staff)

Duration/Number of Days (if applicable):

Travel and hosting needs: (e.g. flights, lodging, meals)

Supply and/or Service Needs: (e.g. translation services, supplies)

Activity 3.4.2 Title: Evaluate and pilot revenue-generating models such as fee-based training opportunities, mobile app for tracking OneHealth training, member services business model.

Activity Description: <Illustrative Country OHUN narrative> Recognizing that being 100% dependent on donor funding is a liability for the sustainability of Country OHUN, the organization is interested to pilot models that may assist in bringing in new sources of revenue. One such model is a mobile app that is used by trainers and students to track OneHealth training. Through a simple scanning of QR codes at the beginning and end of an in-person or online training, this mobile app instantaneously verifies that a particular student has completed a particular training. A cloud-based record of the student, trainer, and training details is immediately available. For trainers, this means a record of the number of OneHealth trainings provided, the topics areas, and the number and types of students (e.g. laboratorians) is available without manually populating this information. For students, this means a record of all the OneHealth training s/he has attended is available and always accessible for means of credentialing or career advancement. A small fee could be charged to students and trainers to download the app. Or, the app could be offered for free, and the data used to produce better reporting on OHUN impact that may be attractive to private sector partners or donors to generate new funding opportunities. This simple app has already been designed and piloted in Africa and India, and this activity would be to pilot its use among select OneHealth trainings in Country X. The pilot would involve dedicating staff time to work with the app developer- Socion, funding to customize the app to the Country OHUN context, piloting the use of the app at select trainings, and reviewing results to determine a way forward.

Activity Details:

Estimated Activity Date(s): \$25,000

Lead & Participating Institutions: Country OHUN

Direct Beneficiaries (and Monitoring, Evaluation, and Learning (MEL) target #, if applicable – with assistance from prime in Y1): Country OHUN

Expected output and MEL indicator (with assistance from prime in Y1): Pilot of mobile app for tracking OneHealth training

Long-term outcome/impact and MEL indicator *(with assistance from prime in Y1):*
Products/Deliverables *(if applicable):*

Budget Details:

Cost:

Location: *(Venue, City, Country)*

Total Number of Participants & Attendees *(if applicable): (including support staff)*

Duration/Number of Days *(if applicable):*

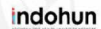
Travel and hosting needs: *(e.g. flights, lodging, meals)*

Supply and/or Service Needs: *(e.g. translation services, supplies)*



OHW-NG Year 1 Work Planning Meeting

11 – 13 November 2019
Grade Centre Point Ploenchit Hotel, Bangkok, Thailand



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.



SEAOHUN Governance and Operating Structure



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

History till Present

(reflect our best knowledge)

2011	<ul style="list-style-type: none">- 10 universities, 14 faculties, 4 countries → SEAOHUN- One seat on SEAOHUN EB per university → unequal vote per country- Chair rotates 2 years<ul style="list-style-type: none">• INDOHUN (3) – Chair 2012 – 2013; Prof. Ghufon• MyOHUN (2) – Chair 2014 – 2015; Prof. Hassim• THOHUN (2) – Chair 2016 – 2017; Prof. Lertrak• VOHUN (3) – Chair 2018 – 2019; Prof. Huong
2012	<ul style="list-style-type: none">- Idea to establish a foundation for sustainability- Each country network was formed and independently operated- Chair of OHUNs sits on SEAOHUN EB to provide linkage

2013	<ul style="list-style-type: none"> - Best to register as a foundation in Thailand - For easy management and registration, one EB member of each country would serve on SEAOHUN FB (4 members) - SEAOHUN Secretariat was established in Bangkok with a Regional Program Manager; and processed the foundation registration
2014	<ul style="list-style-type: none"> - Foundation registration was approved in AUG 2014 in Bangkok - Secretariat team was dissolved - Thai member on FB proposed to move the office to CNX
2015	<p>May 2015 – Office in CNX was established with a Program manager; Tuck joined</p> <ul style="list-style-type: none"> - Activities were EB and FB Meetings

History till Present

2016	<ul style="list-style-type: none"> - SEAOHUN GHI trainings, travel awards, EIO, scholarship program (academic year 2016/2017) - Contract of the Program Manager was not renewed in APR - Use preferred headhunter to hire Executive Director - 1st ED joined in Nov 2016
2017	<ul style="list-style-type: none"> - 1st ED resigned in APR 2017 (< 6 months) - Pat joined on 21 June as 2nd ED - Discovered operational challenges <ul style="list-style-type: none"> • Authorities were with the Chair and FB • ED with no power → too risky and almost quit • Secretariat was not a regional body and at the same level as OHUNs with no knowledge of country activities • Confusing bylaws (3 versions)

History till Present

1. Empowerment of the Executive Director
2. Engagement of the NCOs as part of the EB meetings and decision-making process
3. Creation of a single governing body
4. Development of a clearer strategy for outreach and engagement of regional countries interested in joining the network
5. Update and adhere to by-laws

Five Requested Changes

(UMN letter dated 16 OCT 2017)

Restructuring of SEAOHUN

- EB met in DEC17 and FEB18 to discuss the requested changes
- Hired the Innovance Partners to help with the restructuring (MAR-JUL18)
(thanks to extra budget from USAID)
- EB met in mid July 2018 to decide on changes recommended by the OD consultants
 - One EB with FMC (2 persons)
 - Foundation registration to be all Thais with ED as Secretary
 - Schedule of authorities for ED
 - Coordinators as non-voting members on EB
 - USAID, Prime → voting seats on EB
 - Reduce founder's seats on EB to two for each founding country; one seat for new countries
- Started making changes...



SEAOHUN Activities



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

SEAOHUN Activities

- SEAOHUN EB and FB Meetings
- SEAOHUN Programs
 - Engaging intergovernmental organization (2016, 2019)
 - Scholarship program for academic years 2016/17, 2017/18, 2018/19
 - Fellowship program (3-5 months) in 2017 and 2018
 - Global Health Institute in **Y2** (discontinued)
 - Travel award only in Y3 (discontinued)
- SEAOHUN Conference at PMAC 2017 (closed), NOV 2018 (opened); agreed to organize every 2 years and host by the country of Chairperson



CAMBODIA starting in SEP 17 – SEP 19 w/ KOICA through
USAID

- Institutional assessment; country assessment
- Training of faculty members/national trainers; in-service professionals
- Raising awareness of OH among students and other stakeholders
- SEAOHUN Scholarship and Fellowship
- Participation at regional/international conferences
- Budgeted for half a staff → one full-time staff on the ground

SEAOHUN Activities



Myanmar w/ USAID

- FEB 18 – OH Orientation workshop; gathering all OHUNs 1st time
- SEP 18 – Follow-up visit to discuss an additional activity and establishing OHUN in Myanmar
- FEB 19 – Systems thinking workshop & Rectors' discussion



Lao PDR in OCT 18 w/ LMI (\$50K)

- Assessment
- OH Orientation
- TOT of OHCCs
- Rectors' discussion
- LAOHUN Strategic Planning
- LAOHUN Kick-off Meeting on 4 NOV (celebrate OH Day)

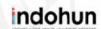
SEAOHUN Activities

SEAOHUN Regional Participations

- PMAC poster presentation & side meetings in
- GHSA Ministerial Meeting & side meeting in (NOV 18)
- GHSA Detect 1 and Detect 5 meetings
- ASEAN + 3 FETN SC meeting; FETN & AVEG joint meetings
- ASEAN HC2 meeting
- Tripartite meeting
- World Bank health security financing project
- ASEF high-level meeting on risk communication
- OH Conferences in Taiwan, China
- ...



SEAOHUN Communication and Challenges



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Communication

- SEAOHUN & OHUN communicated directly with the Prime and should not copy USAID
- Selective in who to communicate and not keeping key individuals in the loop
- Lack regular communication/feedback; irresponsive
- No clear line of communication
- No real person serving as a liaison for SEAOHUN/OHUNs except for INDOHUN with a dedicated officer
- SEAOHUN communicates with OHUNs when coordinating meetings/TAs via email, LINE, WhatsApp, call

Challenges

- No value in having SEAOHUN → challenges to establish trust and working relationship with well-established OHUNs since 2012
 - Limited human resources and capacity
 - Encouraged to coordinate programmatic and finance of work planning, budgeting, and reporting with no additional human resources
-
- Not a true regional network; limited knowledge of OHUNs
 - Governance and funding issues with expansion
 - Sustainability remains a concern; OHUNs' expectation from SEAOHUN in mobilizing resources

Despite the odds...

- BIG THANKS to USAID, KOICA, LMI, Tufts, Pfizer, all the partners
- OHW-NG!!!
- Regional presence (GHSA D1, ASEAN+3 FETN, ASEAN HC2?)
- Doubling OHUNs in two years to 8 OHUNs w/ AFROHUN coming
- Doubling SEAOHUN fellows to 12 from 6 fellows in a year; expanded hosts to 8 from 6
- World Bank project to build capacity on HSF is under review

Organizational Development should be one of the top priorities!

(generally not a priority/expertise of universities; possible with consortium!)



SEAOHUN Strategic Plan and Partnership



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

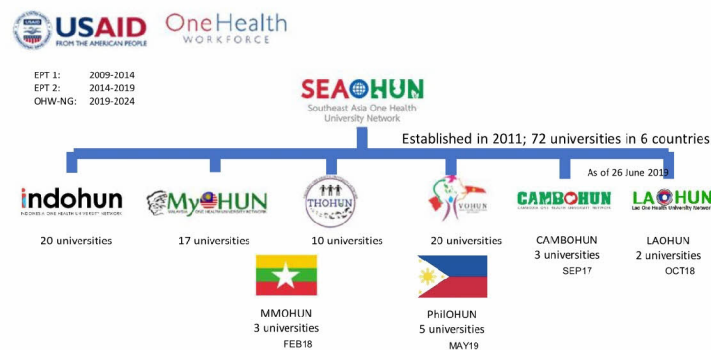
VISION

A regional network of universities
in Southeast Asia generating
social and intellectual excellence
on **One Health**.



MISSION

To develop a resilient and competent
One Health workforce by leveraging
education, research, and training
provided by university networks in
Southeast Asia.



A consortium of universities that are collaborating to build One Health capacity and academic partnerships with government, national and regional stakeholders in the Southeast Asian region.



SEA HUN
Southeast Asia One Health
University Network

-
- Improved collaboration on resource mobilization
 - Improved collaboration between the Secretariat, OHUNs, and member universities
 - Improved public relations
 - Organizational development for the SEAOHUN Secretariat



-
- Improved networking among faculty members/national trainers, in-service and pre-service health professionals

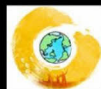




- Improved sharing of curricula and teaching best practices



SEAOHUN is among the partners of ...



Global Health Security

Agenda

Detect 5 Action Package

...the world's nations to detect infectious disease threats, to bring together nations from all over the world to make new, concrete commitments, and to elevate global health security as a national leaders-level priority.



LAO PDR PDR as the incoming Chair (2020-21)

The Meeting agreed to extend the invitation to SEAOHUN as a development partner to be invited in the upcoming SC Meeting. As a collective ASEAN+3 FETN, the ASEAN+3 FETN propose a regional activity (workshop, training, etc.) on Epidemic Intelligence and Response to be financially supported by SEAOHUN and its networks.



POTENTIAL PARTNERS



Health Security Financing



GMS WG on Health
Cooperation



ASEAN Health Cluster 2:
Responding to All Hazards
and Emerging Threats

How to Engage with University Partners?



Myanmar



Philippines



Singapore
Possible in 2020



Brunei



Taiwan



China

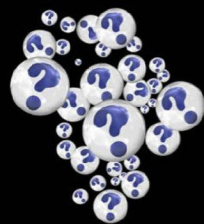


Japan



Bangladesh

SEAOHUN SUSTAINABILITY



Funding support from...

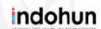


Possible to mobilize support for regional activities, and perhaps for CLM, not founding countries

High expectation from OHUNs with fewer human resources



SEAOHUN/OHUN Structure for Work Planning & Budgeting



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Past Work Planning sessions

1. *Separate session for Year 3 Work Planning for each OHUN and SEAOHUN in March 2016 in Bangkok*
 - Prime visited and had a planning session with each country network.
 - The proposed timeline and process was drafted by SEAOHUN but OHUNs disagreed to use.
2. *SEAOHUN Year 3 Kick-off Meeting in October 2016 in Chiang Mai*
 - First time gathering among the networks' staff
 - Team building activity
 - Sharing session and lessons learned from Year 2 Implementation
 - Discussion on the technical support for Y3 activities

Past Work Planning sessions

3. Year 4 Pre-Planning Meeting in April 2017 in BKK

- Reviewed Year 3 activities and informed of Year 4 timeline
- First time discussed about financial contribution (5% of annual budget) to regional resource mobilization

4. Year 4 Kick-Off Meeting in January 2018 in BKK

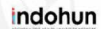
- Discussed way forward for Year 4
- Poor timing b/c organized at the same time as PMAC 2018
- No specific output from the meeting

Proposed WP Flow

MAR	Country level pre-work planning
Early APR	SEAOHUN gathers activities from CLM+P
Late APR	Regional work planning meeting for all OHUNs (possible to know the budget?)
Late MAY	OHUNs submit Draft Work Plans & Budget to SEAOHUN
JUN	Prime Technical Lead/ liaisons review activities and budgets together with SEAOHUN; ?Prime provides joint feedback directly to networks with copy to SEAOHUN for Y2 planning; SEAOHUN will provide joint feedback with copy to Prime for Y3 planning
End of JUN	OHUNs submit revised Work plans & budgets to SEAOHUN
Early JUL	SEAOHUN Executive Board reviews and approves Work plans & Budgets
Mid JUL	OHUNs submit the final Work plans & budgets to SEAOHUN
End of JUL	SEAOHUN consolidates the work plans & budgets for Prime
AUG	Prime asks clarification directly to OHUNs with a copy to SEAOHUN Prime submits final work plans & budgets to USAID



M&E Tracking and Reporting



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Monitoring and Evaluation (Programmatic)

- **Quarterly** reporting by 15th of the following month that SEAOHUN/OHUNs submitted directly to UMN; SEAOHUN requested to be copied but not in the loop
- More “M”; “E” survey but no result was shared
- Output oriented; Fancy numbers with assumptions
- No/limited training e.g., double counting issues
- No/limited feedback & acknowledgement
- One message for all (SEAOHUN/OHUNs/OHCEA) regardless of applicability
- Duplicative data request; multiple uploads to ASANA & Drive

Financial Reporting

- Monthly reporting by 15th of the following month submitted directly to UMN by SEAOHUN/OHUNs except for THOHUN; SEAOHUN not in the loop for OHUNs' Work Plans and Budgets
- UMN monitors balance to advance fund generally without any need to forecast
- Different timesheet practices across OHUNs (% vs hours)
- Different practice for 10% indirect cost, asking for approval for 10% above the budget line
- One Finance & Admin training for SEAOHUN and OHCEA in Y1.; Provided financial Q&A rather than training for SEAOHUN subaward with THOHUN in MAY 18.



Other Challenges



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Other Challenges

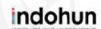
- Little to no effort on organizational strengthening or helping the networks to sustain themselves
- No intervention on the chronic issue of the network's governance
- Lack transparency by not keeping key persons informed
- Viewing the capacity building of staff as one-time training

- Short lead time when making requests (e.g., reports, organizing meetings)
- Imbalanced network promotion between OHCEA and SEAOHUN
- No follow-up action after the meetings
- High turnover and staff rotation of UMN team
- Coordination and status of travel approval

Other Challenges



SEAOHUN Staffing



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

When can SEAOHUN bring additional staff on board?

- CURRENT – only five persons: ED, OM, Admin, Finance, Communication
- Ongoing recruiting PO, M+E, and PM to be on board in Dec'19 or Jan'20
- How about additional staff? Full capacity in Y3?



SEAOHUN Office



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Rationale

- **More staff** (up to 10 initially plus regional persons from Prime?): SEAOHUN needs more space to accommodate people as well as meeting room.
- **Budgetary purpose:** As more countries joining the network, SEAOHUN would like to minimize rental costs to allow more fund to support additional countries.
- **Facilities support and surroundings:** With the two-year construction project (small animal hospital) at VET school starting OCT19, the condition is disturbing. Internet connection and power are unreliable.
- **Market price:** With the same facilities and space, the rental fee is higher than the market price in Chiang Mai and even higher than Mahidol University based in Bangkok.

Three options (ranked by preference)

1. **Private house close to Chiang Mai University**
2. **Science and Technology Park (STEP) managed by CMU**
3. **K Park Business Centre**

Private house closes to Chiang Mai University

- A house owned by the individual
- 2 floors with 400 Sqm.
- With the space for kitchen, meeting room, and common area
- Parking lot is available
- 3 kms from VET school
- 6 kms from CMU main campus
- Partially built-in furniture and Air-con
- **35,000 THB/ month**
- Can negotiate for long-term contract (proposed 3 years)





Science and Technology Park (STEP)

- Managed by Chiang Mai University
- 1 large room with 112 sqm.
- Kitchen and meeting room are needed to be built-in with our own cost
- STEP Parking lot is shared with others
- In the same compound with VET school
- 8 kms from CMU main campus
- Unfurnished room with central Air-con
- With the subsidy from the government program, the cost would be **13,800 THB/ month** (80-90% support)
- Only one-year contract and depend on the STEP committee's decision





SEA OH UN
Seoul National University Health
University Network



K Park Business Centre

- A new commercial townhome
- 3 floors with 187 Sqm.
- Kitchen and meeting room are needed to be built-in with our own cost
- Limited parking lot is available in front of the property
- 10 kms from VET school
- 10 kms from CMU main campus
- Unfurnished house with no Air-con
- **28,000** THB/ month.
- Can negotiate for long-term contract





Type A
construção 6.90 u.
suíte 1



Type B
construção 5.90 u.
suíte 2



Type B
construção 5.90 u.
suíte 3



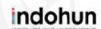
	YET Faculty CMU	Remarks	Private House	Remarks	STEP by CMU	Remarks	K Business Center	Remarks
Space (Sq.m)	95		400		112		187	
Rental fee (per month)	80,000		35,000		13,800	Full price is 69,000	28,000	
Estimated rental costs for 3 years	2,880,000		1,260,000		662,400		1,008,000	
Estimated utilities costs for 3 years (water, electricity, internet, telephone, maintenance fee)	72,000	Telephone and maintenance	612,000	All must be paid	90,000	Telephone and maintenance	612,000	All must be paid
Deposit when move in	-		105,000		20,700		84,000	
Relocation cost		Need to pay if we need more space	50,000	Hiring company to move	50,000	Hiring company to move	50,000	Hiring company to move
Renovation cost			150,000	Contractor service to renovate and set up the working space partition, and parking lot	500,000	Contractor service to renovate and set up the working space partition, film and curtain	250,000	Contractor service to renovate and set up the working space partition, curtain and parking lot
Purchase of furniture and small appliances	80,000	Additional furniture, and necessary appliances	100,000	Additional furniture, digital floor lock, necessary appliances	150,000	Additional furniture, petty necessary appliances	250,000	Additional furniture, petty, air-con, and necessary appliances
Estimated costs for 3 years (THB)	3,032,000		2,277,000		1,473,100		2,254,000	
Estimated costs for 3 years (USD)	\$ 101,067		\$ 75,300		\$ 49,103		75,133	

Pros & Cons

	VET Faculty	Private House	STEP	K Business Center
Pros	<ul style="list-style-type: none">Relationship with CMU	<ul style="list-style-type: none">Reasonable priceLong-term contractMore space with meeting and common areasClose to CMU	<ul style="list-style-type: none">Relationship with CMU and MHESILowest costNew compound	<ul style="list-style-type: none">Reasonable priceLong-term contract
Cons	<ul style="list-style-type: none">Most expensive with limited spacePoor utilities and facilitiesPoor environment during 2-years construction.	<ul style="list-style-type: none">Image concern	<ul style="list-style-type: none">Short-term contract with no negotiation powerUncertainty situation with STEP's considerationHigh set-up cost	<ul style="list-style-type: none">Image concernSurroundings by surgery clinics and travel agentsNot close to CMU



DISCUSSION



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Topics for Discussion

- SEAOHUN & Prime should at least engage with OHUNs at its annual (Board) meetings
- Organize EB at university; campus tour and discuss collaboration
- One to two regional activities hosted by OHUNs per year
- How to allocate budget? When to transfer the responsibility from Prime to SEAOHUN EB?
- Subaward management and coaching plan from Prime side
- Strengthen new OHUNs → support to have NCOs in which year?
- Afternoon – how to engage non-founding countries





SEAOHUN Executive Board



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Composition of SEAOHUN EB

- Two members from each OHUN
 - Country representatives, not university
 - Chairperson + another person with different discipline
 - Dean or representative of the Dean
- INDOHUN has not nominated its representatives
- PhilOHUN recently expressed an interest to join SEAOHUN
- Non-voting Coordinators; how about new OHUNs?
- USAID (one vote); Prime (one vote?) – how many people?
- Non-voting ex-officio ED
- How to engage other partners and private sector?

Selection of Chairperson

- Complete the rotation in DEC 2019
- Prof. Huong will share the next meeting to select the Chairperson.
- 3 Proposed options agreed at the last EB meeting (JUN19)
 - Country rotation in reverse order for continuity
 - Nomination and election for Chair and Vice-Chair
 - Nomination and election for Chair with the rotation of Vice-Chair.
- Only meeting among the four founding countries before non-founding countries join?
- Term should be two years; renewable?

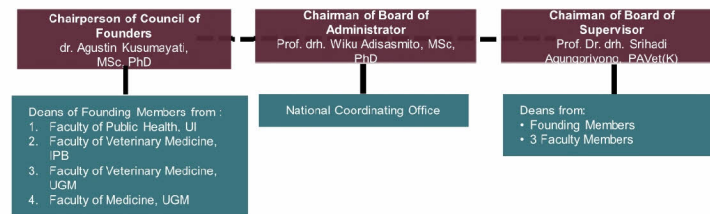
SEAOHUN Management Committee (MC)

- From two persons (Prof. Huong and Prof. Suwat) to four persons or one person from each founding country (Chair + 3 OHUNs)
- Chairperson of EB is also the Chair of MC
- One voting member from the other three countries of the Chairperson
- Oversee operation, make decision on the operational matters that are beyond the scope of the Executive Director's authority, and authorize Foundation Board to sign official documents

Challenges and ways forward

- Rotation of Board members and Coordinators?
- OHUN Structure?
- Complexity of INDOHUN

INDOHUN Structure & Membership



INDOHUN Representatives
Executive Board SEAOHUN

University	Faculty	Position	Name	Email
Universitas Indonesia	Faculty of Public Health	Dean/Executive Board Member	Dr. Agustin Kusumayati, MSc, PhD	agustin.kusumayati@ui.ac.id
		Alternate I	Prof. drh. Wilu Adisasmito, MSc, PhD	wiluadisasmito@gmail.com
		Alternate II	Dr. drg. Ella Nurbaela Hadi, MKes	ellanuradi@yahoo.com
Bogor Agricultural University	Faculty of Veterinary Medicine	Dean/Executive Board Member	Prof. Dr. drh. Srihadi Agungpriyono, PAves(IQ)	ysrihadi@yahoo.com
		Alternate I	Dr. irh. Denny Widjaja Luman, MS	dennykurniawan@kurniawan.com
		Alternate II	Dr. drh. Hadi Laief, MSI	hadilaief@gmail.com
Universitas Gadjah Mada	Faculty of Medicine & Faculty of Veterinary Medicine	Dean/Executive Board Member	Prof. dr. Ova Emilia, MMedEd., PhD, SpOG(IK)	ovaemilia@gmail.com
		Alternate I	Dr. drh. Sudarmanto Indrajulianto	indrajulianto@ugm.ac.id
		Alternate II	Prof. dr. Ali Ghulron Muli, MSc, PhD	ghulronmuli@yahoo.com
	Faculty of Medicine	Alternate III	Dr. dr. Mahadika Agus Wijayanti, DTMH, MKes	dikafugm@yahoo.co.id
	Faculty of Medicine	Dean	Prof. dr. Ova Emilia, MMedEd., PhD, SpOG(IK)	ovaemilia@gmail.com
	Faculty of Veterinary Medicine	Dean	Prof. Dr. drh. Setienna Okawa Salsita	setiennasalsita@yahoo.com
INDOHUN Representative in SEAOHUN Foundation Board of Directors				
Dr. Agustin Kusumayati, MSc, PhD				

- What to do with inactive EB members?
- Better engage member universities –
INDOHUN (no discussion on the representatives) and
MyOHUN (retain the two persons without discussion at the Board)
- How to engage Board members to collaborate on regional
activities and resource mobilization?
 - Past – discuss bylaws, strategic plan, and restructuring
 - EB Members should attract funding/promoting the network
 - Should add EB members from private/partners or having advisory
board?
- Still meeting twice a year? In person and via Zoom? Should
set month(s) to meet

Challenges and ways forward



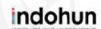
WRAP UP DAY 1



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.



DAY 2 before morning break – Subawards, ...



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Topics for Discussion

- When coming to assess SEAOHUN? Need to assess OHUNs?
 - Two 5-day strategic business planning retreats at each network's headquarters (p. 18)
- When to start subawards between SEAOHUN and each OHUNs?
 - Contract with universities or foundation/NGO - different practice in each country
 - Training on USAID rules and regulations; M&E, finance
 - How about new OHUNs? Should they have NCOs and subawards?
 - Not ready for INDOHUN
- Budget allocated from Prime in Y1; Should the decision transfer to SEAOHUN EB for budget allocation? how OHUNs would feel of unequal amounts?

- Timeline for work planning and budgeting
- Line of communication; key persons should always be copied
 - USAID ↔ Prime ↔ SEAOHUN ↔ OHUNs (in most cases)
- Reporting from OHUNs → SEAOHUN → Prime
for both programmatic and finance
- Seconded staff to build capacity of SEAOHUN for xx months
- SEAOHUN and Prime should agree on the template, process and timeline before sharing with OHUNs
- Frequency of reporting?

Topics for Discussion



DAY 2 after morning break – Routine OHUN visits, ...



This presentation is made possible by the generous support of the American people through the United States Agency for International Development (USAID).
The contents are the responsibility of One Health Workforce implementing partners and do not necessarily reflect the views of USAID or the United States Government.

Topics for Discussion

- Proposed organizational management structure for OHW-NG (Fig 7); composition of working groups
- Monitoring SEAOHUN/OHUN visits
(participate in OHUN Board meetings?)
- Process for travel approval
 - How to deal with last minute changes?
- Paperwork with UCD

Appendix A1 – NON-U.S. ORGANIZATION PRE-AWARD SURVEY (NUPAS)

Name of Organization _____
Type of Organization _____
Proposed Activity/Amount _____
Assessment Conducted by _____
Dates Conducted _____

A **NUPAS**, using the following matrix, should be performed for all non-U.S. awards to assist Agreement Officers in making responsibility determinations through assessment of a potential awardee's likelihood for compliance with the **Standard Provisions for Non-U.S. Nongovernmental Recipients**.

NUPAS Objectives:

1. To determine whether the non-U.S. organization has sufficient financial and managerial capacity to manage USAID funds in accordance with U.S. Government and USAID requirements;
2. To determine the most appropriate method of financing to use under the potential USAID award; and
3. To determine the degree of support and oversight necessary to ensure proper accountability of funds to be potentially provided to the organization.

Criterion and Risk Review	No.	Scoring				Score	Remarks/Recommendations
		1	2	3	4 (Highest Score)		
		INADEQUATE CAPACITY Key Deficiencies and SW Not Remediable Before Award	WEAK CAPACITY Some Deficiencies and SW Not Easily Remediable Before Award	ADEQUATE CAPACITY No Deficiencies SW (if any) Remediable Before Award	STRONG CAPACITY No Deficiencies or SW		
		High Risk	Moderate to High Risk	Low to Moderate Risk	Low Risk		
Criterion: LEGAL STRUCTURE							
Organization							
Compliance with local organization” [Only applicable if an entity intends to limit its operations to local markets.]	1	Organization does not meet the definition and <u>has no plan</u> or capacity to change.	Organization does not meet the definition and <u>has a plan</u> by which it will meet the definition within 2 – 4 months.	Organization meets the definition and there are <u>some contingencies or conditions</u> that make maintaining such status challenging or uncertain.	Organization <u>meets the definition</u> and has stable conditions for maintaining such status.		
					Score		
Requirements							
Compliance with registration requirements and other licenses, permits, regulations.	2	Organization is <u>not legally registered</u> or registration has expired. Organization lacks one or more required permits or licenses to operate. Organization is <u>not aware</u> of its obligations under required licenses and permits or applicable tax, labor, occupational health and safety, environmental, or other material laws and regulations. Or, the organization is aware but has not yet applied for the permits/licenses.	Organization has applied for legal status and is <u>not yet a legally recognized entity</u> in the country in which it operates. Organization has applied for and has not yet obtained one or more required permits or licenses to operate. Organization is aware of its obligations under required licenses and permits or applicable tax, labor, occupational health and safety, environmental, or other material laws and regulations.	Organization is legally registered and has all required permits and licenses to operate. Organization is aware of its obligations under its licenses and permits and applicable tax, labor, occupational health and safety, environmental, and other material laws and regulations; is in <u>substantial compliance</u> with all such legal obligations. The organization is taking (or plans to take,) corrective action where needed.	Organization is legally registered; has, and is fully compliant with, all required permits and licenses to operate; is aware of its tax status and is fully compliant with applicable tax, labor, occupational health and safety, environmental, and other material laws and regulations relevant to its operations.		
					Score		
Source for definitions of “Deficiency,” Significant Weakness,” and “Weakness.” SW = Significant Weakness(es).							

Organizational Structure							
at the in's charter, by- ther ial/operational ; support its d goals.	3	Organization has no formal organizational structure; there are clearly inadequate or entirely missing definitions of departmental or functional responsibilities and lines of responsibility; lines of communication among departments or key functions are weak. The organization has no defined mission.	Organization has <u>less than an</u> <u>adequate organizational structure</u> ; roles and responsibilities of departments or functions and lines of communication are not well defined, and the organization does not have a defined mission.	Organization has an <u>adequate</u> <u>organizational structure</u> , adequately designed and relevant to its mission and goals, roles and responsibilities of departments or functions and lines of communication are adequately defined and appropriate.	Organization has a <u>strong</u> <u>organizational structure</u> , well designed and highly relevant to its mission and goals, roles and responsibilities of departments or functions and lines of communication are well-defined and highly appropriate.		
					Score		
Governance							
at the organization s the importance ctices good governance in all [Refer to OECD of Corporate e: right and reatments of rs (only used for inizations), f other rs, role and ity of the board, d ethical disclosure and cy.]	4	Management of the organization <u>does not</u> adequately emphasize and the organization does not practice good corporate governance in key areas. Deficiencies and SW in key areas of corporate governance are not remediable prior to award.	There is <u>marginal involvement</u> by organization's management in addressing the importance of good corporate governance in key areas. Deficiencies and SW** in one or more key areas of corporate governance may not be easily remediable.	Organization's management <u>addresses</u> the importance of good corporate governance in key areas, and there are a few weaknesses in one or more areas of corporate governance. Those are remediable.	Organization's management regularly and consistently <u>emphasizes</u> the importance of and practices good corporate governance (as broadly defined) in all key areas.		
					Score		
Social Environment							

at adequate exist within the in to ensure fiduciary and prevent in obtaining non-financial i the basis of rade or actions eir official	5	Board <u>does not have</u> terms of reference or a clear understanding of its key functions. Board term limits are not defined or are unreasonable. There is no approved process for electing/ appointing/removing Board members and officers. Organization has no or <u>negligible</u> fiduciary risk controls covering Board members, officers, and employees; there are no credible mechanisms for enforcement of such policies and controls. The control environment is so deficient it presents an unacceptable level of risk.	Board has <u>incomplete</u> or otherwise inadequate terms of reference and lacks an adequate understanding of its key functions; key functions are carried out <u>inconsistently</u> . Board term limits are not defined or are unreasonable. No approved process for electing, appointing or removing Board members and officers is in place. Organization has <u>inadequate</u> fiduciary risk controls covering Board members, officers, and employees; there are inadequate mechanisms for enforcement of such policies and controls.	Board has adequate terms of reference and an <u>adequate understanding</u> of its key functions and those functions are carried out <u>generally</u> well. Board term limits are defined and reasonable. Board members and officers are elected/ appointed/ removed in an acceptable manner. Organization has fiduciary risk controls covering Board members, officers, and employees; adequate mechanisms for enforcement of such policies and controls are in place.	Board has clear terms of reference and a <u>good understanding</u> of its key functions and those key functions are carried out <u>consistently</u> well. Board term limits are defined and reasonable. Board members and officers are elected/appointed/ removed in accordance with applicable laws and approved, written procedures. Organization has fiduciary risk controls covering Board members, officers, and employees; effective mechanisms for enforcement of such policies and controls are in place.		
Score							
Average Score for LEGAL STRUCTURE							

Criterion: FINANCIAL MANAGEMENT AND INTERNAL CONTROLS SYSTEMS

Banking Relationship and Accounts

Organization has no banking relationship with a commercial bank and that the organization has adequate procedures and in place to ensure reconciliation of bank with the accounting	6	Organization <u>has no banking</u> relationship. Organization uses the bank account of a senior employee and funds are commingled with personal funds. Bank accounts are rarely or never reconciled. Overall, the organization's policies, procedures and practices in this area are <u>not adequate</u> .	Organization has no banking relationship, and <u>plans to establish</u> a bank account in a registered banking institution prior to an award. Bank accounts are periodically reconciled. Documentary evidence does not exist to determine, review and approve monthly bank reconciliations. Policies do not stipulate requirements for regular bank reconciliation. <u>Less than adequate</u> action is taken on outstanding items over 60 days.	Organization has a bank account in a registered banking institution and the account is <u>adequate</u> for its mission/goals. Opening and maintaining additional accounts limited to specific purposes may be beneficial. Bank accounts are reconciled on a monthly basis. Adequate documentary evidence exists to determine, review and approve monthly bank reconciliations. Policies stipulate <u>adequate</u> requirements covering regular bank reconciliation. <u>Adequate</u> action is taken on outstanding items over 60 days.	Organization has bank accounts in a registered commercial banking institution that are <u>appropriate</u> for its mission/goals. Bank accounts are accurately reconciled on a monthly basis. Documentary evidence exists to show the dates the monthly bank reconciliations were prepared, and who prepared, reviewed and approved them, with corresponding signatures affixed. <i>[Note: This includes credible financial management records sufficient for internal and external audit trail purposes.]</i> Policies stipulate <u>sound</u> requirements covering regular bank reconciliation. <u>Appropriate</u> action is taken on any outstanding item over 60 days.		
---	---	--	--	---	--	--	--

Score

Accounting/Bookkeeping System

at the organization ounting/ ng system, and ial transactions d into the system tent basis in e with applicable olicies and i. <i>very small ons and awards, a ndwritten in ble entry system may be provided it is l and used y in accordance table accounting</i>	10	Organization <u>does not have</u> an adequate accounting/ bookkeeping system.	Organization's accounting/ bookkeeping system is weak. Financial transactions are not entered into the system on a regular or consistent basis. The bookkeeping system lacks some functionality to automatically reconcile summaries of transactions to the detailed transactions.	Organization has an <u>adequate</u> double entry accounting/ bookkeeping system. Financial transactions are entered into the system on a regular basis. The bookkeeping system has some functionality to automatically reconcile subsidiary ledgers to the main ledger.	Organization has a <u>reliable</u> double entry accounting/bookkeeping system that meets its needs and is otherwise appropriate. Financial transactions are entered into the system on a daily basis. The bookkeeping system has functionalities to automatically reconcile subsidiary ledger to the main ledger.		
					Score		
of Accounts, General Ledger and Financial Statements							

at the organization of accounts and finding General t are used to ancial statements ir and consistent e: Request the counts to perform review to ensure ganization has a ence of accounts, ilities and owners' ifirm there is a ture ture" costs.]	11	Organization <u>does not have</u> a chart of accounts or General Ledger or those are not adequate for purposes of the award. The General Ledger numbering system does not follow applicable statutory country requirements (if any). Material financial transactions are not recorded regularly and consistently in accordance with approved accounting standards. Financial Statements are not produced, or if produced, are not derived from the General Ledger (trial balance) in accordance with acceptable accounting standards.	Organization has an incomplete and otherwise <u>weak</u> chart of accounts and General Ledger. The General Ledger numbering system does not follow all applicable statutory country requirements (if any). Material financial transactions are not recorded regularly and consistently in accordance with approved standards. Financial Statements are not derived from the General Ledger (trial balance) in an acceptable manner. Financial Statements are not prepared on a consistent basis in accordance with approved accounting standards.	Organization has a chart of accounts and corresponding General Ledger that is <u>adequate</u> . The General Ledger numbering system follows statutory country requirements (if any) in all material respects. Material financial transactions are recorded regularly and consistently in accordance with approved and otherwise adequate accounting standards, principles and practices. Financial Statements are derived from the General Ledger (trial balance) in an adequate manner. Financial Statements are prepared in accordance with national standards.	Organization has a chart of accounts and corresponding General Ledger that meet its needs and are otherwise <u>appropriate</u> . The General Ledger numbering system follows statutory country requirements (if any) with no exceptions. All financial transactions are recorded regularly and consistently in accordance with approved and otherwise appropriate accounting standards, principles and practices. Financial Statements are regularly and consistently derived from the General Ledger (trial balance). Financial statements are prepared in accordance with applicable national and international standards.		
						Score	

Variance Analysis (Budget to Actual Cost)

at the organization ate policies, s and practices in sure regular alysis (budget to) of program and inancial data.	14	Organization <u>does not have</u> any or adequate systems to analyze actual data versus budget data. Management is unable to articulate the necessity of variance analysis or to institutionalize the process. Overall, the organization <u>does not have</u> adequate policies, procedures and practices in place.	Financial reports are accompanied by <u>incomplete</u> or otherwise weak budget data and variance analysis (budget to actual cost) reports. Program managers <u>do not have</u> the necessary knowledge, skills, and abilities to objectively review the reports and take corrective action. The organization's policies, procedures and practices for variance analysis are <u>weak</u> .	<u>Adequate</u> financial reports are accompanied by budget data and variance analysis (budget to actual cost) reports. Program managers <u>generally</u> review financial reports and take corrective action. The organization has <u>adequate</u> policies, procedures and practices in place for adequate variance analysis (budget to actual cost) of program and operating financial data.	<u>Appropriate</u> financial reports are accompanied by budget data and variance analysis (budget to actual cost) reports. Program managers <u>consistently</u> review financial reports and take corrective action. The organization has <u>appropriate</u> policies, procedures and practices in place to ensure appropriate regular variance analysis (budget to actual cost) of program and operating financial data.		
						Score	

Allowable and Unallowable Cost

at the organization its policies, and practices in segregate allowable allowable and to satisfy donor requirements. <i>[Note: The be as simple as a t.]</i>	17	Organization's finance personnel or management <u>do not have</u> an adequate understanding or are unable to articulate the concepts surrounding allowable or unallowable cost. Organization <u>does not have</u> adequate policies, procedures and practices in place to segregate allowable and unallowable cost nor to otherwise satisfy other donor requirements.	Organization finance/program personnel have <u>weak</u> understanding of the concept of allowable and unallowable costs from a donor restriction perspective.	Organization finance/program personnel have an <u>adequate</u> level of understanding of the concept of allowable and unallowable costs from a donor restriction perspective. Organization has an <u>adequate</u> system (formal or informal) to adequately track unallowable cost.	Organization finance/program personnel have an <u>appropriate</u> level of understanding of the concept of allowable and unallowable costs from a donor restriction perspective. Organization has an <u>appropriate</u> system to track unallowable cost. Organization has <u>effective</u> policies, procedures and practices in place to ensure clear lines of communication between finance and program staff relative to allowable and unallowable cost.		
						Score	

and Indirect Costs

at the in's ts/bookkeepers derstanding of s and indirect costs ost allocation	18	Organization's accountants/bookkeepers <u>do not</u> <u>understand</u> direct costs, indirect costs or cost allocation principles. Organization's accounting records are maintained by personnel with <u>negligible</u> knowledge about direct and indirect costs. The overall capacity of the organization's accountants/ bookkeepers to accurately allocate indirect cost to grants, projects, and other cost objectives according to causal beneficial relationships is <u>negligible</u> . The organization <u>lacks the ability</u> to develop or acquire the minimum acceptable level of capacity in accumulating direct and indirect costs by project.	Organization's accountants/ bookkeepers have a <u>weak</u> understanding of direct costs, indirect costs and cost allocation principles. Organization's accountants/ bookkeepers have a <u>weak</u> understanding of the concept of "cost objectives" in relation to intermediate and final "cost objectives." Organization's accountants/ bookkeepers' ability to accurately allocate indirect cost to grants, projects, and other cost objectives according to causal beneficial relationships is <u>weak</u> . Organization's capacity to accumulate direct and indirect costs by project in an acceptable manner is <u>weak</u> .	Organization's accountants/ bookkeepers have an <u>adequate</u> understanding of direct costs, indirect costs and cost allocation principles. Organization's accountants/ bookkeepers have an <u>adequate</u> understanding of the concept of "cost objectives" in relation to intermediate and final "cost objectives." Organization's accountants/ bookkeepers can <u>accurately</u> allocate indirect cost to grants, projects, and other cost objectives according to causal beneficial relationships. Organization has <u>adequate</u> capacity to accumulate direct and indirect costs by project.	Organization's accountants/ bookkeepers have an <u>appropriate</u> understanding of direct costs, indirect costs and cost allocation principles. Organization's accountants/ bookkeepers have an <u>appropriate</u> understanding of the concept of "cost objectives" in relation to intermediate and final "cost objectives." Organization's accountants/ bookkeepers have the <u>requisite</u> <u>level</u> of knowledge, skills and experience in this area to accurately allocate indirect cost to grants, projects, and other cost objectives according to causal beneficial relationships. Organization's skill in accumulating direct and indirect costs by project in an appropriate manner is <u>strong</u> .		
--	----	--	---	---	---	--	--

						Score		
Payments - Segregation of Duties								
at the organization's policies, procedures and practices in place regarding segregation of duties to ensure proper segregation of funds above a threshold can only be with dual and are supported documentation.	7	There are Deficiencies and SW in the payments cycle that lack proper segregation of duties. Written policies and procedures do not exist, or those that do, are clearly <u>inadequate</u> .	Payments are <u>not supported</u> by complete documentation (e.g., missing vendor invoices). Adequate written financial practices (e.g., internal controls and audit) are absent or <u>deficient</u> .	Payments are supported by <u>adequate</u> documentation. Policies, procedures and practices may fall short of best practices. Approved policies and procedures are <u>generally</u> followed.	There are well thought out and <u>documented</u> policies, procedures and practices that safeguard the payment process. Approved policies and procedures are <u>consistently</u> followed.			
						Score		
Accounting Cycle - Segregation of Duties								
at the organization's policies, procedures and practices in place regarding segregation of duties to ensure proper segregation of funds above a threshold can only be with dual and are supported documentation.	9	Organization does <u>not have the minimum</u> acceptable set of policies, procedures and practices to ensure proper segregation of duties in relation to the management and disbursement of funds.	The organization does <u>not have adequate</u> policies, procedures and practices in place for purposes of the award to ensure proper segregation of duties associated with the accounting cycle. Funds are disbursed without prior approvals and documentation is inadequate.	Organization has an <u>adequate</u> delegation of authority system to ensure that no one person does all the work relating to a full accounting cycle transaction. Approval is usually obtained prior to disbursement of funds and approvals are adequately documented.	Organization has a <u>sound and well documented</u> delegation of authority system appropriate to the size of the organization to ensure that no one person does all the work relating to a full accounting cycle transaction. Organization has sound policies, procedures and practices to ensure that all approvals are documented prior to cash disbursements.			
						Score		
Financial Records Management								

at the organization ate policies, ; and practices in sure proper filing ement of financial d their ease of	15	Organization <u>does not have</u> adequate policies, procedures and practices in place to ensure proper filing and management of financial records and their ease of access. Organization has no contingency plan that includes procedures for backup/recovery of financial data for financial and operational continuity.	Organization has <u>incomplete</u> and relatively weak policies, procedures and practices to safeguard financial records. <i>[The filing system operates on an ad-hoc, informal basis.]</i> Management does not require filing and records management practices. Organization has a <u>weak</u> contingency plan that has significant gaps in procedures for backup/recovery of financial data for financial and operational continuity.	Organization has <u>adequate</u> policies, procedures and practices in place to safeguard important documents including financial records. <i>[The filing system is not necessarily centralized or optimal.]</i> Management supports <u>adequate</u> filing and records management practices throughout the organization. Organization has an adequate contingency plan in place for financial and operational continuity.	Organization has <u>sound</u> policies, procedures and practices in place to safeguard important documents including financial records. <i>[This includes offsite storage of copies of financial records.]</i> Management emphasizes and supports <u>standard</u> , practical, efficient and effective filing and records management practices. Organization has a contingency plan for the organization that includes procedures for backup/recovery for financial and operational continuity.		
---	----	---	---	---	--	--	--

Score

ces of Funding

at the organization activities/programs ential sources of equate for of operations period of the for long term ity. <i>[Note: This be as simple as parate bank r each funding</i>	16	Organization <u>does not</u> have procedures in place to track sources of funding and lacks the capacity to develop and implement such procedures within a reasonable timeframe. The level of professional knowledge, skills and experience of finance personnel in job cost accounting, fund accounting, etc. is <u>negligible</u> . Organization has <u>insufficient</u> sources of funding from other activities /programs and/or from other alternative potential sources of funding.	Organization <u>does not</u> have a system in place to track sources of funding. Organization's bookkeeping system tracks sources of funding through one revenue account. The level of professional knowledge, skills and experience of finance personnel in job cost accounting, fund accounting, etc. is <u>weak</u> . Organization has <u>weak</u> sources of funding from other activities /programs. Organization has weak business development practices in place.	Organization tracks the sources of funding through offline records. Organization's accounting/ bookkeeping system <u>adequately</u> tracks sources of funding. Finance personnel have an <u>adequate</u> level of professional knowledge, skills and experience in job cost accounting, fund accounting, etc. Organization has <u>adequate</u> sources of funding from other activities/ programs and/or from other potential sources of funding. Management <u>articulates</u> the importance diversification of sources of funding. Organization has adequate practices in place for business development and it has a satisfactory reputation for <u>satisfactory</u> work.	Organization has an <u>effective</u> system in place to track sources of funding. Finance personnel have an <u>appropriate</u> level of professional knowledge, skills and experience in job cost accounting, fund accounting, etc. Organization has <u>good sources</u> of funding from other activities/programs and/or from other potential sources of funding. Management <u>clearly articulates</u> the importance of diversification of sources of funding. Organization has good practices in place for business development and has a reputation for <u>good</u> work.		
--	----	--	---	--	---	--	--

Score

ncial Reporting

at the organization the written cedures and place to produce monthly and year-to- ial statements id expenditure balance sheet).	12	Organization <u>does not have</u> the minimum acceptable set of written policies, procedures and practices in place to produce reliable monthly financial statements (income and expenditure report).	Financial statements are seldom reviewed by management. Management <u>seldom</u> takes corrective actions based its review of financial statements.	Organization produces reasonably <u>adequate</u> financial statements on a regular basis that meet the needs of the organization. Financial statements are reviewed by management. Management <u>generally</u> takes corrective actions based on its review of financial statements.	Organization consistently and accurately produces reliable monthly financial statements from the General Ledger in accordance with its written procedures. The financial statements are reviewed by organization's management and corrective actions are taken when necessary.		
--	----	--	---	--	--	--	--

Score

it and Review of Financial Statements

at the organization the policies, s and practices in sure that its atements are reviewed on a is by a third party under the laws of y such as a accounting firm or body or both.	13	Financial statements are <u>not</u> usually audited or reviewed. Organization produces internal financial statements with limited or no Notes to the Financial Statements. If Financial Statements were to be audited, an audit firm would be unable to issue an opinion due to the quality of the financial records. If audited, Organization would most likely receive a Qualified Opinion, Adverse Opinion, or Disclaimer of Opinion. An auditor, accountant, regulatory body or other third party has communicated a "Deficiency" or "Significant Deficiency" in internal control that cannot be easily remedied. Review of the financial statements reveals "Going Concern Issues."	Organization has incomplete and otherwise weak policies, procedures and practices. Financial statements are <u>seldom</u> audited or reviewed on a regular basis by a third party recognized under the laws of the country. Organization has received a Qualified Opinion, Adverse Opinion, or Disclaimer of Opinion. An auditor, accountant, regulatory body or other third party has communicated a "Deficiency" or "Significant Deficiency" in internal control. Management is unable to represent that no Deficiency or Significant Deficiency in internal control presently exists. Organization's policies, procedures and practices for managing and closing audit findings and recommendations are weak.	Organization has adequate policies, procedures and practices. Its financial statements are audited or reviewed on a <u>regular</u> <u>basis</u> by a third party recognized under the laws of the country. When financial statements are audited, a Qualified Opinion is acceptable as long as the audit issues raised are not material to financial management and pose either no or very low fiduciary or performance risk. An auditor, accountant, regulatory body or other third party has communicated any "Deficiency" or "Significant Deficiency" in internal control. Organization has adequate policies, procedures and practices in place for managing and closing audit findings.	Organization has appropriate policies, procedures and practices in place. Its financial statements are audited <u>annually</u> by a third party recognized under the laws of the country. Audited financial statements receive an unqualified (unmodified) audit opinion (no Qualified Opinion, Adverse Opinion, or Disclaimer of Opinion). No auditor, accountant, regulatory body or other third party has communicated any "Deficiency" or "Significant Deficiency" in internal control. Organization has appropriate policies, procedures and practices in place for managing and closing audit findings and recommendations.		
--	----	---	--	--	--	--	--

Score

ncial Management Personnel

<p>person responsible for managing accounting and financial management within the organization must have the necessary accounting and financial management skills and experience.</p>	8	<p>The day-to-day financial management is done by a person with neither formal accounting training nor finance related experience. The individuals responsible for discharging accounting and financial management functions <u>do not have the minimum</u> acceptable level of qualifications and experience needed.</p>	<p>The accountant/ bookkeeper is <u>not professionally</u> trained as an accountant and has a limited understanding of management and financial accounting standards, principles and practices. The accountant/ bookkeeper is unable to articulate and apply important concepts, principles and practices and lacks the technical capacity to prepare and monitor operational and project budgets.</p>	<p>The accountant/ bookkeeper is <u>adequately</u> trained and has adequate qualifications and experience. The accountant/ bookkeeper is able to articulate and apply basic concepts, principles and practices of management and financial accounting and reporting. The accountant/bookkeeper has <u>adequate</u> capacity to prepare and monitor budgets including adequate cash flow projections and statements.</p>	<p>The accountant/bookkeeper has <u>professional</u> accounting qualifications that clearly meet the needs of the organization. The accountant/ bookkeeper has strong ability to apply concepts, principles and practices of management and financial accounting and reporting. The accountant/bookkeeper has <u>strong</u> technical capacity and experience to prepare and monitor appropriate budgets including cash flow projections and statements.</p>			
						Score		
Average Score for FINANCIAL MANAGEMENT AND INTERNAL CONTROL SYSTEMS								

erion: PROCUREMENT SYSTEMS

urement Policies, Procedures and Practices

at the organization ement policies, s and practices in are adequate. urement policies, s and practices se relating to or purchasing, nd settling d claims; s and controls over l related records ent.]	19	Organization has no or <u>highly inadequate</u> procurement policies, procedures and practices. Staff has not received any or sufficient training in this area. Management has not emphasized the importance of this area.	Organization has less than adequate procurement policies and procedures and practices. In some cases, they are incomplete or otherwise <u>inadequate</u> . Organization's procurement policies, procedures and practices are not well known to staff and are <u>not consistently followed</u> . Staff <u>needs</u> additional training, and management needs to emphasize the importance of procurement procedures.	Organization has <u>adequate</u> procurement policies, procedures and practices in place that are generally appropriate given the country conditions. Any minor exceptions are easily remediable. Organization's procurement policies, procedures and practices are known to staff and are <u>generally adhered to</u> .	Organization <u>complete</u> and well documented procurement policies, procedures and practices that are appropriate to the country conditions. Organization's procurement policies, procedures and practices are known and understood by trained staff and are <u>consistently adhered to</u> , reviewed and updated as necessary.			
						Score		

liance with Policies and Procedures – Reasonableness of Price

at the organization with its own d procedures for minations of ness are made for and who in the n is responsible.	21	Organization <u>has no</u> policies and procedures for how determinations of reasonableness are made for purchases and who in the organization is responsible. Little or no supporting documentation exists to verify that competitive procedures are used or that determinations of reasonableness are made in an acceptable manner.	Organization has <u>informal</u> policies and procedures for how determinations of reasonableness are made for purchases and who in the organization is responsible. Supporting documentation to verify compliance is incomplete or otherwise <u>weak</u> .	Organization has <u>adequate</u> policies and procedures that cover competitive procedures, how determinations of reasonableness are to be made, and who is responsible for purchases. <u>Adequate</u> supporting documentation exists to verify compliance.	Organization has well thought out, well documented, and <u>effective</u> policies and procedures that require competitive procedures and dictate how determinations of reasonableness are to be made and specify who is responsible for purchases. <u>Complete</u> and accurate supporting documentation exists to verify compliance.			
						Score		

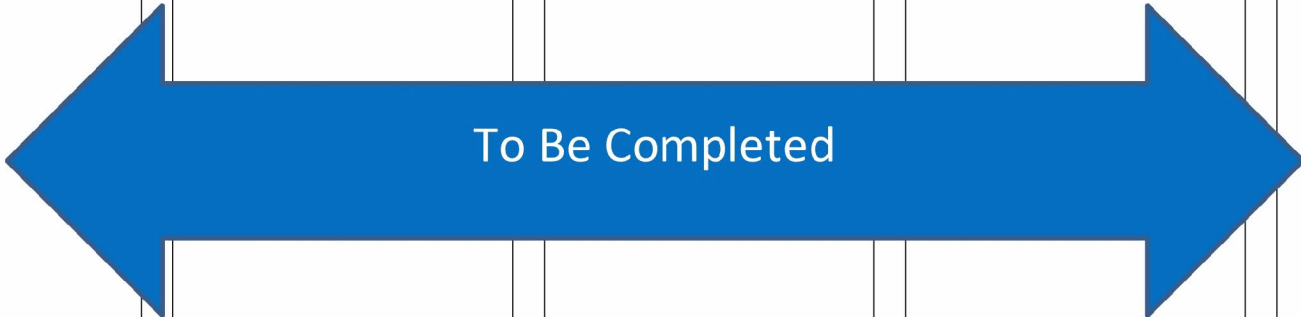
urement and Sub-awards

at the organization the policies, s and practices in procurement and processes using h bargaining.	20	Organization <u>does not have</u> adequate procurement and sub- award management policies, procedures and practices in place. There are <u>no</u> effective policies and procedures to prevent or detect conflicts of interest. Training, mentoring and oversight is negligible.	Organization has <u>incomplete</u> and relatively weak policies and procedure covering sub-grant awards and management. Policies, procedures and practices are <u>inappropriate</u> and may lend themselves to potential conflicts of interest and actions that are not in the best interests of the organization. Formal training in this area is non- existent or <u>weak</u> . .	Organization has <u>adequate</u> policies and procedures that are adequately communicated and generally effective. Employees are expected to avoid conflicts of interests and achieve value for money in this area, by acting in a manner consistent with the best interests of the organization. Employees have been trained and <u>generally</u> follow policies and procedures.	Organization has <u>well documented</u> <u>and communicated</u> policies and procedures that are effective in practice, guiding appropriate sub- grant awards and management. Organization's policies, procedures and practices in this area reflect arm's length bargaining principles and avoid the potential for conflicts of interest. Employees are well trained and <u>consistently</u> follow the organization's policies and procedures.		
Score							
Average Score for PROCUREMENT SYSTEMS							

Criterion: HUMAN RESOURCES SYSTEMS									
II Human Resources (HR) Policies and Procedures									
at organization lows HR policies, s and practices. ending on the size of the n, typical HR l cover the hiring, and recognition, retirement, ion and benefits, y, transfer and n of employees.]	22	Organization <u>does not have</u> HR policies, procedures and practices (formal or informal) that satisfy its minimum level of needs and those that do exist are clearly inadequate. Organization's approach to hiring, promotion and recognition, retention, retirement, compensation and benefits, supervision, transfer and termination of employees is ad hoc. Organization has no organizational chart or written job descriptions; no standard benefits / compensation practices; and no discernible policies outlining roles and responsibilities and delegations of authority.	Organization has <u>weak</u> HR policies, procedures and practices that fail to satisfy all of its key needs and are otherwise not adequate. There are <u>serious gaps</u> in the organization's HR policies and practices including those related to the collection, management, use and storage of HR information. Organization <u>lacks</u> a reasonably complete organizational chart, up-to-date written position descriptions, a benefits/ compensation plan, and reasonably adequate policies and practices outlining roles and responsibilities and delegations of authority.		Organization has HR policies, procedures and practices that meet its needs and are <u>adequate</u> . Organization has an organizational chart and written job descriptions; adequate benefits/ compensation practices; and adequate policies and practices outlining roles and responsibilities and delegations of authority.	Organization has comprehensive, well thought out, well documented, and <u>effective</u> HR policies, procedures and practices that meet its needs and reflect best practices. Strong approaches for retaining competent staff are reviewed by management and modified to ensure effectiveness. Organization has an up-to-date and complete organizational chart and job descriptions for all key employees; a formal benefits/ compensation plan and practices that meet its needs; and sound policies and practices outlining roles and responsibilities and delegations of authority.			
						Score			
Time Management									

at the organization published, reliable documented labor system that it (e.g., timesheets).	24	Organization <u>does not have</u> an established and appropriately documented labor activity system. Employees do not provide, sign or written timesheets/activity reports that reflect actual time worked on all projects as well as indirect activities. Timesheets/activity reports are often based on rough <u>estimates</u> or plug figures. Labor costs are distributed among projects based on unreliable estimates. Payment of salaries and wages does not consistently correspond to verifiable information provided by employees.	Organization has <u>weak</u> labor activity policies, procedures and practices. Timesheets/activity reports are often based on rough <u>estimates</u> of work hours rather than actual, verifiable data. Timesheets/activity reports are <u>not consistently</u> completed nor verified and approved by supervisors. Labor costs are distributed among projects and indirect activities based on budget <u>estimates</u> or other rough estimates of work hours. Payment of salaries and wages does not consistently correspond to verifiable information derived from timesheets/activity reports.	Organization has an <u>adequate</u> labor activity system that adequately captures, allocates and reports labor time, activities and costs. Employees provide written timesheets/ activity reports that reflect actual time worked on all projects as well as indirect activities. Timesheets/activity reports are <u>not consistently</u> signed and approved by supervisors. Labor costs are <u>generally</u> distributed among projects and indirect activities based on the data derived from the timesheets/activity reports. Payment of salaries and wages generally corresponds to the information documented. Errors or omissions are few or not material.	Organization has a <u>strong</u> , comprehensive, well documented, and regularly and consistently used labor activity system that properly captures, allocates and reports labor time, activities and costs. Employees <u>maintain</u> written timesheets/ activity reports that reflect actual time worked on all projects as well as indirect activities. Timesheets/activity reports are signed/ <u>certified</u> and approved by supervisors. Labor costs are <u>accurately</u> distributed among projects and indirect activities based on the data derived from the timesheets/activity reports. Payment of salaries and wages corresponds to the information documented in the timesheets/activity reports.		
						Score	
Payroll System							
at the organization all system that is or purposes of the note: The payroll may be either original or hard copy.]	23	Organization <u>does not have</u> a payroll system. It disburses pay to employees on an irregular basis. Payroll records are incomplete, and are otherwise not reliable. Payroll is <u>seldom</u> , if ever, reconciled to the General Ledger. Organization has <u>no discernible</u> policy or standard acceptable practices on compensation (salary scales and increases) and benefits for the different types and levels of employees.	Organization has an <u>incomplete</u> and otherwise weak payroll system. Payroll records often contain errors. Payroll is <u>infrequently</u> reconciled to the General Ledger. Organization has <u>less than an adequate</u> documented and followed policy on compensation (scales and increases) and benefits for the different types and levels of employees.	Organization has an <u>adequate</u> payroll system that meets it key needs. Payroll is <u>regularly</u> reconciled to the General Ledger. Organization has and uses an <u>adequate</u> policy on compensation (salary scales and increases) and benefits for the different types and levels of employees.	Organization has a well thought out, well documented, and <u>effective</u> payroll system founded on sound payroll policies and procedures that are consistently followed. Payroll is <u>accurately</u> reconciled to the General Ledger at least monthly. Organization has and uses an <u>appropriate</u> and well documented policy on compensation (salary scales and increases) and benefits for the different types and levels of employees.		
						Score	

Policies and Procedures							
at the organization lows appropriate ies and s.	25	Organization <u>does not have</u> adequate travel policies, procedures and practices. Practices are <u>inconsistent</u> and made on an ad hoc basis. Recordkeeping for compliance and other control and verification purposes is <u>inadequate</u> .	Organization has <u>incomplete</u> travel policies and procedures. Acceptable travel policies and procedures are <u>not consistently</u> followed in practice by management or other employees. Records to verify compliance are <u>incomplete</u> and otherwise weak.	Organization has travel policies and procedures that are <u>adequate</u> . Travel policies and procedures are <u>generally followed</u> in practice by management or other employees. Records are kept to verify compliance.	Organization has <u>complete</u> documented travel policies and procedures. Management emphasizes the importance of <u>adherence</u> to approved travel policies and leads by example. Travel policies and procedures are understood by staff and are consistently adhered to, reviewed and monitored for compliance.		
Score							
Average Score for HUMAN RESOURCES SYSTEMS							
erion: PROJECT PERFORMANCE MANAGEMENT							
ical Evaluation Criteria							

ithing/verification technical criteria as y TEC. [Note: The pleted" criteria is allow, where the NUPAS to hat the TEC i in the technical to be ential for purposes matic ce that needs to be in order to the programmatic esponsibility. It is ssumptions that re a couple of i made by an r a technical at, if true, elihood of rogrammatic ce. Such potential o be verified during d survey in a way g an application e use, again, is d thus may not t be needed in J	26	<div></div>									
t Management Capacity											

at the organization ate capacity to d monitor projects lonor guidance or n.	27	Organization has an <u>inadequate</u> project management system. Organization <u>does not have</u> sufficiently qualified project management personnel.	Organization has a <u>weak</u> project management system for monitoring progress on projects. Organization's project management policies, procedures and practices are <u>weak</u> . Organization produces <u>reasonably adequate</u> project management reports. Organization has an <u>incomplete</u> project management manual that is seldom used. Organization has <u>too few</u> qualified project managers for its overall purposes.	Organization has an <u>adequate</u> project management system in place to monitor progress on projects on a regular basis. Organization's project management policies and procedures are <u>generally</u> followed. Organization produces <u>adequate</u> project management reports on a fairly regular basis. Organization has an adequate project management manual that is <u>generally</u> followed. Organization has an <u>adequate</u> number of qualified project managers.	Organization has a <u>comprehensive</u> and well documented project management system in place to monitor progress on projects on a regular basis. Organization consistently produces <u>useful</u> project management reports. Organization has a <u>comprehensive</u> project management manual that informs and guides actual performance. Organization has a <u>sufficient</u> number of qualified project managers to meet its needs and the capacity to obtain additional qualified personnel as needed.		
						Score	
Average Score for PROJECT PERFORMANCE MANAGEMENT							

Section: ORGANIZATIONAL SUSTAINABILITY

Flow Management

Organization demonstrates good discipline in developing, monitoring and using cash flow budgets and in actually managing cash and is a responsible manager. <i>performing a few to determine the need for the use of a for-profit company. For instance, be appropriate: ratio, acid test ratio, interval or working</i>	28	Organization has <u>no or little</u> history of developing, monitoring and using cash flow budgets. Organization has <u>inadequate</u> capacity to develop, monitor, update and use comprehensive cash flow projections. Due to poor cash management practices and weak results of operation, payments to creditors and/or employees are often late and remain past due well beyond the terms of payment. There <u>are</u> material past due accounts, that are seriously delinquent. There are unliquidated advances over 1 yr.	Organization has <u>weak</u> discipline in developing and monitoring and using cash flow budgets. Management is <u>not adequately</u> involved with finance personnel in daily or weekly cash flow management. Often, payments are not made on time due to fluctuations in cash inflow and outflow and weak cash management practices. There are no unliquidated advances over 90 days.	Organization has <u>adequate</u> discipline in developing and monitoring and using cash flow budgets. Management is <u>adequately</u> involved with finance personnel in daily or weekly cash flow management. Organization has a <u>reasonably satisfactory</u> history of making payments to creditors and employees on time. There are <u>no</u> material past due accounts (singly or in the aggregate). There are no unliquidated advances over 60 days.	Organization has <u>good</u> discipline in developing, monitoring and using cash flow budgets. Management is <u>actively</u> involved with finance personnel in daily cash flow management. Organization has a <u>good</u> history of making payments to creditors and employees on time. There are <u>no</u> material past due accounts (singly or in the aggregate), including long outstanding advances.		
--	----	--	---	---	---	--	--

Score

Absorptive Capacity

Organization's absorptive capacity is <u>adequate</u> . Given its resources and ability to obtain additional resources, organization has adequate capacity to absorb the level of effort required.	29	Organization <u>does not have</u> capacity to absorb the level of effort required to implement an additional project/activity.	Organization's absorptive capacity is <u>weak</u> for purposes of the award (i.e., the organization may be hard pressed to rise to the level of effort required to take on an additional project/activity).	Organization's absorptive capacity is <u>more than adequate</u> . Given its resources, organization has the capacity to absorb the level of effort required to implement an additional project/activity.		
--	----	--	---	--	--	--

Score

Average Score for ORGANIZATIONAL SUSTAINABILITY

TOTAL OVERALL AVERAGE SCORE

at the organization ate capacity to d monitor projects lonor guidance or n.	27	Organization has an <u>inadequate</u> project management system. Organization <u>does not have</u> sufficiently qualified project management personnel.	Organization has a <u>weak</u> project management system for monitoring progress on projects. Organization's project management policies, procedures and practices are <u>weak</u> . Organization produces <u>reasonably adequate</u> project management reports. Organization has an <u>incomplete</u> project management manual that is seldom used. Organization has <u>too few</u> qualified project managers for its overall purposes.	Organization has an <u>adequate</u> project management system in place to monitor progress on projects on a regular basis. Organization's project management policies and procedures are <u>generally</u> followed. Organization produces <u>adequate</u> project management reports on a fairly regular basis. Organization has an adequate project management manual that is <u>generally</u> followed. Organization has an <u>adequate</u> number of qualified project managers.	Organization has a <u>comprehensive</u> and well documented project management system in place to monitor progress on projects on a regular basis. Organization consistently produces <u>useful</u> project management reports. Organization has a <u>comprehensive</u> project management manual that informs and guides actual performance. Organization has a <u>sufficient</u> number of qualified project managers to meet its needs and the capacity to obtain additional qualified personnel as needed.		
						Score	
Average Score for PROJECT PERFORMANCE MANAGEMENT							

Flow Management	
-----------------	--

[illegible]

Average Score for ORGANIZATIONAL SUSTAINABILITY		
---	--	--



Non-U.S. Organization Pre-Award Survey Guidelines and Support

Additional Help for ADS Chapter 303

New Reference Date: 06/28/2012
Responsible Office: M/OAA/P
File Name: 303sam_062812

Table of Contents

Introduction

Tools to support local capacity development

Purpose of the NUPAS

Eligibility under competitions limited to local entities

Scale of assessment

Special award conditions (SACs)

Recommended NUPAS review team

Three steps for a successful NUPAS

- Desk review
- The survey
- Final report

Prudential ratios

Definitions

Useful references

Appendices

Appendix A – Non-U.S. Organization Pre-Award Survey (NUPAS)

Appendix B – NUPAS Final Report (Suggested Format)

Appendix C – NUPAS Report Table

Appendix D – NUPAS Questions for Consideration

Introduction

This tool was developed with considerable input from the field as well as USAID's headquarters staff.¹ The 29 evaluative elements represent those items most critical in the formulation of a responsibility determination before a grant is awarded to a non-U.S. organization. Agreement Officers (AOs) may select areas for review that are critical in making a determination for a particular award. (For instance, if there will be no procurement associated with the award, there is no need to do an extensive procurement policies and systems check.) Missions are encouraged to make changes to the NUPAS to more closely align to their particular needs.

Following are guidelines and information to answer frequently asked questions. It is important that the NUPAS (Non-U.S. Organization Pre-award Survey) team review the necessary documentation, noting where there are weaknesses before scoring a sub-element or element. Notes to that effect should be recorded in the remarks/recommendations section (Column R in Appendix A2, the Excel checklist; far right column in Appendix A1, the Word checklist). Use this area to properly explain what has been uncovered that may cause concern.

The NUPAS was developed as a tool for purposes of facilitating a responsibility determination for any non-U.S. non-governmental organization. It may also be used to determine the eligibility of an organization when competition is limited to "local entities" (see "Eligibility under competitions limited to local entities").

Tools to support capacity development

USAID has designed three tools to support capacity development. Missions may amend them as appropriate for their local or regional context.

1. **Mapping Exercise** - conducted for the identification of potential partners, clients and other stakeholders.
2. **Non-U.S. Organization Pre-award Survey (NUPAS)** - a selection tool, to determine a potential partner's responsibility and whether special award conditions may be required.
3. **Organizational Capacity Assessment (OCA)** – a facilitated self-assessment tool recommended for use shortly after an award is made and periodically repeated to show progress and subsequent priorities.

As noted above, the pre-award survey (NUPAS) precedes an award and is used in the selection process. It is not intended as a substitute for an organizational capacity assessment (OCA), or the associated capacity development **Action Plans** as contemplated by USAID Forward's **Local Capacity Development (LCD)** reform efforts. The NUPAS and OCA are complementary tools designed for different purposes and time periods.

Purpose of the NUPAS

Conducting a Non-U.S. Organization Pre-award Survey (NUPAS) is the Agency's tool for making a responsibility determination of a not-for-profit or for-profit non-U.S. organization that is being considered for a USAID grant.

¹ Special thanks to our Missions in the Philippines, West Africa/Ghana, East Africa/Kenya and Tanzania, Southern Africa/South Africa, Haiti and Egypt without whose help this tool would not have been launched.

Missions may request assistance in conducting pre-award surveys from auditors from USAID/Washington, M/OAA/CAS/CAM (Contract Audit Management Branch). Additionally, Missions may conduct pre-award surveys using the NUPAS by hiring audit firms determined by the Regional Inspector General to be an eligible USAID audit firm under the [Guidelines for Financial Audits Contracted by Foreign Recipients](#). The primary objective of the NUPAS is to assist Agreement Officers (AOs) in making a responsibility determination through assessment of a potential awardee's likelihood for compliance with the ***Standard Provisions for Non-U.S. Nongovernmental Recipients***.

NUPAS objectives:

1. To determine whether the organization has sufficient financial and managerial capacity to manage USAID funds in accordance with U.S. Government and USAID requirements,
2. To determine the most appropriate method of financing to use under the potential USAID award, and
3. To determine the degree of support and oversight necessary to ensure proper accountability of funds provided to the organization.

The NUPAS will help determine whether the organization's financial management and internal control systems are adequate to manage, control, account for, and report on the uses of potential USAID funds, thus protecting the U.S. Government's interests. It provides the AO with the information needed to evaluate the ability of a local organization to adequately fulfill the terms of an award, and serves as a tool in the selection of non-U.S. implementing partners. The NUPAS is not to be used in making a responsibility determination for awards to U.S. Non-Governmental Organizations or Public International Organizations (PIOs) under ADS 308.

Eligibility under competitions limited to local entities

When competition is limited to local entities (see ADS 303.3.6.6(b)(2)), whether an awardee meets the Agency's definition of "local" organization must be considered in determining the potential awardee's eligibility for an award. To be considered a "local" organization, an entity must:

- Be organized under the laws of the recipient country;
- Have its principal place of business in the recipient country;
- Be majority owned by individuals who are citizens or lawful permanent residents of the recipient country or be managed by a governing body, the majority of whom are citizens or lawful permanent residents of a recipient country; and
- Not be controlled by a foreign entity or by an individual or individuals who are not citizens or permanent residents of the recipient country.

The term "controlled by" means a majority ownership or beneficiary interest as defined above, or the power, either directly or indirectly, whether exercised or exercisable, to control the election, appointment, or tenure of the organization's managers or a majority of the organization's governing body by any means, e.g., ownership, contract, or operation of law.

"Foreign entity" means an organization that fails to meet any part of the "local organization" definition.

Government controlled and government owned organizations in which the recipient government owns a majority interest or in which the majority of a governing body are government employees, are included in the above definition of local organization.

When competition is limited to regional (indigenous) organizations, the definition can be expanded to include regional organizations that meet the following criteria:

- Be organized under the laws of a country in the region served by the platform;
- Have its principal place of business in the region;
- Be majority owned by individuals who are citizens or lawful permanent residents of the region or be managed by a governing body, the majority of whom are citizens or lawful permanent residents of the region; and
- Not be controlled by a foreign entity or by an individual or individuals who are not citizens or permanent residents of the region.

This requirement does not apply to non-U.S. recipients in which competition has not been limited to local entities. Therefore, when competition is not limited to “local” organizations, do not use sub-criterion 1.1 of the NUPAS.

Scale of assessment

1) Scoring individual elements

Inadequate (Scoring 1)	Significant control weaknesses could expose the organization to significant financial or other loss or otherwise significantly <u>impair its ability to manage</u> USAID funds. (Key deficiencies and SW that are not remediable before the award, or high risk.)
Weak (Scoring 2)	Significant control weaknesses could expose the organization to <u>unacceptable/inadequate</u> levels of unmanaged risk. (Some deficiencies and SW that are not easily remediable before the award, or moderate to high risk.)
Adequate (Scoring 3)	Although a control weakness was noted, compensating controls and other factors exist to reduce the residual risk within the organization to <u>acceptable</u> levels. (No deficiencies, SW [if any] are remediable before the award, or low to moderate risk.)
Strong (Scoring 4)	Overall, a <u>strong</u> control framework is in place given the inherent business risks. Some improvements may be recommended to routine detailed control activities. (No deficiencies or SW or low risk.)

2) Overall score per criterion

- **1.0 – 1.5 Inadequate**
- **1.51 – 2.5 Weak**

- **2.51 – 3.5 Adequate**
- **3.51 – 4.0 Strong**

If an organization does not meet certain minimum requirements (i.e., scoring a 1 to 1.5), and otherwise is found responsible, the AO can use special award conditions make the award and provide conditions that allow the organization to meet all of the minimum requirements during the award period. ADS 303.3.9.2 contains USAID’s policy for using special award conditions for non-U.S. NGO, supplemented by the guidance below. Sub-criteria will NOT necessarily be of equal weight as each award and prospective partner presents unique circumstances. The “responsibility determination” calls for the application of professional judgment based on all relevant facts and circumstances known to the AO.

If a certain criterion is not relevant given the nature, scope and requirements of the award and the country situation or context, the NUPAS should be modified to meet the Mission’s requirements and interests. Missions are also encouraged to add areas to be evaluated based on their specific needs.

It is not necessary for an organization to have all the illustrative capabilities and attributes listed under each of the four elements (1.1 through 6.2) to support a particular score. Other elements affecting a determination of responsibility can be taken into consideration such as: performance, education, knowledge and experience of finance staff, tone of management, sensitivity to internal controls, and commitment of management and employees to the organization’s mission.

Special award conditions (SACs)

Low scores in areas critical to comply with USAID requirements, or considered to be a priority for the Mission and/or program, may prevent the organization from receiving an award. In such cases, the AO may make an award with special award conditions (SACs) in accordance with ADS 303.3.9.2. If the AO makes the award pursuant to ADS 303.3.9.2, or the NUPAS findings are not resolved prior to the award, the AO must insert a provision, or “special award condition” (SAC), in the resulting instrument to require the recipient to correct the reported deficiencies.

USAID addresses the risk of successful performance by non-U.S. NGOs at both the pre-award, award and post award stages through the NUPAS and SACs. As described in ADS 303.3.9.1, the NUPAS is a pre-award process to identify and establish the baseline for potential areas of risk inherent in making a non-U.S. NGO award. The NUPAS serves as the keystone tool for the AO to make a responsibility determination as required by ADS 303.3.9.1. As described in ADS 303.3.9.2, AOs must adequately address findings resulting from the NUPAS, including conducting a follow-up review or survey to determine the extent to which the recipient corrected the reported inadequacies. Additionally, the AO must document in the Negotiation Memorandum the rationale for including SACs as part of the AO’s overall responsibility determination and explain how the SAC will mitigate the identified risk in an award to a recipient that is not otherwise responsible.

SAC Formulation

When the AO makes an award, he or she may consider requiring any of the following additional conditions:

- a. SACs, such as more detailed or more frequent financial reports for example, and

- b. Technical assistance to the recipient. When the AO determines that more oversight is necessary, the AO may
- Issue a contract to a third party to provide technical assistance to the recipient;
 - Require the recipient to contract for technical assistance; or
 - Have USAID staff provide technical assistance directly to the recipient.

SACs are derived from the AO's responsibility determination, as documented in the negotiation memorandum, and must be included in the recipient's award document. Whenever possible, special award conditions must be for as limited a time period as necessary to mitigate for the identified risks and not for the life of the award.

If a local organization receives an award with special award conditions, the Mission will need to develop a plan to support and monitor progress of the recipient in satisfying the special award conditions. This plan is intended to complement the organizational capacity assessments (OCA) and the associated capacity development action plans contemplated by USAID Forward's Local Capacity Development (LCD) reform efforts.

For SACs that do not cover the entire award period, once the SAC has been satisfied and its conditions have been fully met, the AO must remove the SAC via written modification to the award. The SAC must allow a reasonable amount of time for the recipient to satisfy the condition. In such cases, where satisfaction of a SAC represents mitigation of the corresponding risk for the remainder of the award and the corresponding risk bears directly on the responsibility of the recipient, satisfaction of the SAC must be tied to disbursement under the award such that:

- a. additional funding may not be provided to the recipient if the SAC has not been satisfied and
- b. only the Agreement Officer may make exceptions. The AO must not redelegate this authority to the Agreement Officer's Representative (AOR).

For SACs that cover the entire period of the award, the SAC must clearly state that it covers the entire period of the award or must identify clearly the timeframe(s) or milestones at which the inclusion of the SAC may be reconsidered, amended or removed.

The nature of the additional requirement must be documented in the award and stipulate the nature of the corrective action needed. A SAC must describe the milestone(s) or task(s) the recipient must complete to meet the requirements of the SAC. As a best practice, a SAC:

- a. Must be one or more concise, clearly understood and explicit provisions in the award;
- b. Must be included in the Schedule of the Award;
- c. Must be organized based on the format of the NUPAS criteria;
- d. May be of limited duration or may cover the entire period of the award.

In enforcing SACs, AOs must adhere to the guidance in ADS 303.3.9.2.

Recommended NUPAS review team

In many situations, the scope of the NUPAS will be quite broad, encompassing legal structure, financial management and internal control systems, procurement systems, human resources, performance management, and organizational sustainability indicators. Consequently, the NUPAS needs to be undertaken by a multi-disciplinary team of reviewers with the appropriate expertise and experience, including FSN staff. A typical team (**ADS 303.9.1c**) consists of:

- A Development Objective Team (DOT) member
- The AO or designated OAA specialist, and
- A financial officer/analyst from the Mission or Regional Controller's office.

Prior to conducting the NUPAS, each reviewer should be familiar with the description and requirements of the award as well as the country conditions within which it will be implemented.

Depending on the capacity of the Operating Unit to assemble the above team, the survey may be conducted in whole or in part by a RIG-eligible independent local accounting or audit firm as long as the Scope of Work for such work includes conflict of interest restrictions prohibiting the firm from providing services to entities it surveys for purposes of capacity development or fulfilling SACs, if any.

Three steps for a successful NUPAS

1) Desk review

Missions that conducted a sector Mapping Exercise may have already requested and received documentation from the potential partner. Depending on which of the six criteria are to be reviewed in the NUPAS, the following items, to the extent available, must be collected from the organization for a USAID desk review:

- Articles of incorporation or charter
- Record of legal registration; other material licenses and permits
- By-laws
- Mission statement
- Organizational chart with supporting documentation as to the delegation of authority
- Names of depository commercial banks
- Chart of accounts and corresponding general ledger
- One or more annual financial statements (income and expenditure report and balance sheet)
- Audit report of the most current audit
- Written policies or manuals:
 - Procurement
 - Financial management (accounting and internal controls)
 - Personnel (to include timekeeping/activity reports or other personnel time tracking systems)
 - Travel policies and procedures
- List of funding sources (current year)
- Any additional data needed to make a determination (such as prudential ratios specific to for-profit organizations...see pages 10 and 11 for formulas).

2) The survey

The survey tool helps the NUPAS team assess the strengths and weaknesses of a potential partner. Depending on the nature of the award, the reviewing team will pre-determine the specific areas for review in the following categories:

First Criterion: Legal Structure

- 1.1 Local Organization Definition (if competition is limited to local entities)
- 1.2 Legal Requirements
- 1.3 Organizational Structure
- 1.4 Governance
- 1.5 Control Environment

Second Criterion: Financial Management and Internal Control Systems

- 2.1 Banking Relationship and Accounts
- 2.2 Accounting/Bookkeeping System
- 2.3 Chart of Accounts, General Ledger and Financial Statements
- 2.4 Variance Analysis (Budget to Actual Cost)
- 2.5 Allowable and Unallowable Cost
- 2.6 Direct and Indirect Cost
- 2.7 Payments – Segregation of Duties
- 2.8 Accounting Cycle – Segregation of Duties
- 2.9 Financial Records Management
- 2.10 Sources of Funding
- 2.11 Financial Reporting
- 2.12 Audit and Review of Financial Statements
- 2.13 Financial Management Personnel

Third Criterion: Procurement Systems

- 3.1 Procurement Policies, Procedures and Practices
- 3.2 Compliance with Policies and Procedures – Reasonableness of Price
- 3.3 Procurement and Sub-awards

Fourth Criterion: Human Resources Systems

- 4.1 Overall HR Policies and Procedures
- 4.2 Staff Time Management
- 4.3 Payroll System
- 4.4 Travel Policies and Procedures

Fifth Criterion: Project Performance Management

- 5.1 Technical Evaluation Criteria (TEC to determine)
- 5.2 Project Management Capacity

Sixth Criterion: Organizational Sustainability

- 6.1 Cash Flow Management
- 6.2 Absorptive Capacity

See Appendix A1 or A2 – The Non-U.S. Organization Pre-award Survey (NUPAS) in either a Word (Appendix A1) or an Excel format (Appendix A2). The Excel spreadsheet will calculate average scores for each of the 29 elements within the six criteria (Legal Structure, Financial Management and Internal Control Systems, Procurement Systems, Human Resources Systems, Project Performance Management and Organizational Sustainability) as well as the average score for these six criteria.

3) Final Report

The NUPAS team leader should obtain clearance of the final report from the other team members before submitting it through an Action Memo to the Controller. Once approved by the Controller, the NUPAS report is submitted to the Agreement/Contracting Officer for the “responsibility determination.”

See Appendix B – NUPAS Final Report (suggested format)

See Appendix C – NUPAS Report Table

See Appendix D – NUPAS Questions for Consideration

Prudential Ratios (for use as appropriate with for-profit organizations)

Prudential ratios are standard business metrics to determine the “financial health” and the financial sustainability of an organization. These ratios should be performed using three years of financial statements (this will give a snapshot of whether the organization is growing stronger or weaker). Compiled statements are not reliable, and should not be used. The ratio elements (cash, accounts receivable, liabilities, revenues, etc.) can generally be found on the organization’s annual balance sheet and income statement.

Current Ratio:

An analysis of an organization's ability to pay back its short-term liabilities (debt and payables) with its short-term assets (cash, inventory, receivables). The higher the current ratio, the more capable the organization is of paying its obligations. This ratio helps determine overall liquidity (if the ratio is less than 1 the organization has negative working capital, if the ratio is too high the organization may have too much inventory).

$$\text{Current Assets/Current Liabilities} = CR \text{ (1.5 or over is a good score)}$$

Acid Test Ratio:

This ratio answers the question “Does the organization have sufficient short-term assets to cover its immediate liabilities without receiving additional revenue or selling off inventory?”

$$(\text{Cash} + \text{Accounts Receivable} + \text{Short Term Investments}) / \text{Current Liabilities} = ATR$$

Monthly Defensive Interval:

An analysis of how many months an organization can operate on its current liquid assets without having to rely on additional revenues. For example, an organization with a defensive interval of 10.5 could operate for 10.5 months without additional revenues. A high defensive interval is preferable.

$$\text{Current Assets (cash + marketable securities + receivables)} / \text{Annual Operating Expenses} \\ (\text{divided by 12}) = \text{DIR}$$

Working Capital Turnover:

A measurement comparing the depletion of working capital to the generation of revenues over a given period. For example, if the working capital turnover is 2.25 per year, this ratio indicates that revenues average over two times working capital per year. Depending on the organization, this may indicate sufficient working capital for the organization's regular operations. A high working capital turnover ratio is preferable; however, a very high ratio or a negative ratio usually indicates insufficient working capital.

$$\text{Cost of Sales} / \text{Net Working capital} = \text{WCTR}$$

Definitions

The following definitions apply to the NUPAS

Capacity: the ability of a prospective recipient to perform and achieve the objectives of the award in accordance with applicable requirements; this includes technical, operational, financial management and reporting, procurement, sub-award management, legal, policy, and other requirements of the award including any special award conditions.

Deficiency: a material failure to meet a requirement of the award or a combination of “Significant Weaknesses” that increases the risk of unsuccessful performance of the award to an unacceptable level.

Responsibility determination: the pre-award process for making a determination in accordance with ADS 303 that a prospective local organization recipient of a USAID grant and cooperative agreement within the NUPAS threshold “has the capacity to adequately perform the award in accordance with the principles established by USAID and the Office of Management and Budget.” (ADS 303.3.9)

Risk: the probability of occurrence and the potential magnitude of the impact of an adverse attribute, vulnerability, threat, transaction, or other event that will or may have an adverse impact on the achievement of objectives or otherwise result in loss or harm.

Risk management: the overall process concerned with the systematic identification, analysis, measurement, control, and minimization of risks with an expectation of decreasing the probability of their occurrence.

Weakness: a flaw or adverse attribute, including a deficit in capacity, which increases the risk of unsuccessful performance of the award.

A Significant Weakness (SW): a significant flaw or attribute, including a significant deficit in capacity, which appreciably increases the risk of unsuccessful performance of the award.

Useful references

- [Guidelines for Financial Audits Contracted by Foreign Recipients](#)
- M/OAA Web site elements that address indirect costs
 - a) [CIB 92-17 Indirect Cost Rates](#)
 - b) [CIB 97-9 Indirect Cost Rate Responsibility for Non-U.S. Nongovernmental Organizations](#)
- [RCA Standards 4.5 Funds Accountability and 4.16 Internal controls](#)
- [ADS 591.3.2.1; ADS 591.3.3.1; ADS 591.3.3.2; ADS 591.3.4.2; ADS 591.3.5](#)
- [Standard Provisions for Non-U.S. Nongovernmental Recipients \(A Mandatory Reference for ADS Chapter 303\)](#)
- [ADS 303.3.9](#)
- [ADS 303.3.9.1 a, b, c, d](#)
- [ADS 591 Appendix A; ADS 591 Appendix B](#)
- [OMB Circular A-133](#) and [Circular A-122](#)
- [ADS 305](#), [310](#), [312](#), and [317](#)

[**Appendix A1: Non-U.S. Organization Pre-award Survey \(NUPAS\) \(Word Version\)**](#)

[**Appendix A2: Non-U.S. Organization Pre-award Survey \(NUPAS\) \(Excel Version\)**](#)

[**Appendix B: NUPAS Final Report \(suggested format\)**](#)

[**Appendix C: NUPAS Report Table**](#)

[**Appendix D: NUPAS Questions for Consideration**](#)

303sam_071315

SEAOHUN

Five year (2019-2024)

Strategic Plan

SEAOHUN Secretariat

2nd floor, Faculty of Veterinary Medicine,
Chiang Mai University
Mae Hia, Muang District,
Chiang Mai 50100,
Thailand

(+66) 53 948 105
secretariat@seaohun.org

www.seaohun.org
[/seaohun](#)
seaohun

SEAOHUN

Five year (2019-2024)

Strategic Plan

IMPROVED COLLABORATION ON RESOURCE MOBILIZATION

Resource mobilization units at NCOs and the SEAOHUN Secretariat, funded by contributions from all, to jointly develop regional proposals.

Key elements

- Establish resource mobilization units.
- Contribute funds by all (SEAOHUN/OHUNs).
- Coordinate proposal development.

IMPROVED COLLABORATION BETWEEN THE SECRETARIAT, OHUNS, AND MEMBER UNIVERSITIES

Collaboration on regional activity planning and development, taking into consideration both top-down regional strategy and bottom-up country interests and activity ideas.

Key element

- Work together on regional activity planning and development.

IMPROVED PUBLIC RELATIONS (PR)

Targeted public relations led by SEAOHUN/OHUNs with the articulation of benefits of participation and with measurement of the impacts at all activity stages.

Key elements

- Improve PR at all stages of activities.
- Involve Board members and key stakeholders in PR activities.
- Measure PR impact.

ORGANIZATIONAL DEVELOPMENT FOR THE SEAOHUN SECRETARIAT

Base secretariat staffing on expected workload when dealing directly with various donors, utilizing remote work as appropriate. Continue to strengthen the SEAOHUN Executive Board's governance mechanisms, operating structures, and management.

Key elements

- Develop the Secretariat staffing plan based on expected future needs.
- Support future Executive Board structure and governance.

SEAOHUN

Southeast Asia One Health
University Network

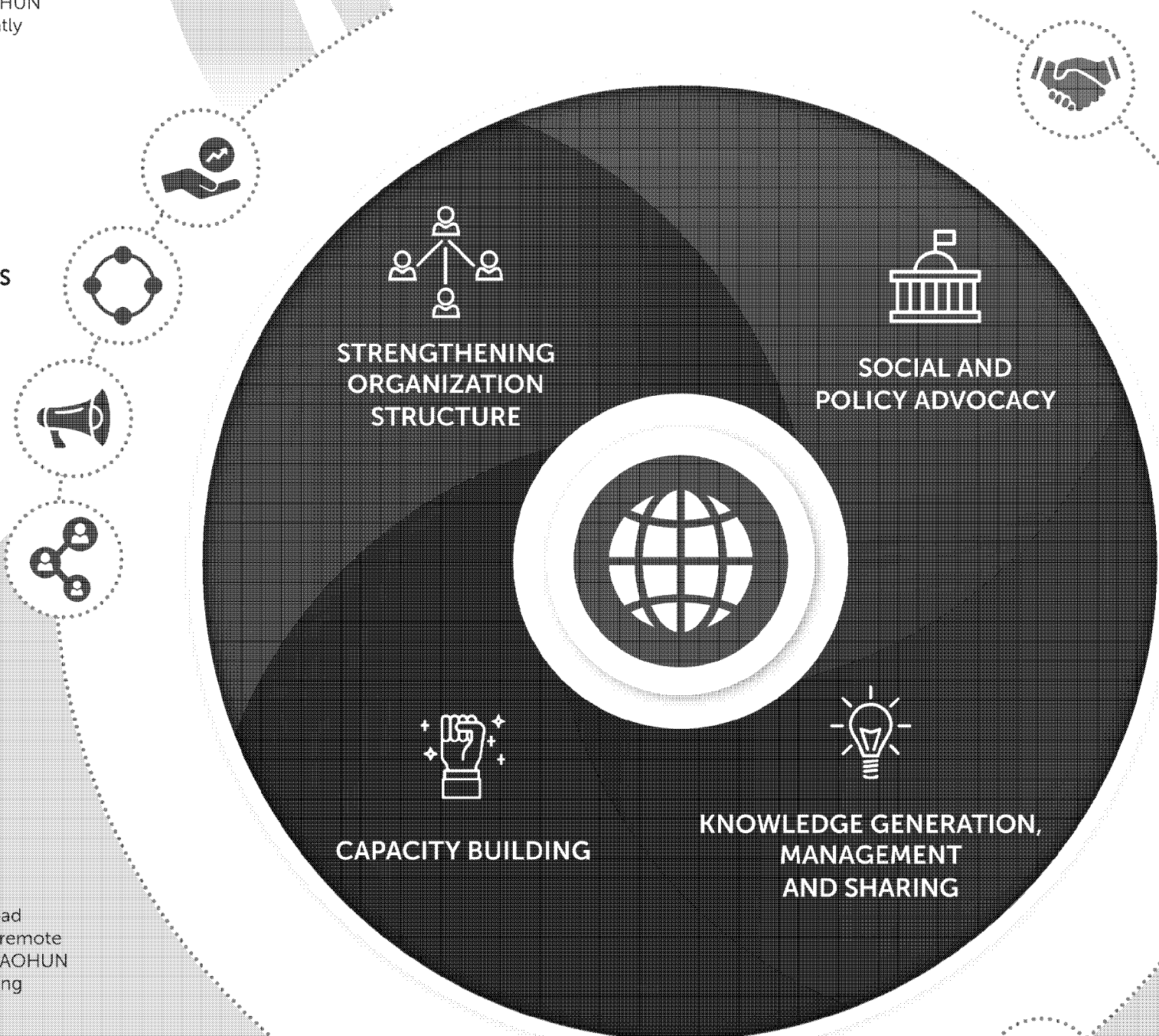
VISION

A regional network of universities in Southeast Asia generating social and intellectual excellence on One Health.

MISSION

To develop a resilient and competent One Health workforce by leveraging education, research, and training provided by university networks in Southeast Asia.

7 STRATEGIC FOCUS AREAS



4 STRATEGIC OBJECTIVES

ENGAGEMENT WITH INTERNATIONAL, REGIONAL, AND NATIONAL PARTNERS, THE PRIVATE SECTOR, AND THE COMMUNITY

Increase SEAOHUN's visibility as a recognized organization in Southeast Asia for One Health capacity building by fostering partnerships with GHSA, ASEAN, national governments, the private sector, and the community.

Key elements

- Foster partnership.
- Improve visibility.

IMPROVED SHARING OF CURRICULA AND TEACHING BEST PRACTICES

Standardize One Health curricula, teaching methodologies, educator guides, career guides, and accreditation program, including shared online courses and learning resources.

Key elements

- Standardize One Health curricula.
- Standardize One Health teaching, training and assessment methodologies and protocols.
- Develop career guides.
- Apply for accreditation for One Health courses.
- Develop online courses.

IMPROVED NETWORKING AMONG FACULTY MEMBERS/NATIONAL TRAINERS, IN-SERVICE AND PRE-SERVICE HEALTH PROFESSIONALS

Centralize databases of One Health professionals and activities, events that bring One Health professionals together, and programs to facilitate mobility of faculty members, national trainers, and in-service and pre-service health professionals.

Key elements

- Establish centralized databases of One Health professionals and activities.
- Organize events bringing health professionals from various countries and disciplines together.
- Facilitate mobility across disciplines as well as across countries.

ASEAN: Association of Southeast Asian Nations / GHSA: Global Health Security Agenda /
NCO: National Coordinating Office / OHUN: One Health University Network

Sent: Tue, 03 Dec 2019 04:12:06 +0000
Subject: GVP call
From: cchrisman@usaid.gov
To: chmura@ecohealthalliance.org, **REDACTED**, **REDACTED**, maher@ecohealthalliance.org, erubin@metabiota.com, cchrisman@usaid.gov, daszak@ecohealthalliance.org, **REDACTED**, nwolfe@metabiota.com

Hi Team,

Hope you all had a wonderful Thanksgiving!

I wanted to check in and see if we were still planning to speak this Thursday at our regular time? The NASEM Forum on Microbial Threats innovation workshop conflicts with our meeting and it looks like there is a session during that time. I was planning to attend, but happy to step out for this call if the rest of the team was still planning to join our GVP call.

Best,
Cara

GVP call

When Thu Dec 5, 2019 1pm – 2pm Eastern Time - New York

Where call in line **REDACTED**, passcode **REDACTED** ([map](#))

Who

- **REDACTED** - organizer
- maher@ecohealthalliance.org
- cchrisman@usaid.gov
- Aleksei Chmura
- **REDACTED**
- erubin@metabiota.com
- Peter Daszak
- nwolfe@metabiota.com
- **REDACTED**

call in line **REDACTED**, passcode **REDACTED**

From: David J Wolking <djwolking@ucdavis.edu>
To: Cara J. Chrisman <cchrisman@usaid.gov>; Cassandra Louis Duthil
<clouisduthil@usaid.gov>; Clements, Andrew (GH/HIDN) <AClements@usaid.gov>
CC: predict@ucdavis.edu <predict@ucdavis.edu>; Christine Kreuder Johnson
<ckjohnson@ucdavis.edu>
Sent: 2/6/2020 2:16:25 PM
Subject: [predict] Updates on Chief of Staff briefing?

Hey Cara and team,

Just checking in for any news on the Chief of Staff briefing, any updates or think it might be pushed back beyond next week? If potentially on, we'd love to hear so we can start preparing.

Best,

David

From: Andrew Clements <aclements@usaid.gov>
To: <undisclosed-recipients:>
BCC: jkmazet@ucdavis.edu
Sent: 2/10/2020 7:54:32 AM
Subject: February 10, 2020 Emerging PandemicThreat update

Summary: 35 poultry outbreaks/events, 5 wild bird outbreaks, and 37,643 human infections with 13 pathogens (various avian influenza viruses, Ebola, Lassa, MERS-CoV, monkeypox, 2010-nCoV, and Nipah) were reported by 40 countries between January 13 and February 9, 2020. These outbreaks/infections occurred between October 2019 and February 2020.

Specific pathogens and countries affected:

H5N1/Asia High Pathogenicity Avian Influenza (HPAI) – 1 new poultry outbreak (China)

A total of 23,857 bird outbreaks (more than 250 million birds affected) and 881 human infections (52% average case fatality rate) have been reported by 67 countries since 1997.

Viral pedigree: Influenza A sub-type H5N1/Asia HPAI was first detected in 1996 and has since donated genetic segments to many new influenza A HPAI viruses (including several below). Influenza A viruses have caused four pandemics since 1918.

H5N1 Low Pathogenicity Avian Influenza (LPAI) – 1 new poultry event (Denmark)

Viral pedigree: no information available.

H5N2/Asia HPAI – 7 new poultry outbreaks (China)

A total of 986 bird outbreaks (7.9 million birds affected) have been reported by 1 country since virus first detected in 2012; no human infections reported to date.

Viral pedigree: Influenza A sub-type H5N2/Asia HPAI is related to H5N1/Asia HPAI (see above).

H5N5 HPAI – 5 new poultry outbreaks (China)

A total of 11 bird outbreaks (61,504 birds affected) have been reported by 1 country since virus first detected in 2019.

Viral pedigree: no information available.

H5N6/Asia HPAI – 1 new poultry outbreak and 1 new wild bird outbreak (China, Vietnam)

A total of 711 bird outbreaks (29.5 million birds affected) and 24 human infections (33% average case fatality rate) have been reported by 8 countries since virus first detected in 2014.

Viral pedigree: Influenza A sub-type H5N6/Asia HPAI is related to H5N1/Asia HPAI (see above).

H5N8/Asia (variant) HPAI – 20 new poultry outbreaks and 4 wild bird outbreaks (Czech Republic, Germany, Hungary, Israel, Poland, Romania, Saudi Arabia, Slovakia, South Africa, Ukraine*)

*A total of 2,951 bird outbreaks (34.6 million birds affected) have been reported by 53 countries since virus first detected in 2016; no human infections reported to date. * Ukraine reported as “H5”, but assumed to be H5N8 based on history and viruses circulating nearby.*

Viral pedigree: Influenza A sub-type H5N8/Asia (variant) HPAI is related to H5N1/Asia HPAI (see above).

“H9” Avian Influenza – 1 new human infection (China)

Viral pedigree: no information available.

Ebola/Zaire – 37 new confirmed human cases (DR Congo)

At least 34,590^ human infections (44% average case fatality rate) with all Ebola viruses have been reported by 18 countries between 1976 and 2019. ^ Total includes confirmed, probable, and suspected cases.

Viral pedigree: the Central African Ebola/Zaire virus has caused 16 outbreaks with 4,945 human infections (69% average case fatality rate) in 5 countries since first being detected in 1976.

Lassa – 389 new confirmed human cases (Liberia, Nigeria)

At least 4,390^ human infections (21% average case fatality rate) have been reported by 16 countries since 2000. ^ Total includes confirmed, probable, and suspected cases.

MERS-CoV – 16 new confirmed human cases (Saudi Arabia, UAE)

A total of 36 camel outbreaks and at least 2,520 confirmed human infections (34% average case fatality rate) have been reported by 27 countries since virus first detected in 2012.

Viral pedigree: MERS-CoV is in the beta-coronavirus family which also includes the SARS virus which caused a pandemic in 2003 with more than 8,000 human infections (10% average case fatality rate) in 27 countries.

Monkeypox – 1 new confirmed human infection (Cameroon)

At least 3,921^ human infections (2% average case fatality rate) have been reported by 15 countries since 1970. ^ Total includes confirmed, probable, and suspected cases.

Viral pedigree: Monkeypox is in the orthopox viral family which also includes the smallpox virus that was a worldwide scourge before it was eradicated in 1980.

2019 Novel Coronavirus (2019-nCoV) – 37,193 confirmed human infections (Australia, Belgium, Cambodia, Canada, China, Finland, France, Germany, India, Italy, Japan, Malaysia, Nepal, Philippines, Russia, Singapore, South Korea, Spain, Sri Lanka, Sweden, Thailand, UAE, UK, USA, Vietnam)

A total of at least 37,558 confirmed human infections (2% average case fatality rate) have been reported by 25 countries since virus first detected in December 2019. *This rate may change over time as more cases (especially milder ones) are tested and reported.*

Viral pedigree: 2019-nCoV distinct from all known coronaviruses including SARS and MERS, but is 96% identical to a SARS-like coronavirus.

Nipah – 6 new human cases (Bangladesh)

At least 686^ human infections (58% average case fatality rate) have been reported by 4 countries between 1998 and 2020. ^ Total includes confirmed, probable, and suspected cases.

Viral pedigree: No information available on this Nipah virus; assumed to be the same/similar as viruses infecting people in Bangladesh and West Bengal, India since at least 2001.

Examples of reporting during the past month (with 2018 global comparisons for select viruses):

Country	Pathogen detected	Affected population	Number of bird events or human cases	Median days from event start to lab testing	Median days from event start to report*	Testing and reporting comparisons (global medians from 2018)
Slovakia	H5N8/Asia HPAI	poultry	3	0	0	3.5 / 12@
Romania	H5N8/Asia HPAI	poultry	2	1	1.5	3.5 / 12
Ukraine	"H5" HPAI	poultry	1	1	2	3.5 / 12
Czech Rep.	H5N8/Asia HPAI	poultry	1	0	3	3.5 / 12
China	"H9"	human	1	1#	3	3# / 37@@
Denmark	H5N1 LPAI	poultry	1	2	3	3.5 / 12
Saudi Arabia	H5N8/Asia HPAI	poultry	1	1	5	3.5 / 12
Germany	H5N8/Asia HPAI	wild birds	1	3	5	3.5 / 12
Israel	H5N8/Asia HPAI	poultry	1	3	5	3.5 / 12
Hungary	H5N8/Asia HPAI	poultry	4	3.5	6	3.5 / 12

Poland	H5N8/Asia HPAI	poultry, wild birds	8	2	11.5	3.5 / 12
China	H5N1/Asia HPAI, H5N2/Asia HPAI, H5N5/Asia HPAI, H5N6/Asia HPAI	poultry, wild birds	14	2	12.5	3.5 / 12
Vietnam	H5N6/Asia HPAI	poultry	1	3	17	3.5 / 12
UAE	MERS-CoV	humans	2	g#	40	3.5 [#] / 82 ^{@@}
South Africa	H5N8/Asia HPAI	poultry	2	NR	72	3.5 / 12

If date of testing not available, days from symptom onset to hospitalization used as a proxy.

* Reports posted on global OIE or WHO websites.

@ 2018 global medians based on 656 poultry and wild bird events in 37 countries involving 9 HPAI and 9 LPAI viruses (H5N1, H5N2, H5N3, H5N5, H5N6, H7N1, H7N3, H7N7, H9N2).

@@ 2018 global medians based on 13 human infections in 1 country involving H5N6/Asia HPAI, H7N9/Asia HPAI+LPAI, H9N2 LPAI.

@@@ 2018 global medians based on 144 human infections in 5 countries.

à Next update on/about March 9, 2020

Data sources:

<http://www.who.int/csr/don/en/>

http://www.who.int/influenza/human_animal_interface/en/

<http://www.afro.who.int/en/clusters-a-programmes/whe/outbreaks-and-other-emergencies-updates.html>

http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI

<http://empres-i.fao.org/eipws3g/>

<https://www.cdc.gov/flu/weekly/index.htm>

<https://www.moh.gov.sa/en/CCC/events/national/Pages/2019.aspx>

<http://newsletters.afro.who.int/outbreak-dashboards/p36fcklqcoy1qqvybnloqp?email=true>

<http://www.chp.gov.hk/en/index.html>

https://wwwnc.cdc.gov/eid/article/25/12/19-0636_article

<https://www.tandfonline.com/doi/full/10.1080/22221751.2019.1679611>

<http://outbreaknewstoday.com/nipah-virus-bangladesh-iedcr-reports-6-cases-4-deaths-13873/>

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>

About the USAID Emerging Pandemic Threats update: first started in 2005 with a focus on H5N1 avian influenza, this monthly update was expanded in 2012 to include other zoonotic pathogens with pandemic potential. The update brings together information on both human and animal infectious disease outbreaks involving viruses having known or potential ability to infect and spread directly from human to human without vectors such as insects, water, or food. The current mailing list includes readers from USAID (Washington and missions in 22 countries in Africa, Asia, and the Middle East), other US Government Departments/Agencies (including HHS, CDC, NIH, USDA, Department of Defense, Department of Interior, State Department), international organizations (FAO, IFRC, OIE, WHO), universities, and NGOs.

Andrew Clements, Ph.D.

Senior Scientific Advisor

Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health

U.S. Agency for International Development

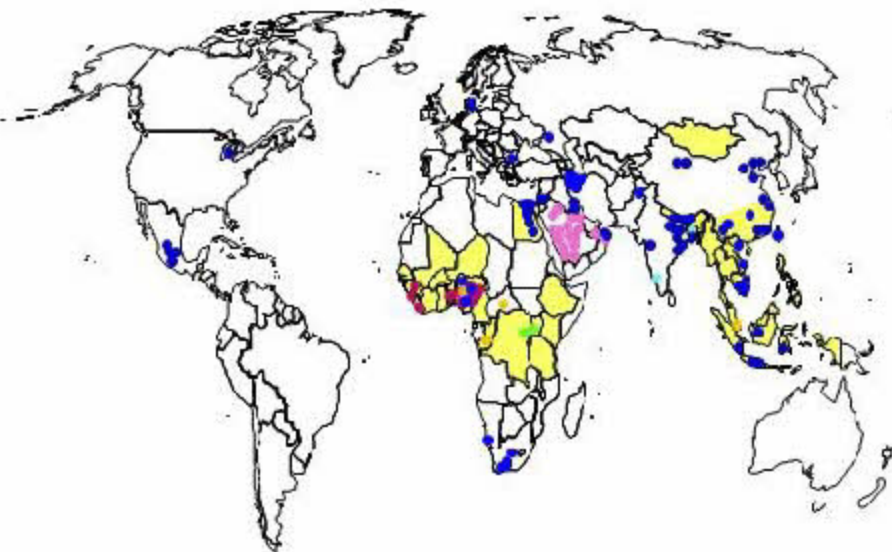
Mobile phone: 1-571-345-4253

E-mail: aclements@usaid.gov

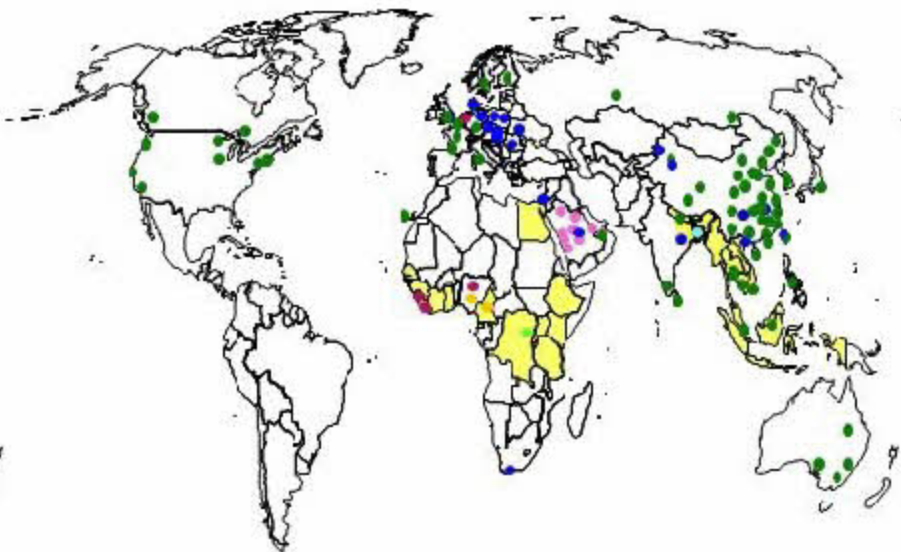
For more information on USAID's Emerging Pandemic Threats program, see: <http://www.usaid.gov/ept2>

Detection of Specific Pathogens with Potential to Infect and Directly Spread among Humans[^]

Nov 2018-Oct 2019



Nov 2019-Oct 2020



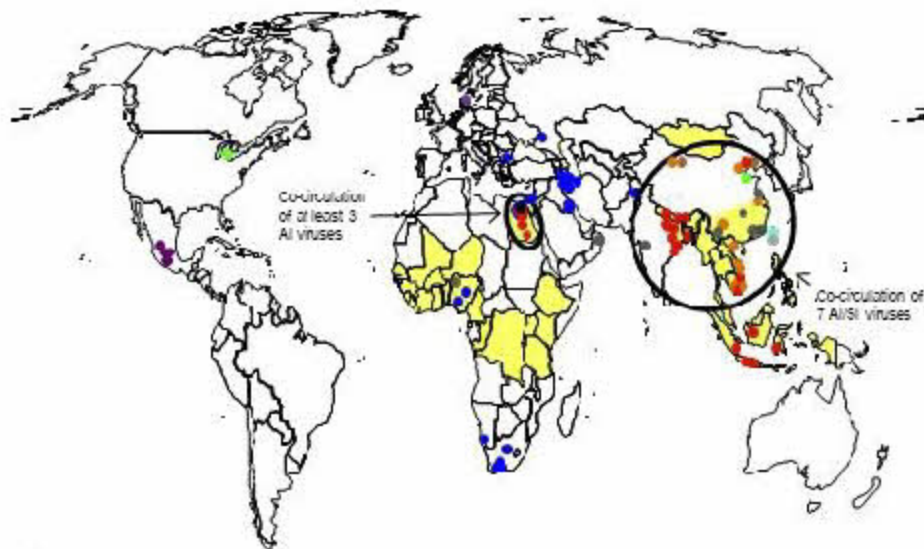
- = avian (HPA[#], LPAI^{##}) or swine (variant) influenza (poultry, wild b rds, humans)
- = Lassa (humans)
- = Middle East Respiratory Syndrome-Coronavirus (humans or animals)
- = Nipah (humans)
- = Ebola (humans)
- = monkeypox (primates, humans)
- = Marburg (humans)
- = plague (humans)
- = 2019-nCoV (humans)

Sources = Laboratory-confirmed cases reported by OIE, WHO, CDC, Ministry of Agriculture/FAO (Egypt, Indonesia), and IEDCR (Bangladesh) reports between 11/1/18 and 2/9/20. [^] While these reports reflect known infections with these viruses, there may be additional viral circulation in these and other countries that is not detected due to limitations in surveillance and/or detection. All of these viruses are from viral families with at least one member that is capable of infecting people and spreading directly from person to person without using food, water or insects as vectors. [#] High pathogenicity avian influenza. ^{##} Low-pathogenicity avian influenza. = countries (including northeastern India and most of Indonesia) using USAID avian influenza, Ebola, or other emerging pandemic threats funding between FY2018 and FY2020 for prevention, detection, and response.

Recent Detection of Avian and Swine Influenza Viruses in Animals and Humans[^]

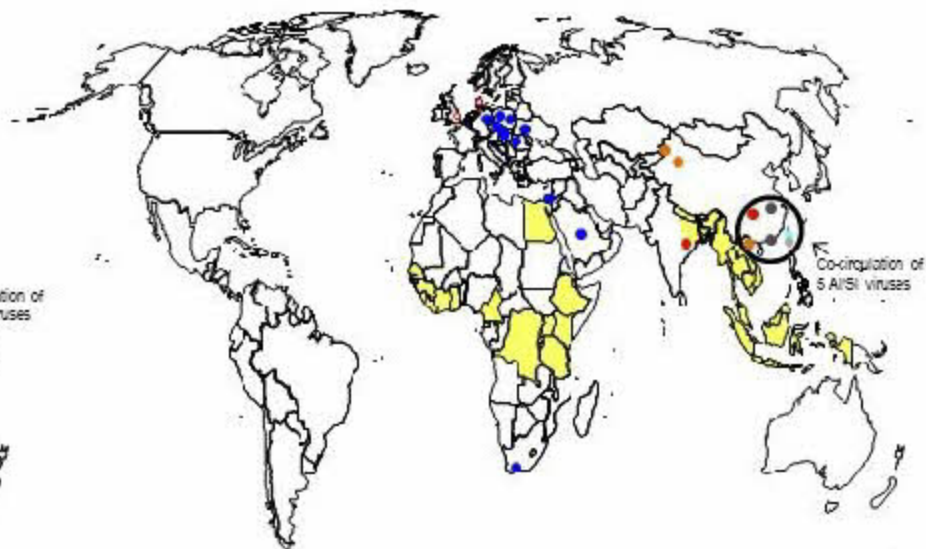
Nov 2018-Oct 2019

→ 266 bird outbreaks and 10 human infections with 11 AI/SI sub-types/variants (5 of which are zoonotic)



Nov 2019-Oct 2020

→ 75 bird outbreaks and 2 human infections with 6 AI/SI sub-types/variants (3 of which are zoonotic)



- = H5N1/Asia HPAI* or ● = H5 LPAI*** (P, WB, H)
- = H5N1/Europe HPAI (P, WB, H)
- = H5N2/Asia HPAI (P, WB)
- = H5N2/Eurasia HPAI (P)
- = H5N2/Middle East HPAI (P)
- = H5N5 HPAI (P, WB)
- = H5N6/Asia HPAI (P, WE, H)

- = H5N6/Asia HPAI variant (P, WB)
- = H5N6/Europe HPAI (P, WB)
- = H5N6/Europe variant HPAI (P, WB)
- = H5N6 LPAI
- = H7N2 (F, H)
- = H7N3 HPAI (P)
- = H5N8/Asia variant HPAI lineage (P, WE)

- = H7N4 LPAI (H)
- = H7N9/Asia HPAI or LPAI (P, WB, H)
- = H7N9/N. America (P)
- = H9N2 LPAI (P, H)
- = H1N1v SI (H)
- = H1N2v SI (H)
- = H3N2v SI (H)

Sources = Laboratory-confirmed cases reported by OIE, WHO, CDC, and Ministry of Agriculture/FAO (Egypt, Indonesia) reports between 11/1/18 and 2/9/20 [^] While these reports reflect known infections with animal influenza viruses, there may be additional viral circulation in these and other countries that is not detected due to limitations in surveillance and/or detection. * Highly-pathogenic avian influenza (in chickens). *** Low-pathogenicity avian influenza (in chickens). ■ - countries (including northeastern India and most of Indonesia) using USAID avian influenza, Ebola, or other emerging pandemic threats funding between FY2017 and FY2019 for prevention, detection, and response. P = poultry; WB = wild birds; H = humans; F = feline.



From: Dennis Carroll <[REDACTED]>
Sent: Thu, 26 Mar 2020 13:05:05 -0400
Subject: Re: GVP 501c3 Board meeting minutes and action items
To: Jennifer Gardy <Jennifer.Gardy@gatesfoundation.org>
Cc: Alison Andre <andre@ecohealthalliance.org>, Cara Chrisman <cchrisman@usaid.gov>, "Dr. Suzan Murray" <MurrayS@si.edu>, Eddy Rubin <erubin@metabiota.com>, Jonna Mazet <jkmazet@ucdavis.edu>, "Oyewale Tomori" <[REDACTED]>, Peter Daszak <daszak@ecohealthalliance.org>, Samtha Maher <maher@ecohealthalliance.org>, "cbrechot@gvn.org" <cbrechot@gvn.org>, "graca@usf.edu" <graca@usf.edu>, "nmercerc@gvn.org" <nmercerc@gvn.org>

1. Board Membership updates: Christian Brechot, Peter Bogner, Suzan Murray
2. Board meeting action items
3. Fundraising opportunities
4. Media outreach
5. Website/partnership opportunities (with Drs. Jennie Lane & Zoe Grange)

On Thu, Mar 26, 2020 at 10:49 AM Jennifer Gardy <Jennifer.Gardy@gatesfoundation.org> wrote:

I'll join for the last 30min – we have an emergency meeting on trying to mitigate some of COVID-19's knock-on effects on malaria in sub-Saharan Africa for the first 30min of the call.

Jonna and Dennis – caught the last few minutes of Spillover on PBS the other week and it was nice to see your faces 💎

jg

Jennifer Gardy, PhD

Deputy Director, Surveillance, Data, and Epidemiology
Malaria | Global Health
V +1.206.770.2426

M + [REDACTED]
E jennifer.gardy@gatesfoundation.org

Pronouns: she/her/hers

Assistant: Colton Josephson, MFA

Senior Program Assistant, Malaria

V +1.206.709.3657

M + [REDACTED]

Bill & Melinda Gates Foundation
www.gatesfoundation.org

From: Peter Daszak <daszak@ecohealthalliance.org>
Sent: Wednesday, March 25, 2020 11:14 PM

To: Samtha Maher <maher@ecohealthalliance.org>; Dennis Carroll <**REDACTED**>; cbrechot@gvn.org;
REDACTED Jonna Mazet <jkmazet@ucdavis.edu>; Eddy Rubin <erubin@metabiota.com>; Dr. Suzan Murray
<MurrayS@si.edu>; Oyewale Tomori **REDACTED** <**REDACTED**>; graca@usf.edu;
nmercerc@gvn.org; Alison Andre <andre@ecohealthalliance.org>; Cara Chrisman <cchrisman@usaid.gov>; Jennifer Gardy
<Jennifer.Gardy@gatesfoundation.org>

Subject: GVP 501c3 Board meeting minutes and action items

Importance: High

Hi All,

Ready for our call tomorrow, please see the attached Board meeting minutes that Sam pulled together extremely efficiently and rapidly. I've corrected a few things, and look forward to approving them tomorrow and going through the action items.

Hope everyone's safe and well and see y'all by Zoom tomorrow!

Cheers,

Peter

Peter Daszak

President

EcoHealth Alliance

[460 West 34th Street](#)

New York, NY 10001

USA

UCDUSR0006056

Tel.: +1-212-380-4474

Website: www.ecohealthalliance.org

Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation

From: Samantha Maher <maher@ecohealthalliance.org>

Sent: Tuesday, March 24, 2020 5:58 PM

To: peter@gisaid.org; Dennis Carroll <[REDACTED]>; cbrechot@gvn.org; Peter Daszak <daszak@ecohealthalliance.org>; [REDACTED] Jonna Mazet <jkmazet@ucdavis.edu>; Eddy Rubin <erubin@metabiota.com>; Dr. Suzan Murray <MurrayS@si.edu>; Oyewale Tomori <[REDACTED]>; Cheryl Bennett <cheryl@gisaid.org>; graca@usf.edu; nmercer@gvn.org; Alison Andre <andre@ecohealthalliance.org>; Cara Chrisman <cchrisman@usaid.gov>; Jennifer Gardy <Jennifer.Gardy@gatesfoundation.org>

Subject: monthly GVP BoD Call

Dear Board Members,

We will be having our monthly Board of Directors call this Thursdays at 1pm EST/10am PST as scheduled. We have decided to use Zoom this time instead of the EHA conference line, the link to which has been added to the weekly invite. Also, provided there are no objections to having some guests on the call, we will be joined by Drs. Jennie Lane & Zoe Grange, who have been working hard on our web presence and partnership options. Below is a list of agenda items- please feel free to email me with anything additional.

1. Board Membership updates: Christian Brechot, Peter Bogner, Suzan Murray
2. Board meeting action items
3. Fundraising opportunities
4. Media outreach
5. Website/partnership opportunities (with Drs. Jennie Lane & Zoe Grange)

Additionally, here is [a link to the dropbox folder](#) with the documents and powerpoint presentations from the additional Board of Directors meetings.

And the Zoom meeting info:

Join Zoom Meeting

[https://zoom.us/j/\[REDACTED\]](https://zoom.us/j/[REDACTED])

UCDUSR0006057

Meeting ID: REDACTED

One tap mobile

+13462487799,, REDACTED US (Houston)
+16699006833,, REDACTED US (San Jose)

Dial by your location

+1 346 248 7799 US (Houston)
+1 669 900 6833 US (San Jose)
+1 301 715 8592 US
+1 312 626 6799 US (Chicago)
+1 646 558 8656 US (New York)
+1 253 215 8782 US

Meeting ID: REDACTED

Find your local number: <https://zoom.us/j/9171277777>

I hope everyone is staying healthy!

Sam Maher

--

Samantha Maher, MEd

Research Scientist, Conservation and Health

EcoHealth Alliance

[460 West 34th Street Ste. 1701](#)
[New York, NY 10001](#)

212.380.4464 (direct)
REDACTED (mobile)

212.380.4465 (fax)
www.ecohealthalliance.org

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation.

--

Dr Dennis Carroll

President, Global Virome Project

Senior Fellow, Scowcroft Institute of International Affairs at the Bush School of Government and Public Service, Texas
A&M University

Counselor and Advisor to the Faculty of Tropical Medicine at Mahidol University, Bangkok, Thailand

mobile: 202-999-6144

email: REDACTED

From: David J Wolking <djwolking@ucdavis.edu>
To: Peter Daszak <daszak@ecohealthalliance.org>; Kevin Olival <Olival@ecohealthalliance.org>; Jon Epstein <epstein@ecohealthalliance.org>; Aleksei Chmura <chmura@ecohealth.net>; Ava Sullivan <sullivan@ecohealthalliance.org>; William B. Karesh <karesh@ecohealthalliance.org>
CC: Christine Kreuder Johnson <ckjohnson@ucdavis.edu>; Tracey Goldstein <tgoldstein@ucdavis.edu>; Elizabeth Leasure <ealeasure@ucdavis.edu>; predict@ucdavis.edu <predict@ucdavis.edu>
Sent: 4/15/2020 12:10:29 PM
Subject: [predict] P2 Extension - Draft Scope of Work and Budget for Discussion

Hi EHA team,

Now that we have our USAID approved workplan for the P2 extension, we want to rapidly come together on plans for implementation as we have less than 5.5 months to go in our timeline.

I'm including two attachments here: scope of work documents for two sets of countries that have different trajectories with planned funds. We plan to talk more about these plans on the Asia and Africa network calls this evening (Asia region) and tomorrow morning (Africa region), you should have received the invite and Zoom link from me yesterday.

In brief:

- As you're aware we cannot engage in China or Egypt.
- For India and Jordan as discussed on EB we don't currently have plans to support work, though we're encouraged by JUST's efforts to obtain mission funds and support for surveillance, what a great model for other countries!
- For ROC, we don't currently have support planned for any in-country work, just technical assistance from the global team and funds for SARS COV-2 detection (primers, probes, and controls).
- For Bangladesh, CIV, and Liberia, we can provide limited COVID-19 response support, though this support is flexible and can be adapted to country needs as you'll notice. See the attached SOW "... (Obj 1)_EHA".
- For Malaysia and Thailand, we can provide COVID-19 response support but are also focused on SARS COV-2 host reservoir species identification, using our PREDICT archive of wildlife samples and testing select priority specimens with the Berlin protocol. See the attached SOW "... (Obj 2)_EHA".
- For Indonesia, we are planning COVID-19 response support, but based on assessments of the sample archive, we're not programming archive specimen testing for host reservoir investigations (included in the Obj 2 SOW). We have set aside funds for serology at UCD, but as with all the objective 2 countries, we need need to continue to assess the plan of attack for any serological work before operationalizing it; serology funds therefore are not currently programmed in any of these country budgets at this time.

Please take a look at these documents and lets try to arrange a time for a discussion on these plans, mechanisms for financing in-country work, etc. either later this week or early next week. We will try to be flexible with timing as best we can as this is now a major priority given the diminishing timeline.

Best,

David

--
David J. Wolking

UCDUSR0006059

Senior Manager, Global Programs, One Health Institute
Global Operations Officer, PREDICT Project of USAID Emerging Threats Division
Senior Manager, PREEMPT Project
School of Veterinary Medicine
University of California, Davis

PREDICT-2 Country Scope of Work

Emergency Support for the SARS CoV-2 Pandemic

COUNTRY NAME

During this six-month extension period (April 1, 2020 – September 30, 2020), PREDICT will provide technical assistance with detection and characterization of human and animal SARS CoV-2 cases to inform pandemic response. In **COUNTRY(IES), NAME** will serve as the lead implementing partner. **NAME** will conduct all activities necessary to achieve objectives under this Scope of Work as outlined below.

Due to the dynamic pandemic environment (e.g. changes in virus spread, travel and shipping constraints, and expansion of efforts by other donors and development partners to assist affected countries), it is possible that country needs may shift over the next 6 months. As a result, changes may be necessary to this scope of work. Any changes to activities or country expenses must be cleared in advance with UC Davis.

Support initial detection of SARS CoV-2 to inform public health response

Work with PREDICT's global team to provide support for pandemic response and assistance for rapid and high-quality in-country testing for SARS CoV-2 to inform control measures. Assistance may include technical and commodity support such as local procurement of supplies, updated protocols, and training; funding for personnel; knowledge and technology transfer; or other assistance as needs emerge.

Operations Management and Coordination: Assure compliance with terms of the award for all aspects of project activities; provide financial and environmental oversight; comply with requests for information on progress and data; report on project activities and submit data in a timely and complete manner to centralized project databases and to the global team; ensure effective and timely communications with global team and with in-country partners including the USAID Missions.

Deliverables: Adaptive and demand-driven assistance provided in support of pandemic response activities; timely submission of financial reports (monthly) and technical reports (schedule TBD).

Budget (per country)

Category	Amount (USD)
Technical assistance and lab support (personnel, in-country supply procurement, transport, etc.)	\$20,387
Indirect costs (10% <i>de minimus</i> rate)	\$2,039
Total	\$22,426

Note: funds may be re-budgeted between direct costs categories as needed to achieve objectives

PREDICT-2 Country Scope of Work

Emergency Support for the SARS CoV-2 Pandemic

COUNTRY

During this six-month extension period (April 1, 2020 – September 30, 2020), PREDICT will provide technical assistance with detection and characterization of human and animal SARS CoV-2 cases to inform pandemic response. As possible, we will also investigate the animal source(s) of this virus and other potential intermediate hosts. In **COUNTRY(IES)**, **NAME** will serve as the lead implementing partner. **NAME** will conduct all activities necessary to achieve objectives under this Scope of Work as outlined below.

Due to the dynamic pandemic environment (e.g. changes in virus spread, travel and shipping constraints, and expansion of efforts by other donors and development partners to assist affected countries), it is possible that country needs may shift over the next 6 months. As a result, changes may be necessary to this scope of work. Any changes to activities or country expenses must be approved in advance by UC Davis.

Support initial detection of SARS CoV-2 to inform public health response

Work with PREDICT's global team to provide assistance to support pandemic response and assistance for rapid and high-quality in-country testing for early detection of SARS CoV-2 to inform control measures.

Conduct investigations to characterize potential animal source(s) of SARS CoV-2 and previous spillover of SARS-related viruses

Work with PREDICT's global team to prioritize research using archived specimens to characterize SARS CoV-2 animal source(s) and intermediate hosts(s). Identify relevant data and samples collected that could provide insight into the possible animal host(s) of SARS CoV-2. Support analysis of PREDICT-2 coronavirus findings and conduct additional testing for SARS-related viruses using previously collected PREDICT-2 animal and human samples.

Deliverables: Specific SARS CoV-2 testing conducted using the Berlin protocol¹ for ~500 specimens (both oral and rectal swabs) from ~250 animals (species dependent on consultation with global team); test results and data submitted to EIDITH; summary findings reported to host country government partners for approval.

Work with global team to assess feasibility and availability of serological assays for testing previous collected human samples to provide evidence for prior SARS-related virus spillover events among humans.

¹ The Drosten protocol (Protocol V2) is available through the World Health Organization website via: <https://www.who.int/docs/default-source/coronaviruse/protocol-v2-1.pdf> The full length publication in *EuroSurveillance* is available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6988269/>

Deliverables (pending approval): Serological testing performed for ~500 human serum samples using standardized serological assays; summary findings reported to host country government partners.

Operations Management and Coordination: Assure compliance with terms of the award for all aspects of project activities; provide financial and environmental oversight; comply with requests for information on progress and data; report on project activities and submit data in a timely and complete manner to centralized project databases and to the global team; ensure effective and timely communications with global team and with in-country partners including the USAID Missions.

Budget (per country): Malaysia and Thailand

Category	Amount (USD)
Technical assistance and lab testing Personnel, in-country supply procurement, transport, etc. Host reservoir molecular testing (archive wildlife and human samples) Other costs (communications, transport, etc.)	\$51,136
Indirect costs (10% de minimus rate)	\$5,114
Total	\$56,250

Note: funds may be re-budgeted between direct costs categories as needed to achieve objectives; funding for serologic testing of human specimens will be added once assays and samples are identified.

Budget: Indonesia

Category	Amount (USD)
Technical assistance and lab testing Personnel, in-country supply procurement, transport, etc. Other costs (communications, transport, etc.)	\$20,455
Indirect costs (10% de minimus rate)	\$2,045
Total	\$22,500

Note: funds may be re-budgeted between direct costs categories as needed to achieve objectives; funding for serologic testing of human specimens will be added once assays and samples are identified.

From: Jonna Mazet <jkmazet@ucdavis.edu>
To: Development <development@atree.org>
CC: Billy Karesh <karesh@ecohealthalliance.org>; Predict inbox <predict@ucdavis.edu>
Sent: 6/3/2020 7:13:03 PM
Subject: Re: Inquiry about PREDICT

Dear Mrinalini,

Thank you for your interest in Predict. We are very proud of what we have been doing and what we have achieved after more than a decade of the project. I have attached a recent flyer that we have used to highlight achievements, and even more information can be found at our website: www.predict.global

The project is now coming to its planned end, and most country-level activities have been completed. We do encourage countries to be investing in their own ongoing development of virus surveillance and discovery systems. In addition, if you are interested and would like to consider partner opportunities, the proof-of-concept developed by Predict is the justification for the developing Global Virome Project (www.globalviromeproject.org) or GVP. The GVP will only succeed if partners around the world work together to make it happen and promote a safer and healthier planet.

Please let you know if you would like to be further connected with the GVP,

Jonna

Jonna AK Mazet, DVM, MPVM, PhD
Professor of Epidemiology & Disease Ecology
Executive Director, [One Health Institute](#)
Director, [One Health Workforce – Next Generation](#) of USAID Emerging Threats Division
Director Emeritus, [PREDICT Project](#) of USAID Emerging Threats Division
Board of Directors, [Global Virome Project](#)

School of Veterinary Medicine
University of California, Davis

[Institute for Global Health Sciences](#)
University of California, San Francisco

For scheduling and logistical issues, please contact:
Ms. Mary Radford
maradford@ucdavis.edu

On Mon, May 4, 2020 at 12:27 PM Development <development@atree.org> wrote:

Hello,

Good Afternoon! Hope you are doing well and are safe.

I am writing from the Development Office of ATREE, a not-for-profit NGO in India. Our organisation Ashoka Trust for Research in Ecology and the Environment (ATREE) was founded in 1996. ATREE was established with the mission of bringing together researchers to do interdisciplinary, applied work. We are among the top 20 global environmental think-tanks by the Think Tanks and Civil Societies Program, University of Pennsylvania, Philadelphia. Through one of our centers, the Center for Biodiversity and Conservation, we have a strong lab studying zoonotic diseases and how it affects the Indian health system. We also research disease ecology and human health through the 'One Health' approach.

We came across the PREDICT programme on the USAID website and thought we could connect. We were wondering what the current status of the PREDICT program is and how we could be part of this programme. It would be great if we could understand the plan for PREDICT over the next few years given the current scenario and how we could play a role in furthering the understanding of zoonotic diseases and human health. Lastly, does the programme have a program manager or contact in India that we could liaise with.

We are very interested in pursuing this and look forward to hearing from you.

Best

Mrinalini
Development Office

Royal Enclave, Srirampura,
Jakkur Post, Bangalore 560 064



PREDICT

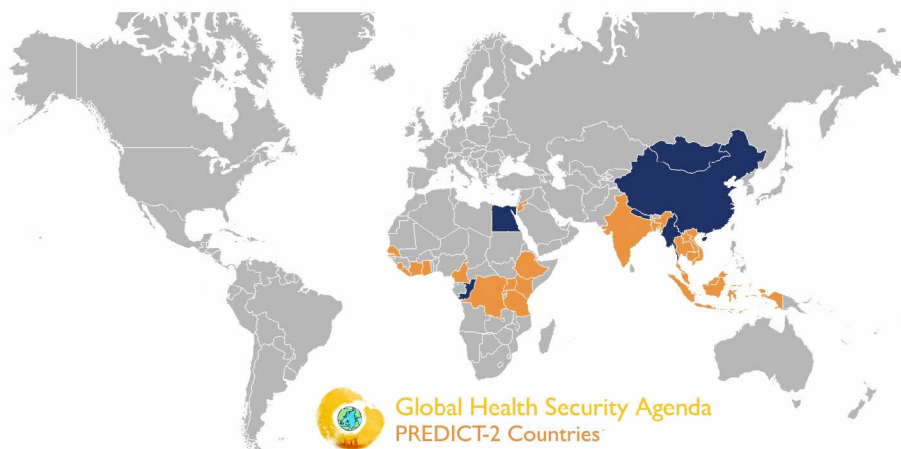
PANDEMIC PREPAREDNESS FOR GLOBAL HEALTH SECURITY

PREDICT was initiated in 2009 to strengthen global capacity for detection and discovery of viruses with pandemic potential that can move between animals and people, including filoviruses, such as ebolaviruses; influenza viruses; paramyxoviruses, such as Nipah virus; and coronaviruses, the family to which SARS CoV-2 belongs, the virus responsible for the COVID-19 pandemic.

PREDICT activities supported emerging pandemic threats preparedness and the global health security agenda, primarily in Africa and Asia. A decade later, more than 30 countries around the world have stronger systems to detect, identify, prevent and respond to viral threats, both known and novel. The PREDICT-trained workforce, including field, data and technicians at more than 60 national, university and partner laboratories, is one of the best response resources to assist with detection and response to COVID-19 and other emerging viruses.



WHERE WE WORK



HIGHLIGHTS

6.8K

people trained for the
One Health Workforce
in over 30 countries

164K

animals and people
sampled to minimize
spillover of zoonotic
disease threats

>60

laboratory systems
enhanced with zoonotic
disease detection
capabilities

949

novel viruses detected,
including Bombali
ebolavirus, Zaire
ebolavirus, Marburg
virus, and MERS- and
SARS-like coronaviruses

217

known viruses
detected

PREDICT COVID OUTBREAK RESPONSE ACTIVITIES

PREDICT has been actively supporting partners in the US and around the world by providing technical assistance and outbreak response support for the latest emergence of Disease X, COVID-19.

EARLY DETECTION

Helped raise the flag that coronaviruses have pandemic potential by providing critical data on the group of coronaviruses to which SARS-CoV-2 belongs, through collaborations with the PREDICT/China team and with National Institutes of Health (NIH).

ONGOING SUPPORT

Global preparedness and response: providing technical assistance and testing support for early identification of cases as well as readiness for other emerging viruses.

Assisting in coronavirus detection and **supporting government evaluations of potential cases** throughout Asia, the Middle East and Africa.



USAID
FROM THE AMERICAN PEOPLE





PREPAREDNESS

Networked with collaborating laboratories globally including the Wuhan Institute of Virology to share data, protocols, and push international collaboration. Additionally, connected scientists in other PREDICT-participating countries and provided training, testing protocols, and funding for supplies and personal protective equipment.

EARLY WARNING

Provided the serological evidence that people living at the wildlife-human interface in rural China are being exposed to these SARS-related coronaviruses – marking them as a clear and present danger, suggesting that limited spillover could be occurring.

EARLY DETECTION

Use of available and cost-effective consensus-based PCR protocols to broadly detect viruses for early detection of SARS-CoV-2 in several countries. Our network supported one another in interpretation of results and optimization of the assays for early detection of the first COVID-19 cases before a specific assay targeting the novel coronavirus was available.

PREDICT HIGHLIGHTS

The following highlights are available online alongside other digital stories and findings at p2.predict.global. For quick access to the digital stories, scan the QR code with your cell phone camera.



PREDICT scientists were the first to discover a new ebolavirus species in a host prior to detection in an infected human or sick animal.

The discovery of the Bombali virus in bats in Sierra Leone and the sequencing of the complete genome was officially published in the journal *Nature Microbiology* in August 2018. The PREDICT team sampled more than 6,000 animals in Sierra Leone and performed laboratory tests to look for both known and unknown ebolaviruses.



In the Southeast Asia region, the wildlife value chain has been identified as the source of multiple zoonotic disease outbreaks, including Severe Acute Respiratory Syndrome (SARS) in 2002 and more recently Coronavirus Disease 2019 (COVID-19), which is suspected to have emerged from a mixed animal market in Wuhan, China.

Recognizing the threat these markets pose to both conservation and health, PREDICT has been conducting surveillance and investigating risks of virus emergence in markets since 2009.



Collaborative studies by the Centers for Disease Control and Prevention, Njala University, USAID PREDICT, and the University of Makeni detected Marburg virus in fruit bats in Sierra Leone in 2018, marking the first time the deadly virus had been found in West Africa.

PREDICT scientists worked with Sierra Leone government colleagues to inform people across the country as fast as possible of the new health risk and remind people not to harm or come in contact with bats.



Follow us on Twitter [@PREDICTproject](https://twitter.com/PREDICTproject)
Contact: predict@ucdavis.edu

From: Corina Grigorescu Monagin <cgmonagin@UCDAVIS.EDU>
To: Woutrina A Smith <wasmith@ucdavis.edu>, Oladele Ogunseitan <oladele.ogunseitan@uci.edu>, Peter Daszak <daszak@ecohealthalliance.org>, "William B. Karesh" <karesh@ecohealthalliance.org>, "mr84@columbia.edu" <mr84@columbia.edu>, alexandra zuber <alexandrazuber@atahealthstrategies.com>, Matthew Blake <mblake@ucdavis.edu>, Tracey Goldstein <tgoldstein@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, Terra Kelly <trkelly@ucdavis.edu>, Jaber Amine Belkhiria <jabelkhiria@ucdavis.edu>, Elizabeth Leasure <ealeasure@UCDAVIS.EDU>, Jonna Mazet <jkmazet@ucdavis.edu>, "McNeil, Carrie S." <csmcnei@sandia.gov>, Jutta Lehmer <JLehmer@salud.unm.edu>, Omar Romero-Hernandez <oromero@haas.berkeley.edu>, Bruce Baird Struminger <BStruminger@salud.unm.edu>, Federico Castillo <f.castillo@berkeley.edu>, Ndola PRATA <ndola@berkeley.edu>, "Tiffany Harris, PhD, MS" <th2604@columbia.edu>, "Costa, Cristiane" <co123@cumc.columbia.edu>, "Amaya, Idalia M." <ima2107@cumc.columbia.edu>, Sam Halabi <sfh9@georgetown.edu>, Alison Andre <andre@ecohealthalliance.org>, Catherine Machalaba <machalaba@ecohealthalliance.org>, Jon Epstein <epstein@ecohealthalliance.org>, Kevin Olival <Olival@ecohealthalliance.org>
Cc: onehealthnextgen Sympa List <onehealthnextgen@ucdavis.edu>
Subject: Reminder: OHW-NG Executive Board Call June 17th, 11am PST/2pm EST
Sent: Tue, 16 Jun 2020 15:18:59 +0000
[ECHO session June17-18 2020 AFROHUN\[4\].pdf](#)
[ECHO session June17-18 2020 SEAOHUN\[3\].pdf](#)
[OHW-NG EB Call Agenda 6.17.20.docx](#)

Hello everyone,

Please see attached and below for this week's OHW-NG EB call agenda. The ECHO flyers are also attached for this week's sessions on "One Health Approaches for Investigating Spillover". Please share these ECHO flyers with your networks to encourage broad participation.

Stay safe,
Corina

OHW-NG EB Zoom Meeting
June 17th, 2020 11-12 AM US/Pacific

[Join Zoom Meeting](#)

<https://onehealth.zoom.us/> REDACTED

Meeting ID: REDACTED

1. Administrative items

- UCD updates from USAID
- UCD Admin updates
- Supplemental funding opportunities

2. COVID-19 updates

- Plan for tracking COVID-19 activities
- ECHO Sessions - Future scheduling and topics for AFROHUN/SEAOHUN:
 - June 18: "One Health approaches addressing COVID-19 origins and spillover"

3. Objective Team/Network Updates - focus on Year 2 planning

- Year 2 Work Planning - timeline, coordination of global, regional, country planning processes
 - Possibility to have a joint planning calendar for substantive activities, so people can plan around other objective activities that are already in the works
- AFROHUN - ECHO Immersion Training June 23-26, moving into next phase of content curation exercise, prioritizing time in July - August to write business plan, ongoing discussions on KMS including the competency assessment toolkit, alumni tracking, and engagement of OHUN Universities and National OH coordinating bodies, engaging in next steps for GAP.

- SEAOHUN - working on content curation exercise, OCA/NUPAS work underway, beginning discussions of engagement of OHUN Universities and National OH coordinating bodies, working on next steps for GAP.
- Objective 1: Content curation exercise, OHW Academy development culminating in September Showcase e-conference, SOHIC digital competition moving into next phase (jury review)
- Objective 2: KM needs assessment with Networks and Competency assessment toolkits; Alumni tracking best practices; online survey for tracking OH coordinating bodies and University/Network participation, coordinating on OH Academy website
- Objective 3: Remote business retreat sessions - SWOT, NUPAS and OCA; beginning to work on writing business plans with the Secretariat and priority activities that came from the retreat sessions (branding exercise)
- GAP: working on scheduling first activities with Networks
- Scheduling first MEL working group meeting for late June and starting Year 2 workplanning process with Networks

4. Conference/Calendar updates

- OHW-NG COVID-19 ECHO Series next session: June 18
- ECHO Immersion Training for AFROHUN: June 23-26
- Year 1 virtual showcase with soft launch of One Health Academy September 2020
- AFROHUN Board meeting & Leadership Summit meeting in July 2020 - details pending.
- DELAYED TO FALL 2020: June 14-18 - World One Health Congress in Edinburgh, Scotland

5. AOB

Join Zoom Meeting

<https://onehealth.zoom.us/j/REDACTED>

Meeting ID: REDACTED

Or dial by your location

+1 669 9006833 US (San Jose)

+1 646 8769923 US (New York)

Meeting ID: REDACTED

Find your local number: <https://onehealth.zoom.us/j/REDACTED>

OHW-NG EB Zoom Meeting
June 17th, 2020 11-12 AM US/Pacific

Join Zoom Meeting

<https://onehealth.zoom.us/> REDACTED

Meeting ID: REDACTED

1. Administrative items

- UCD updates from USAID
- UCD Admin updates
- Supplemental funding opportunities

2. COVID-19 updates

- Plan for tracking COVID-19 activities
- ECHO Sessions - Future scheduling and topics for AFROHUN/SEAOHUN:
 - June 18: “One Health approaches addressing COVID-19 origins and spillover”

3. Objective Team/Network Updates - focus on Year 2 planning

- Year 2 Work Planning - timeline, coordination of global, regional, country planning processes
 - Possibility to have a joint planning calendar for substantive activities, so people can plan around other objective activities that are already in the works
- AFROHUN - ECHO Immersion Training June 23-26, moving into next phase of content curation exercise, prioritizing time in July - August to write business plan, ongoing discussions on KMS including the competency assessment toolkit, alumni tracking, and engagement of OHUN Universities and National OH coordinating bodies, engaging in next steps for GAP.
- SEAOHUN - working on content curation exercise, OCA/NUPAS work underway, beginning discussions of engagement of OHUN Universities and National OH coordinating bodies, working on next steps for GAP.
- Objective 1: Content curation exercise, OHW Academy development culminating in September Showcase e-conference, SOHIC digital competition moving into next phase (jury review)
- Objective 2: KM needs assessment with Networks and Competency assessment toolkits; Alumni tracking best practices; online survey for tracking OH coordinating bodies and University/Network participation, coordinating on OH Academy website
- Objective 3: Remote business retreat sessions - SWOT, NUPAS and OCA; beginning to work on writing business plans with the Secretariat and priority activities that came from the retreat sessions (branding exercise)
- GAP: working on scheduling first activities with Networks
- Scheduling first MEL working group meeting for late June and starting Year 2 workplanning process with Networks

4. Conference/Calendar updates

- OHW-NG COVID-19 ECHO Series next session: June 18
- ECHO Immersion Training for AFROHUN: June 23-26
- Year 1 virtual showcase with soft launch of One Health Academy September 2020
- AFROHUN Board meeting & Leadership Summit meeting in July 2020 - details pending.
- DELAYED TO FALL 2020: June 14-18 - World One Health Congress in Edinburgh, Scotland

5. AOB

Join Zoom Meeting

<https://onehealth.zoom.us/> REDACTED

Meeting ID: REDACTED

Or dial by your location

+1 669 9006833 US (San Jose)

+1 646 8769923 US (New York)

Meeting ID: REDACTED

Find your local number: <https://onehealth.zoom.us/j/acS2euogv>



USAID
FROM THE AMERICAN PEOPLE

SEAOHUN
Southeast Asia One Health
University Network

COVID-19 ONE HEALTH UPDATES

SESSION TOPIC: ONE HEALTH APPROACHES TO INVESTIGATING SPILLOVER

JUNE 17/18, 2020

AGENDA

Welcome

- Vipat Kuruchittham, *SEAOHUN Secretariat*
- Woutrina Smith, *UC Davis*
- Jutta Lehmer, *ECHO*

Global Updates & Panel Moderator

- Brian Bird, *UC Davis*

Panel Discussion

- **PHILIPPINES:** Vicente Belizario, Jr., *College of Public Health, University of the Philippines, Manila*
- **VIETNAM:** Hoang Thi THu Ha, *National Institute of Hygiene and Epidemiology, Vietnam*

One Health in Action

- Kevin Olival, *EcoHealth Alliance*

Closing

- Vipat Kuruchittham, *SEAOHUN Secretariat*
- Woutrina Smith, *UC Davis*
- Jutta Lehmer, *ECHO*



Participants will be able to receive a digital attestation (proof of participation) immediately after the session by using a mobile App called **PDA-Participant**.

Please take a minute to install the app before the session to benefit from easy access to materials.

SOUTHEAST ASIA SESSION

WEDNESDAY, JUNE 17 (USA)

THURSDAY, JUNE 18 (SE ASIA)

US: 9 pm EDT | 7 pm MDT | 6 pm PDT

SE Asia: 8 am ICT | 9 am MYT | 9 am PHT

Visit our website for free pre-registration and connection information: ohwng.org

REGISTER HERE

Questions? Contact onehealthnextgen@ucdavis.edu



The University of New Mexico School of Medicine, Office of Continuing Medical Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The Office of Continuing Medical Education designates this live activity for a maximum of 1.5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.





USAID
FROM THE AMERICAN PEOPLE



COVID-19 ONE HEALTH UPDATES

SESSION TOPIC: ONE HEALTH APPROACHES TO INVESTIGATING SPILLOVER

JUNE 18, 2020

AGENDA

Welcome

- William Bazeyo, AFROHUN Secretariat
- Woutrina Smith, UC Davis
- Jutta Lehmer, ECHO

Global Updates & Panel Moderator

- Brian Bird, UC Davis

Panel Discussion

- **UGANDA:** Monica Musenero, *Presidential Advisor on Epidemics*
- **KENYA:** Mark Nanyingi, *Royal Society of Tropical Medicine & Hygiene*
- Irene Naigaga, *AFROHUN Secretariat Panelist*

One Health in Action

- TBD, *EcoHealth Alliance*

Closing

- William Bazeyo, AFROHUN Secretariat
- Woutrina Smith, UC Davis
- Jutta Lehmer, ECHO



Participants will be able to receive a digital attestation (proof of participation) immediately after the session by using a mobile App called **PDA-Participant**.

Please take a minute to install the app before the session to benefit from easy access to materials.

**French translation of the session also available*

AFRICA SESSION

THURSDAY, JUNE 18

US: 9:30 am EDT | 7:30 am MDT | 6:30 am PDT

Africa: 1:30 pm GMT | 2:30 pm WAT | 3:30 pm CAT

Visit our website for free pre-registration and connection information: ohwng.org

REGISTER HERE

Questions? Contact onehealthnextgen@ucdavis.edu



The University of New Mexico School of Medicine, Office of Continuing Medical Education is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The Office of Continuing Medical Education designates this live activity for a maximum of 1.5 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



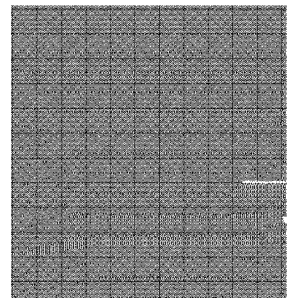
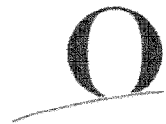
UCDUSR0006075

From: William B. Karesh <karesh@ecohealthalliance.org>
To: predict Sympa List <predict@ucdavis.edu>; PREDICTMGT <predictmgt@usaid.gov>
Sent: 6/22/2020 7:03:28 AM
Subject: [predict] Fwd: OIE Press Release | Preserving our future by protecting wildlife health

FYI:

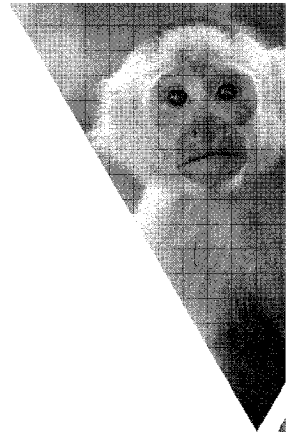
Begin forwarded message:

From: World Organisation for Animal Health (OIE) <media@oie.int>
Subject: OIE Press Release | Preserving our future by protecting wildlife health
Date: June 22, 2020 at 10:01:00 AM EDT
To: <karesh@ecohealthalliance.org>
Reply-To: World Organisation for Animal Health (OIE) <media@oie.int>

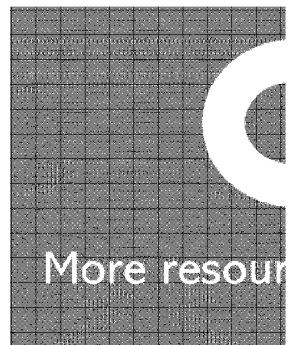


Anthropogenic impacts on
ecosystems and their
have been associated with
lack of awareness
reservoirs or intermediate

originated in wildlife h
human-animal-ecosy:
surveillance systems,



Follow



Find more resou

From: Andrew Clements <aclements@usaid.gov>
Sent: Fri, 26 Jun 2020 00:29:45 -0700
Subject: Re: Read-out: Monthly GHSA partners meeting- June 23, 2020
To: David J Wolking <djwolking@ucdavis.edu>
Cc: PREDICTMGT <predictmgt@usaid.gov>, Marilyn Crane <mcrane@usaid.gov>, Christine Kreuder Johnson <ckjohnson@ucdavis.edu>, "Prof. Woutrina Smith" <wasmith@ucdavis.edu>, Corina Grigorescu Monagin <cgmonagin@ucdavis.edu>, "Prof. Jonna Mazet" <jkmazet@ucdavis.edu>, "predict@ucdavis.edu" <predict@ucdavis.edu>

Thanks

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jun 25, 2020, at 7:58 PM, David J Wolking <djwolking@ucdavis.edu> wrote:

Hi Andrew and Marilyn,
Just passing along the notes and a slide deck from the recent GHS partner meeting led by USAID/Uganda. Tiffany and Amanda were part of the process so I'm sure you're already well informed.

Best,

David

----- Forwarded message -----

From: Benard Ssebide <**REDACTED**>
Date: Thu, Jun 25, 2020 at 1:35 AM
Subject: Fwd: Read-out: Monthly GHSA partners meeting- June 23, 2020
To: Kirsten Gilardi <kvgilardi@ucdavis.edu>
Cc: David J Wolking <djwolking@ucdavis.edu>

Notes from the Uganda GHSA IPs meeting on Tuesday 23rd June.

----- Forwarded message -----

From: <wowembabazi@usaid.gov>
Date: Wed, Jun 24, 2020 at 12:03 PM
Subject: Read-out: Monthly GHSA partners meeting- June 23, 2020
To: **REDACTED**, <dmimbe@path.org>, <nkafumbe@usaid.gov>, <wowembabazi@usaid.gov>, <lshields@path.org>, <bronwyn.nichol@ifrc.org>, **REDACTED**, <rkiggundu@mtapsprogram.org>, **REDACTED** **REDACTED**, <kbelay@usaid.gov>, <tdmello@usaid.gov>, <brrasmussen@usaid.gov>, <kfrank@usaid.gov>, <scoutinho@fhi360.org>, <inaigaga@ohcea.org>, **REDACTED**, **REDACTED**, <moteba@uhsc.ug> **REDACTED** **REDACTED** <jokwera@redcrossug.org>

This is to share quick read-out from the GHSA monthly IP meeting held June 23, 2020.

1) In the meeting USAID shared lessons learned from the semi-annual report -October-March 2020. There was

variable performance of across indicators and meeting devised means to focus on activities that move the JEE indicators and how to tell our story better.

- 2) IPs shared their perceptions on the impact of COVID-19 on GHSA planned activities. All GHSA IPs are on-ground implementing GHSA activities. The impact of COVID-19 on GHSA activities in Uganda has largely been positive. Specifically, COVID-19 has increased the visibility and interest of stakeholders in participating in GHSA activities. GHSA policy deliverables that has initially stalled have been reactivated and and some completed. One Health Risk communication strategy is almost complete and electronic Management Information System (eLMIS) for emergency supplies was rolled.
- 3) IPs reported delayed implementation of some activities that require face-face or practical demonstration of skills. Innovative virtual training modules have been rolled with variable participation of beneficiaries. COVID-19 has negatively impacted animal health security and production. Prices for animal products have fallen and funding for COVID-19 response is significantly skewed to human health at the expense of animal, wildlife and environmental sectors.
- 4) The next meeting was scheduled for July 21, 2020. 3:30 to 5pm.

Monthly GHSA partners meeting

When Tue Jun 23, 2020 3:30pm – 4:30pm East Africa Time - Nairobi

Joining info Join with Google Meet

meet.google.com/gfm-ijdq-mkr

Join by phone

+ **REDACTED**

[More phone numbers](#)

Who

- wowembabazi@usaid.gov - organizer
- kfrank@usaid.gov
- dmimbe@path.org
- kbelay@usaid.gov
- scoutinho@fhi360.org
- tdmello@usaid.gov
- moteba@uhsc.ug
- jokwera@redcrossug.org
- inaigaga@ohcea.org
- **REDACTED**
- **REDACTED**
- **REDACTED**
- **REDACTED**
- nkafumbe@usaid.gov
- bronwyn.nichol@ifrc.org
- brrasmussen@usaid.gov
- aezama@redcrossug.org

- lshields@path.org
- rkiggundu@mtapsprogram.org
- **REDACTED**

This is to invite you to the monthly GHSA partners meeting. Below is the proposed agenda for the meeting.

1. Updates and announcements from USAID -Bruce/Kassa (5 minutes)
2. Lessons learned from the GHSA Semi-annual report -Oct-March 2020 Owe/Tiffany (15 minutes)
3. Impact of COVI-19 on implementation of GHSA planned activities. Each IP to share their experience and coping mechanisms put in place to sustain some activities. (Each IP 3 minutes)
 - MTaPS
 - IDDS
 - IFRC/Uganda Red Cross Society
 - OHW-NG
 - FAO
 - PREDICT
 - UHSS
 - CHC

--
David J. Volking
Senior Manager, Global Programs, [One Health Institute](#)
Global Operations Officer, [PREDICT Project](#) of USAID Emerging Threats Division
Senior Manager, [PREEMPT Project](#)
School of Veterinary Medicine
University of California, Davis
<USAID Slides for UG GHSA Partners Meeting June 23, 2020.pptx>

Sent: Sun, 9 Aug 2020 12:09:59 -0700
Subject: Re: Donald Mc Neil from The NY Times will be calling you
From: Jonna Mazet <jkmazet@ucdavis.edu>
To: Dennis Carroll [REDACTED]
Cc: Christine Kreuder Johnson <ckjohnson@ucdavis.edu>, "Dr. Suzan Murray" <MurrayS@si.edu>, Eddy Rubin <eddyrubin1@gmail.com>, Peter Daszak <daszak@ecohealthalliance.org>

Yes, he reached out last week and we are supposed to connect today.
Thanks for the details.
Have a nice rest of your weekend,
Jonna

On Sat, Aug 8, 2020 at 1:44 PM Dennis Carroll [REDACTED] wrote:

All, below is an embargoed press release from the Biden campaign that among other things states his administration will re-establish PREDICT. The NY Times has been given an exclusive on this. I spoke with them at the request of the Biden campaign

Donald McNeil will likely reach out to you to get you reaction I have underscored the re-investment in Predict will reflect the US commitment to GVP with the "new Predict" being a technical assistance mechanism to support GVP activities in countries requiring TA.

NEWS RELEASE

"It did not have to be this bad. That's the greatest tragedy of all. Donald Trump's failures didn't just start in July, when he simply gave up in the face of surging infections. They didn't just begin in June, May, April, and March, when he refused to take basic public health measures to lay the groundwork for an effective recovery. Or even in January and February, when he ignored repeated warnings about COVID-19. Donald Trump's failures go much further back to his systematic efforts to dismantle the defenses President Obama and I built to predict, prevent, and mitigate pandemic threats, including those coming from China. As President, I will make it a priority to rebuild and expand these defenses and strengthen international capacity to investigate and respond to outbreaks. I will immediately restore the White House National Security Council Directorate for Global Health Security and Biodefense, which was established by the Obama-Biden Administration and eliminated by the Trump Administration in 2018. I will re-launch and strengthen U.S. Agency for International Development's pathogen-tracking program called PREDICT, which Donald Trump eliminated. I will expand the number of CDC's deployed disease detectives so we have eyes and ears on the ground, including rebuilding the office in Beijing, which Donald Trump let atrophy. And I'll strengthen the Defense Department's Biological Threat Reduction Program, whose funding Donald Trump attempted to slash as recently as February, even as the virus was taking hold in America. This is just a start. As President, I will prioritize sustained long-term investments that ensure America is strong, resilient, and ready in the face of new pandemic threats."

--
Dr Dennis Carroll
President, Global Virome Project
Senior Fellow, Scowcroft Institute of International Affairs at the Bush School of Government and Public Service, Texas A&M University
Counselor and Advisor to the Faculty of Tropical Medicine at Mahidol University, Bangkok, Thailand

mobile: [REDACTED]
email: [REDACTED]

From: Karen Saylor <**REDACTED**>
Sent: Mon, 28 Sep 2020 22:07:55 -0700
Subject: Policy/Regs paper
To: Jonna Mazet <jkmazet@ucdavis.edu>, Christine Kreuder Johnson <ckjohnson@ucdavis.edu>
[Cross-Partner Regulation Policy Qualitative Results 9 28 20.docx](#)

Hey Jonna and Chris.

As promised, here is the draft of our consortium-wide Policy/Regulations as seen through qual interviews with actors in the wild animal value chain.

Right now this is a bit of a weird hybrid between a research paper and a review, as our country-level data is not consistent/robust enough for it to be full-on research, but it does offer some novel perspectives, which I've tried to weave in with the literature. See what you think. I'm still working on the Discussion and Conclusion, but want to send it along to see whether you have thoughts or suggestions.

best,
Karen

A Review of Wild Animal Hunting, Trade Regulations & Policies: Qualitative Perspectives from the Animal Value Chain

Suggested journals:

- The Lancet Planetary Health
- [Human Dimensions of Wildlife](#)
- Journal of International Wildlife Law & Policy
- PLOS One
- Emerging Infectious Diseases
- Vector Borne and Zoonotic Diseases

Introduction

The regulation of wildlife hunting and trade is typically designed to limit the killing, capture and circulation of animals to protect wild animal populations, to protect animal and human health and to ensure the state captures revenue related to wildlife trade. Within the global effort to regulate wildlife hunting and trade, policies most commonly center around conservation and efforts to preserve biodiversity; however, we see wide variance in how authorities legislate, monitor and enforce wild animal protection and trade regulations in different countries, without meaningfully engaging the perspectives and realities of communities living in the areas affected by such regulations. In parallel to this, current research and behavioral interventions addressing wildlife trade tend to overlook the human populations which underpin it, including hunters, traders, and farmers. Many regulations currently in place are in response to real and pressing conservation issues, or are a reactive response to an acute zoonotic disease outbreak, but there exists a gap between the aims of regulations and the population expected to conform to such regulations. While many laws and rules were introduced with the specific objective of protection and management of wildlife populations, increasingly, One Health principles (viewing health outcomes through the recognition of the interconnectedness of environmental, animal, and human health) are also being used to drive legislation and enforcement, in particular during outbreaks. For example, during recent zoonotic disease outbreaks including HPAI, EVD, and COVID-19, some authorities closed live animal markets, prohibited the hunting, sale and importation of wildlife, often using existing wildlife legislation. As such the categorical separation between conservation and human health objectives in wildlife legislation and regulation is diminishing.

Meanwhile, as wild animal meat is often preferred for its taste or viewed as a healthy, natural food in comparison with domestic or industrial animal meat, exacerbated by the perception that industrial meats contain chemicals and additives (Wilkie et al., 2005; Schenck et al, 2006; van Vliet & Mbazza, 2011; Lucas et al, 2020), health risks associated with zoonotic diseases are not always taken seriously among bushmeat vendors or in consumer choices (Pruvot 2019; Saylor et al, 2020). Given the important economic and nutritional value of bushmeat around the world, the way it is managed during times of public health crises has been linked to distrust in outbreak responders and can exacerbate pre-existing tensions within communities. When the experience of populations who eat bushmeat does not match the health risks they are being informed of (Bonwitt et al, 2018), these messages can be discarded and populations can become cynical of response efforts and other messaging. For example while Ebola may be initiated by a zoonotic spillover, epidemics are driven principally by human-to-human transmission, and the banning of bushmeat during outbreaks as a prevention mechanism, often in areas well away from outbreak origins, may well be counterproductive, as consumers realise the disconnect between messages and reality (Wood et al, 2015). During the West Africa Ebola outbreak, Guinea, Liberia, and Sierra Leone all implemented formal bans on the “bushmeat” sector. In Nigeria, where there were only a handful of EVD cases, the government stopped short of a ban, instead issuing strong information campaigns on the risk and association of “bushmeat” with Ebola (Akani et al 2015). In Cameroon and Côte d'Ivoire, the government also implemented strong health

campaigns linking “bushmeat” to Ebola, while simultaneously intensifying the enforcement of existing wildlife hunting laws to achieve desired public health intervention outcomes (Ngade 2017, Dindé et al 2017). And immediately after the January 2020 CoVID-19 outbreak in China, authorities announced a comprehensive ban on eating wild animals and on the hunting and trading of wildlife, both from the wild as well as bred and reared, according to a statement by the city's municipal government. This ban was put into effect in May 2020 and was stated to last for 5 years (Cole, 2020). However, even when such regulations are in place, their enforcement varies tremendously: various factors compel individuals to respond along a continuum of abiding to circumventing such regulations.

Additionally, many existing policies and legal frameworks related to hunting provide unrealistic approaches for enforcement, and ignore the economic and nutritional value of bushmeat (Nasi et al., 2008) and conservation actions which don't mitigate the social and economic impacts on vulnerable rural households risks creating poverty traps for these communities (Brashares et al, 2011). While most national regulations in central African and south east Asian countries regulate hunting for commercial purposes, multiple studies have indicated that prohibited bushmeat sales remain significant (between 30–90% of the catch) showing that the law is largely ignored and often unenforced (Wilkie & Carpenter, 1999, de Merode, Homewood & Cowlishaw, 2004; Kümpel, Milner-Gulland, Cowlishaw & Rowcliffe, 2010; van Vliet & Mbazza, 2011). Efforts to ban trade in wildlife have thus largely failed (Nasi et al., 2008; Bonwitt et al., 2018).

Despite these disconnects, the important links between hunting and disease emergence continue to be documented. In Asia, wildlife trade contributed to the 2003 Severe Acute Respiratory Syndrome (SARS) coronavirus outbreak, with traded masked palm civets (*Paguma larvata*) likely infected from a bat reservoir in the market setting (Bell et al., 2004; Li et al., 2005; Wang et al., 2006), with other studies indicating Chinese horseshoe bats are natural reservoirs of SARS-CoV, and that intermediate hosts may not be necessary for direct human infection by some bat SL-CoVs (Ge et al, 2013). Animal traders were also found to have higher levels of exposure to SARS-coronavirus than control populations at the time (CDC, 2003). The more recent SARS-COV-2 pandemic is also suspected to have originated from wild animal markets, and bats are reservoirs for multiple coronavirus including viruses closely related to SAR-COV2, which may be transmitted to humans, perhaps via an intermediary hosts (Andersen et al., 2020). These links are typified by the context and dimension of large scale commercial wildlife trade found in SE Asia which presents very specific zoonotic disease threats. In Lao PDR, in 7 animal markets between 2010 to 2013 6,452 animals listed as near extinct or threatened with extinction under the Lao PDR Wildlife & Aquatic Law, the presence of high risk taxa for zoonoses and the use of poor biosafety precautions led researchers to conclude that the combined risks of wildlife trade to human health and to wildlife conservation highlight the need for a multi-sector approach to effectively protect public health, economic interests and biodiversity (Greatorex et al. 2016).

Much of the research effort related to hunting of wild animals has focused on quantifying wild animal trade and measuring its level of destruction on wildlife and ecosystems (Bowen-Jones & Pendry, 1999; Fa, Currie & Meeuwig, 2003) while more recently there is an emergence of research efforts focused on the human dimension of wild meat trade, including livelihoods, food and income alternatives, food security, nutrition and well-being (Cawthorn & Hoffman, 2015; Greatorex et al., 2016; Pruvot et al, 2019). The traditional importance of bushmeat has also been highlighted locally, such as in Equatorial Guinea where some species are also believed to have medicinal or magical properties (East, Kümpel, Milner-Gulland, & Rowcliffe, 2005; Kümpel, 2006), and in northeastern Democratic Republic of Congo, wealthier households tend to consume more bushmeat (de Merode, 1998) and in Vietnam wildlife consumption is a status marker of affluence and success (Drury 2011).

Wildlife resource management and conservation efforts would be improved through multidisciplinary approaches that incorporate human dimensions of wildlife trade to allow richer dialogue on sustainable bushmeat trade (van Vliet & Mbazza, 2011). As the socioeconomic and cultural relevance of bushmeat is increasingly emphasized, an ongoing debate continues between conservation policies and the rights of indigenous peoples, which has fuelled the ongoing quest for finding equilibrium between harvesting and sustaining wildlife populations. Qualitative data collected through EPT PREDICT-2 across multiple countries revealed conflictual dynamics with authorities around hunting permission and sales of bushmeat in markets around the world, both during times of disease outbreaks and during normal times. Regional outbreak histories are distinctive, in terms of circulating pathogens, population reaction, and government's responsive policy decisions to manage public health and the population's fear, misinformation, and in the case of zoonotic diseases, activities around wild animal markets.

Background

CITES is the primary international agreement regulating the international trade of wildlife. CITES is a voluntary agreement, currently adhered to by 183 countries, and provides a series of guidelines for the adaptation of domestic legislation to ensure CITES implementation, through control mechanisms on the international trade of specimens from selected species. Given the significance of forest products on the livelihoods of poor rural communities, CITES has developed specific strategies to mitigate the impacts and promote the sustainable use of CITES-listed species. However, neither the text of CITES nor any of the interpretive documents agreed by the signatory countries over the past 45 years has any direct relation to zoonotic disease issues. CITES regulates international trade in wildlife, but it only for the reasons of species conservation and ensuring the legality of the specimens being traded. This is something that policymakers are considering changing, to create an international body that might be capable of monitoring trade with a new objective - reducing zoonotic disease risk. ([Weissgold](#), [Knights](#), [Lieberman](#), [Mittermeier](#), 2020). Chinese researchers, Zhang et al. advocate that CITES training and education programs should extend beyond the focus of trade control; and that training on CITES regulations and species identification should be delivered to those who enforce the regulations and laws, including those from Forestry Bureau, Forestry Police Bureau, Customs, and Administration of Industry and Commerce (Zhang et al., 2018).

Various NGOs, companies, and sovereign states have implemented voluntary recommendations or mandatory prohibitions on the farming, hunting, and trade in animals and/or animal products for the protection of human health. Sometimes, these prohibitions are enacted to prevent future human infectious disease outbreaks, such as the prohibition of live poultry markets in high-risk urban locales of China to mitigate HPAI outbreaks. More often, these temporary prohibitions are in response to an ongoing infectious disease outbreak, such as bans on local or international trade of wild animals in West and Central Africa during Ebola outbreaks or the closure of live animal markets in China during the SARS and COVID-19 outbreaks, and are intended to prevent additional transmission events during moments of public health crisis.

In the case of Ebola (EVD), it is unclear how effective such interventions are on the prevention of EVD spillover events from wildlife into human populations, partly because these bans often occur long after, and far from the probable origin of the outbreak that provoked the ban, and because adherence is generally low and access to alternatives may be limited (Duonamou et al., 2020). Multilateral organizations and states have taken a variety of positions on the linkage between bushmeat and Ebola, utilizing a range of strategies to intervene in animal trade sectors. The WHO, for example, recommends several measures regarding wild animals as part of EVD response efforts to promote the avoidance of high-risk contact with wild animals, including: 1) avoid touching dead or sick animals in the forest, 2) in Ebola- or Marburg-endemic areas, only consuming bats and/or bushmeat that are well-cooked, and 3) wear gloves and other appropriate clothing when handling wild animals or their tissue and during slaughtering procedures (WHO 2014). In outbreak

situations, local authorities must rapidly develop policy and a risk communication strategy for delivering public health messages and implementing new policy. This era of Twitter, Instagram, Facebook, and Whatsapp has created a highly fraught environment for emerging infectious disease communication via social media where rumors can spread as quickly as expert-endorsed information, if not faster. In response to this, the Centers for Disease Control, used Twitter as a communication platform to both educate the public about the 2014 Ebola outbreak and to create a forum for two way public engagement (Dalrymple, Young, and Tully, 2016). Social media is a space where people often express their heightened anxiety, fear, or outrage, all characteristic of public uncertainty of unknown disease threats (Sandman & Lanard, 2003; Brashares 2001). While social media has led to increased public awareness, public health authorities must be proactive in their messaging so scientifically-based information circulates above the misinformation and rumor that can easily define public beliefs about the cause and nature of an ongoing epidemic. Nor can this challenge be safely left to communications staff – partly because it is public health professionals (and political leaders) who set policy and address the public in health emergencies, and also because crisis recovery depends on our success in integrating risk communication expertise into public health planning and policy (Sandman & Lanard, 2003).

As wild animal meat is an essential economic and nutritional commodity around the world, the way it is managed during times of public health crises is critical; however, it has been discussed as integrally tied to distrust towards outbreak responders and exacerbating pre-existing tensions within communities. “Public health messaging that unilaterally stressed the health risk posed by wild meat contradicted the experiences of target audiences, who regularly consume wild meat without incident” (Bonwitt et al, 2018). Considering that by the time Ebola clusters are reported the introduction into a human population through a zoonotic spillover is past, and epidemics are driven principally by human-to-human transmission, thus “demonization of bushmeat risks being counterproductive, as trust in authority will be lost when hunters and consumers identify the mismatch between public awareness messages and reality” (Wood et al, 2015).

While especially critical in outbreak scenarios, the contributions of the behavioral sciences are equally important prior to disease emergence, as they can improve our understanding of the risks associated with pathogen spillover and spread, and can inform strategies and interventions for risk reduction, mitigation, and health policy. In this paper, we present qualitative findings from our behavioral research on the EPT PREDICT-2 program to illuminate the tensions and pitfalls of wildlife trade regulation and its enforcement. We seek to illustrate the ways in which wildlife trade regulations and their enforcement have impacted local knowledge, beliefs, and practices pertaining to hunted wild animals and their trade. We also aim to demonstrate ways in which actors in the animal value chain interpret and react to regulations, including diverting sales to an underground black market that is a challenge for authorities to penetrate. By identifying and describing the unintended consequences of such interventions, we hope to provide policy makers with insight to more effectively protect human and animal health, while minimizing the negative impacts to people’s livelihoods.

Methods

USAID’s EPT program had as its objective to improve zoonotic disease prevention, detection, and response. In 2014, a second phase of the PREDICT project was launched in Africa and Asia as a multi-disciplinary effort with a revised One Health surveillance strategy reliant on the concurrent sampling of animals and people in identified at-risk interfaces for virus emergence. This broadened scope included an expanded emphasis on understanding behavioral risks along with data collection, synthesis, and

aggregation on biological and ecological risks at these interfaces. From the inception, PREDICT-2 incorporated social science methods into the design of One Health surveillance plans and the data collection and capture tools used in the field by the project's multi-disciplinary teams.

Using a mixed qualitative and quantitative methods approach, PREDICT teams conducted behavioral investigations and collected data that comprehensively addressed the multiple dimensions of virus spillover risk and improved the development of informed risk reduction and intervention strategies. The PREDICT behavioral risk strategy was implemented in 27 countries from 2014-2019 (Figure 1). Our standardized global strategy was adapted to host country contexts and specific human-animal-environment interfaces to enable cross-country, regional, and ultimately global comparisons. [REF for OHO paper]. In all countries, we collected quantitative questionnaires from participants, and with targeted populations in a subset of these countries, conducted semi-structured interviews and focus groups (The PREDICT interview and focus group guides can be found in Appendix A.) Target populations included individuals who work in the wild animal value chain, either hunting, butchering, raising or selling wild animals, as well as people who are highly exposed to wild animals, such as sanctuary, zoo workers, or guano collectors. The PREDICT semi-structured interview and focus group guides contained five dimensions: human movement, socioeconomics, biosecurity in human environments, healthcare seeking practices regarding: illness, medical treatment, burial practices upon death, and the nature and frequency of human-animal contact. Within this behavioral investigation, PREDICT targeted individuals with animal related livelihoods to better understand how local knowledge, beliefs, and practices influence contact with wildlife and domestic animals, with particular focus on the hunting and trade of wildlife, comparing qualitative results for knowledge and observations around regulations/policies regarding animals.

Qualitative data was collected in Cameroon, China, Democratic Republic of Congo (DRC), Indonesia, Laos PDR, Nepal, Sierra Leone, Tanzania, and Vietnam. In Cameroon, qualitative data was collected from November 2015 - February 2018 and included 178 interviews and 15 focus groups, which included three minors less than 18 years old (13, 15, 16 years old), the rest adults greater than 18 years old. Parental consent was obtained along with assent from interviewed minors and (at least one) parent was present during the interview. In DRC, qualitative data was collected from August 2015 - November 2018 and included 136 interviews and 11 focus groups; all adult participants greater than 18 years old. All participants in Cameroon and DRC were involved in three main high-risk interfaces of zoonotic disease transmission risk; land conversion (including for palm oil, electricity, timber), animal production systems (slaughterhouses, animal breeding) and animal value chains (buying, selling, trading of animals). Other demographic and livelihood details about interview participants and focus group participants can be found in supplemental Table 1. In Tanzania, PREDICT partnered with Sokoine University of Agriculture in Tanzania to conduct 30 focus group discussions (222) and 65 ethnographic interviews at 22 sites from 4 clusters in the northwestern Lake Zone, which borders on Uganda, Rwanda, and Burundi, as well as sites in the central region of Morogoro. All participants provided verbal consent to participate in the study and were given an information sheet to keep. All interviews were recorded in either English, French, or local languages by local, bilingual research staff. Analysis was completed with the assistance of a qualitative analysis software package of each consortium member's choosing. A PREDICT global codebook was developed prior to data collection and codes were added and deleted from the master codebook during analysis as needed to capture all pertinent themes and information. The PREDICT global codebook can be found in supplemental Appendix A.

Ethical Clearance

Ethical Clearance for qualitative work was first obtained by PREDICT partner Metabiota from the Western Institutional Review Board on April 6th, 2015. The qualitative protocol was renewed through the University

of California, Davis on April 7th, 2016 and yearly thereafter while work was ongoing. Each partner country also obtained local Institutional Review Board (IRB) approval prior to study commencement. Ethical clearance details for each country can be found in supplemental figure ____.

Result

Here we compare qualitative results about knowledge of and observations about regulations/policies regarding wild and domestic animals to ascertain the ways in which protective conservation policies are followed, ignored or circumvented, as well as the impact of bans on workers in the animal value chain. Analyzed regionally, we regrouped qualitative data from four participating East, South and SE Asian countries (China, Indonesia, Laos PDR, Nepal, Bangladesh, and Vietnam) and four African countries (Cameroon, DRC, Sierra Leone, and Tanzania).

Wildlife Regulations (and getting around them)

In all participating countries where we conducted qualitative research, respondents discussed their awareness of the wildlife policies that affect their livelihoods in the animal value chain, and some talked about how these can be/are circumvented. In most countries, respondents were generally able to describe regulations regarding wildlife, such as the protected status of specific animals. However, from the perspective of most actors in the wild animal value chain, such regulations are a barrier to business.

Asia

Southeast Asia is a key biodiversity hub of concern, where anthropogenic change comes head-to-head with conservation, through unsustainable hunting practices and in the increasing scale of wildlife farming.

Indonesia

In Indonesia, respondents reported that prohibited wildlife could be found for sale in the marketplace, and that some vendors hid their goods when officials came to inspect market stalls. Many acknowledged that they and others in the market do not accept these regulations and were willing to defy the rules. "R: ... in here every meat available they sell it I: Need to be informed? R: Maybe, but people here they will not agree." - *27-year-old female bushmeat vendor (IDNS19)*. For some respondents, there was a direct relationship between their income and local regulation enforcement. "I: ... if I [do] not catch bats how I can give my kid and wife food." - *43-year-old male hunter-catcher (IDNS33)*. Livelihood and family provisioning was a recurring theme for why individuals defy regulations, along with nutrition and taste.

Despite an unwillingness to accept local wildlife regulations, there was not an entirely anti-conservation attitude. A few respondents indicated positive sentiments towards the regulations, acknowledging that the laws were beneficial for the well-being of animal populations and their rights to live. Yet this sentiment was overwhelmed by practical needs. It is possible that some respondents were feigning ignorance to the laws or regulations as to not incriminate themselves to research staff from outside of the community. As one respondent shared: "One time there is people from Torakat 1, they [were] caught by police because they bring that meat. They have to pay 35 million rupiah, and prison for 3 weeks." - *67-year-old female collector-vendor (IDNS10)*. Many respondents did indicate that they were not aware of the laws surrounding wildlife prohibitions, with some going so far as criticizing municipal authorities for not doing a better job of spreading awareness and information to their communities. Respondents were critical of the lack of efforts that had been made in making people aware of hunting and bushmeat restrictions. They remarked that several years had passed since they had been initially informed of the regulations, that officials had never come by to inform local communities, that details of the regulations did not always reach villages, or that the government needed to do more to 'socialize' people on the law. "I heard but long time ago...ten years ago...they need to informed us, especially myself selling the meats from forest."

- *56-year-old female bushmeat vendor (IDNS15)*. One female bushmeat vendor who had long been selling her goods in the market expressed her view towards regulators: “[T]hey need to have living so do I and my friends here.” - *54-year-old female bushmeat vendor (IDNS31)*. Some respondents in Indonesia identified television, news, and social media as the place where they received health messages about avian influenza, swine flu, rabies, and SARS.

Outside of market regulations, respondents in Indonesia also shared their experiences and the effects associated with borders and the transportation of banned bushmeat. Reports included lower incomes when forestry officers are active at the borders, strict border enforcement leading to fewer live transports, and dead animals being transported frozen in order to confound officers and provincial borders. Among those respondents in Indonesia who described the nature of borders and illegal wildlife, details emerged that described this intersection as one marked by fear, risk, and evasion. As one respondent vividly described: “Yes, they check it. That’s why we have to cover it properly. Probably they only ask to open one package only; [they] would not ask to open whole package. So far they never ask me to open it....Then I just said it was a dog. But they never ask me to open it. The strictest boundary is in Atinggola. Many of my friends suggest do not past that way during night time, better to pass during day time. It is many people on the road during day time so no one will ask to open the package, then mostly all of them are Muslim.” *38-year-old male transporter-collector (IDNS11)*.

China

The Chinese government has regularly shut down markets in response to HPAI outbreaks, particularly issuing bans on live poultry markets in urban areas. A government ban on the sale of live poultry was about to go into effect across several markets in Shantou province when our team was conducting interviews with market vendors, and poultry vendors were incensed, convinced that bans of formal sale of live poultry would just push the sale of live birds into underground distribution chains. Several poultry and pig farmers mentioned a lack of access to vaccines for domestic animals in rural areas, and that the State vet service is slow to respond.

In Luoding, a city in Guangdong province, several interviewees described the sale of wild animal meat having been in decline over recent years. While the sale of wildlife has been banned for some time, it wasn’t until “corruption control” clamp-down efforts targeting government officials took effect that the demand for wild animal meat dropped. Most residents are unable to afford purchasing wildlife, so the wild animal market has been driven by well-paid government officials. With government officials scared to buy wild animal meat, the market has dropped.

Respondents from the Yunnan, Guangxi and Guangdong provinces shared their perspectives on existing and past programs and regulations - some of which were viewed positively, and others more critically. For example, some respondents appreciated that vaccinating domestic animals tended to be either cheap or free, thanks in part to the animal husbandry officials who would travel to provide vaccines on a regular basis. In addition to vaccines, some respondents described a suite of municipally-supported interventions for rabies prevention, including free consultations with local Centers for Disease Control, education outreach, dog vaccinations, and rat poison distribution. However, others were critical about the effectiveness and impact of government-supported programs. A few respondents described difficulty in accessing vaccines for domestic animals in rural areas, noting that even when inviting veterinarians, care often took a long time to arrive. A few respondents were also critical about the lack of a compensation policy for when protected wildlife ruined their crops and preyed on their domestic animals. Respondents also expressed concern on the secondary impacts of animal-related policies - such as underground markets created by live poultry bans, and local “trouble” created by periodic hunters who traveled to the area to illegally hunt eagles.

Lao

In Laos PDR, wild protein sources have been an important dietary component for many communities for generations, but the scale of this practice was previously limited to subsistence consumption (Greatorex et al., 2016). However, the early 1980s introduced wildlife sales in wet markets (where live animals or fresh meat are sold), which gained momentum after 1986 with the economic opening of the country following inception of the New Economic Mechanism, resulting in a market for wildlife in Lao PDR that is unrelated to subsistence consumption. The high volumes of trade of Lao PDR Category I and II species observed are likely to perpetuate a decline in protected species (Bourgeois, 2012). On a policy level, zoonotic disease transmission, sufficient nutrient source, and/or livelihood for some communities, and biodiversity loss are competing priorities between wildlife conservation, sustainable use, food safety, food security, and cultural aspects. In Southeast Asia, these challenges have been further complicated over the past 15–20 years by a shift from subsistence hunting to wildlife trade in rural areas ([Bell et al., 2004](#); [Bennet and Robinson, 2000](#); [Duckworth et al., 1999](#)).

Nepal

Among ethnographic interviews conducted in Kathmandu and in rural area of Nepal, few people responded about bushmeat consumption and hunting wild animals. Of nine respondents from urban areas, hunting and consumption of wild boar/pig and deer meat were commonly reported whereas two had hunted and ate porcupine, pangolin and fox believing that can cure their chronic diseases. Even they mentioned selling them in Kathmandu although it's illegal. Many interviewees did not know about the wildlife trade law, but they personally think that hunting should not be made. In contrast, those people in rural areas majority of them had mentioned consuming bushmeat of either bats, wildbirds, wildcats and/or deer. Bat hunting was common practice among the people where study occurred, and they believe that insect bats transmit disease to humans. They also mentioned selling bat privately but only few of them knew about the wildlife trade law in Nepal. Those who knew about the law states that poaching tiger, rhinoceros and leopard only are illegal.

Africa

Cameroon

Cameroon interview participants expressed frustration with regulations surrounding the hunting, transport and sale of wildlife. In markets, vendors report that permits are required in order to sell bushmeat, but these are costly and challenging for the independent vendor. Some discuss getting groups of vendors together to pool their money to purchase a permit, so the price will be more affordable. Some vendors reported having a permit, while others did not but continued to sell bushmeat in the market "There are some that are rebellious and other that have the will, and you see, there is a minority of those who have the will to get their papers, but they don't have enough money.... And when the authorities get angry, they say well, there is also meat displayed, and they ask you not to display it anymore, not to sell anymore, even to not touch it, for example pangolin. Others are stubborn and take it (the meat) away. So when they pass here, they see this, on a nice morning like this, the water and forestry authorities arrive, we stop (selling) meat. It doesn't suit us, because we have families, other people live on little." (Bushmeat Vendor/Reseller, Female, 30yrs, Ebolowa Market).

All vendors, regardless of whether they reported having a permit, felt harassed by the Ministry of Forestry and Wildlife because they were selling bushmeat. For instance, one vendor said, "They outlaw us selling chimpanzees, gorillas, and even elephants are protected now. People were selling but not now because we hardly even see [those species] anymore. It's not just anyone who sells them [the protected species]." This statement makes reference to a certain class of professional big game hunters who control the black

market for traffic of illegal species and who are often protected by law enforcement. Small game hunters complain that the Forestry Department seizes any meat they find them with, not only protected species: "[They] disturb us: when you even bring 2 small porcupines, you have to go through, bypassing the shortcuts" (CM-0101).

When asked about whether they believe it is possible for illnesses to be transmitted from animals to humans, Cameroon participants do mention having heard about recent outbreaks on the radio or television. From a regulatory perspective one participant stated they banned the sale of monkey for a period, but it was unclear for how long, or how this was enforced: "It [Ebola] ravaged, I think, in Guinea, Conakry, and I think also in Ivory Coast, in those countries. They said that this illness came from animals, it killed many people there. For a time it heated up here and they had even banned people from eating monkey because they said that the illness Ebola, that's it." (*Male, Age Unknown, Chef of traditional bushmeat dish; hunter; farmer, Nyabissan*) Similarly, a bushmeat restaurant owner in Ebolowa said that the population heard about Ebola through public service announcements on TV and that representatives from Eau & Forêt (the Ministry of Wildlife) came to talk to them about not eating/selling monkey, so she doesn't sell it anymore.

DRC

Qualitative interviews revealed that there are multiple control points along the wild animal value chain, including for hunters, during transport to urban cities, both at ports and at the market. For middlemen who buy wild meat up the Congo River, they must pay customs taxes to the owners of the boats for the right to import wild animal meat to the capital, and some middlemen reported paying fees upon arrival to the port. The ports are also control checkpoints for illegally hunted species. Despite all the mentioned controls, participants were open about bribes being paid to officials to bypass regulations; however, bribes involving protected species were said to be greater because of the risk of going to prison. One middleman/poacher who lives near Salonga national park (one of the frequently mentioned sources of wild animals in Kinshasa markets) travels down the Congo river by boat to sell his merchandise in Kinshasa stated: "Even here at the port they verify [that you are not transporting protected species].... If they find you with [hippopotamus, gorilla, monkey] you have to pay or they will seize your goods. Because these are prohibited... and if they follow-through properly, you could go to prison.... It's for this reason you have to find an arrangement. They give you a price and you pay it." (Vendor, Male)

During a focus group discussion with bushmeat market vendors in Kinshasa, when asked whether certain animals are prohibited for sale at the market, one vendor said, "They only ban [during] ebola. Other than that they forbid [wild animal sales] when the authorities say so, for example if there are no more animals in the parks and the animals must reproduce. They stop you, but since they're the authorities, you just give them money and you'll be selling" (CD 0021).

In the Democratic Republic of Congo, during multiple Ebola outbreaks, public health messaging has stated that Ebola is transmitted from monkeys, which resulted in a significant decrease in the demand for monkey meat for a period of time. In Kinshasa, in interviews conducted in 2016, vendors stated that during the Ebola outbreak (presumably the large outbreak in West Africa) demand for monkey decreased as well as bushmeat in general for a period of 2-3 months. After this period of time, consumers apparently resumed their normal buying practices. One vendor said, "During that time, our sales were really very bad. We had a hard time liquidating our merchandise. There were very few consumers." A vendor from Inongo market said for a 'period of time' the authorities banned the sale and consumption of monkeys, but people continued to sell it (just not at the market, they sold it in secret, or in hidden locations). People in the villages still ate it, but it was forbidden to sell it in the market. He said during this time other meat was also banned and they were forced to sell only meat that was authorized by the authorities. Despite these

controls, market vendors reported continuing to consume monkey and other bushmeat, and sell it to those that still wanted to buy it.

Sierra Leone

Our participants described past interventions aimed at curbing wildlife hunting and trapping in Sierra Leone Interviews. A participant in Sierra Leone described how a conservation program had once paid hunters not to hunt wildlife – particularly non-human primates – providing compensation for the lost revenue and encouraging the pursuit of different economic activities. Once the program ended, and the incentives to stop hunting ceased, hunting resumed. Working in the wildlife value chain can be attractive because many roles require little upfront investment and can be taken up intermittently. Several wildlife vendors in Northern Sierra Leone (dealing primarily in ungulates and non-human primates) described this advantage to us during a focus group, explaining that hunters will often advance the meat to vendors taking their share of the sale only after the meat has been sold. Several urban fruit bat hunters in Central Sierra Leone, similarly, described the convenience of bat hunting as a way to make extra money when needed.

During the 2014 West African Ebola outbreak, there were formal government interdictions issued by the Ministry of Health on not eating wild animal meat during the outbreak, which had mixed results: some consumers reported being so affected by Ebola that they had since given up bushmeat altogether, while many involved in the wildlife value chain, including hunters, transporters, and vendors, described the economic hardships that ensued from the ban, explaining the challenges of changing trades in the middle of an outbreak. Despite the government ban, several Sierra Leonian wildlife value chain workers reported continuing to hunt and sell bats. In Sierra Leone, as in other countries across Africa where many live through purely subsistence economies, economic pressures need to be addressed during such wildlife bans.

Tanzania

In Tanzania commercial poaching has been linked with a marked loss of certain wildlife species in Tanzania, particularly through elephant poaching and the illicit ivory trade (Kideghesho 2016). The Government of Tanzania has implemented several laws and enforcement mechanisms to mitigate the effects of poaching, in 1989-1990 through Operation *Uhai*, which led to over 2,000 arrests, and again in 2013 through the military operation code-named *Operesheni Tokomeza Ujangili* (eradication of poaching) (Lembeli et al., 2013), which over the first 29 days decreased the rate of elephant poaching from an average of two animals per day to a total of two elephants per month. Although deemed successful for reducing poaching, *Tokomeza* was criticized for its violent and controversial paramilitary action plan, which was implicated in numerous human rights abuses (LHRC 2014). *Tokomeza* was terminated after only a few weeks but left an impact, as a parliamentary investigation documented numerous atrocities, including the violent deaths of 13 individuals and dismissal of four government ministers (NatGeo, 2016).

Although poverty is considered the major motivation for bushmeat hunting in Tanzania (Martin et al., 2012), cultural tradition is also a driver of bushmeat hunting and consumption patterns among diverse ethnic groups (Olupot et al., 2009). Tanzania qualitative research determined that several risky behaviors, including consumption of sick livestock meat, carrion, and wild meat, are widespread in communities in the northwest Lake Zone. According to qualitative research participants, wild meat consumption in the area includes consumption of high risk taxa such as non-human primates, and there is an ongoing, illicit regional trade in wild meat that links communities of long-term residents, as well as those displaced by conflict in neighboring countries. The hunting, sale, and consumption of wild meat is not publicly

condoned in Tanzania and largely occurs among friends and neighbors or in private market and restaurant settings. Subsistence hunting behaviors are often passed from generation to generation (Nielsen, 2011), and vary greatly between villages, ethnic groups, and households in many parts of the country and across protected areas (Knapp, 2007; Ndibalema and Songorwa, 2007; Hofer et al., 2000).

Rapid agricultural intensification, the complexities of displacement and migration of people from conflicts in neighboring countries, and limited infrastructure for regulation of the animal value chain all present challenges for mitigating spillover risk in Tanzania. Participants from both the Lake Zone and Morogoro reported a range of behaviors and circumstances involving high risk exposure to bats. These included living in houses with bat infestations, and in one community working in mines that also housed bats. Furthermore, participants from all 4 Lake Zone site clusters and Morogoro stated that children were particularly likely to come into contact with bats through handling bat carcasses or eating fruit that has been damaged by bats. Some participants stated that children collecting and eating bat-damaged fruit, which they believe is the most ripe, is so common, that such fruit has a name, “*cha popo*”.

Participants from all study site clusters also reported ongoing wild meat hunting and trade, particularly at the rural sites. Although a government initiative to confiscate firearms in 2009 was intended to decrease poaching, many participants state that hunting continues, driven in part by communities of displaced people from neighboring countries, who several participants stated were more likely than local people to consume non-human primates. Some participants stated that local people have begun to hunt and sell non-human primates to refugee communities, and that some local people have begun eating non-human primates as a result of contact with refugee communities.

Indonesia

When probed about any diseases that they understood to be of animal origin, many respondents in Indonesia identified avian influenza as one that they were familiar with (typically alongside rabies). Those who made this link came from several different occupations along the wildlife trade market and value chain, from hunter-collectors to vendors, and frequently linked avian influenza explicitly to birds and chickens. In one short anecdote shared by a 47-year-old male hunter-catcher, during a rainy period in the previous year, many chickens were buried following a sudden die-off. In his words: “The community and the owner burn as they say maybe bird flu, many chickens become dark blue in their body.”

Discussion

The COVID-19 pandemic has highlighted the danger that infectious disease transmission between humans and wildlife poses to conservation, economic welfare, and public health. Now more than ever, there is an urgent need to approach public health and conservation in unison. National conservation efforts to protect natural resources are often in conflict, whether between conservation and agriculture (Peterson et al., 2010; Young et al., 2010) or other livelihoods (Redpath et al., 2015), and conservation rule-breaking, from illegal wildlife killing to resource use, has been identified as representing political protest or resistance to conservation (Holmes, 2016; Baynham-Herd et al., 2018). Poaching is frequently categorized as either subsistence or commercial poaching (Lembeli et al., 2013; Patel, 2010), with commercial poaching often involving individuals with substantial financial capital targeting species of commercial value (e.g. elephant, rhinoceros, lion, etc.) in local or international markets (Robinson and Bennett, 2000; Patel, 2010). Whereas subsistence poaching serves to meet the financial or caloric needs of a family or individual and is rooted in traditional history. Consumption and exploitation of wild animal meat and products follows unique and dynamic trends, depending on the national and regional cultures, habits, beliefs, and socio-economics that factor into wild animal meat demand.

In SEAsia:

Although subsistence hunting still exists in many parts of SE Asia, there are increasing trends of hunting villages selling wildlife for cash income (TRAFFIC, 2008). Research findings show that the price of wildlife meat is often higher than domestic animal meat, supporting the suggestion that wildlife is increasingly sold as luxury food rather than for subsistence, and that wildlife is increasingly bought by urban consumers (Srikosamatara, Siripholdej & Suteethorn, 1992; Clendon, 2001; Hansel, 2004). The blurring of boundaries between subsistence hunting and wildlife trade with urban communities ([Bennet and Robinson, 2000](#); [Nasi et al., 2008](#)) challenges wildlife conservation and rural development policy to adequately address the tradeoff between wildlife protection and sustainable use ([Krahn and Johnson, 2007](#); [Singh, 2008](#)). Indeed, maintaining sustainable subsistence hunting for communities that truly rely on these resources depends on the ability to reduce consumption in urban centers where alternative protein sources are readily available ([Rao and McGowan, 2002](#); [Solly, 2004](#)).

Results from Pruvot et al's 2019 study suggest that law enforcement appeared particularly ineffective at stopping traders, with only about half of vendors reporting to cease trade activity after controls from the authorities, and half of these only stopping for three days or less. This raises serious concerns about the effectiveness of current law enforcement strategies, which mostly involve wildlife confiscation in markets. Interestingly, the majority of wildlife consumers reported that they would be very likely to stop consuming wildlife if they faced a fine from enforcement authorities. This suggests that the cost of law enforcement can be internalized by wildlife vendors as part of their business operations, while this cost may not be tolerable at the individual level for a wildlife consumer. Hence, a possible effective angle for law enforcement is to reduce demand for wildlife by targeting wildlife consumers in urban centers. Here again, a good understanding of wildlife consumer demography, economic status, and motivations is essential to the design of effective policy with limited unintended consequences on more vulnerable communities.

Law enforcement appeared particularly ineffective at stopping traders, with only about half of vendors reporting to cease trade activity after controls from the authorities, and half of these only stopping for three days or less. This raises serious concerns about the effectiveness of current law enforcement strategies, which mostly involve wildlife confiscation in markets. Interestingly, the majority of wildlife consumers reported that they would be very likely to stop consuming wildlife if they faced a fine from enforcement authorities. This suggests that the cost of law enforcement can be internalized by wildlife vendors as part of their business operations, while this cost may not be tolerable at the individual level for a wildlife consumer. Hence, a possible effective angle for law enforcement is to reduce demand for wildlife by targeting wildlife consumers in urban centers. Here again, a good understanding of wildlife consumer demography, economic status, and motivations is essential to the design of effective policy with limited unintended consequences on more vulnerable communities. In their study about wild animal meat consumption in China, Zhang et al. focus on the need for both stricter enforcement and increased enforcement capacity building, "to educate the public on the relationship between global environmental conservation and...local economic development, as well as short and long term potential economic benefits associated with wildlife protection." Results suggested that wildlife trade controls in China are very limited because of bias about wildlife utilization as a natural resource to be exploited by the government agencies. In this study, "35% believe that many people do not know the existence of relevant statutes, due to inadequate efforts made toward publicity of the statutes, 32.9% think that money is more powerful than law, and that the rich can access any product they desire despite illegality, and 22.8% maintain that traditional notions in the Chinese society have significant influence on people's behavior, and it is difficult to change in a short time"(Zhang et al, 2008).

Vietnam is an important regional hub for illegal wildlife trade, and rapidly growing urban prosperity is believed to be escalating domestic demand for wild animal products and for wild meat in particular (TRAFFIC 2008; Drury 2009). At least 12 vertebrate species have been hunted to extinction in Vietnam in

the last 40 years (Bennett & Rao 2002) and the government's Forest Protection Department (FPD) estimates that 200 species of birds and 120 other animal species have become locally eliminated, mainly due to illegal hunting and trade (Nguyen 2003). In Vietnam, wild meat is most commonly consumed by successful, high-income, high-status males of all ages and educational levels, and is used as a medium to communicate prestige and obtain social leverage (Drury, 2011).

In Africa:

Across Africa and Asia, there have been temporary prohibitions on wild animal hunting and trade during local or regional outbreaks, usually specifying the specific animals market vendors cannot sell during the outbreak response period. Sometimes these targeted communication messages reiterate CITES regulations about protected primates or other mammals. During large Ebola outbreaks public service announcements and messaging regarding prohibitions are disseminated regionally, even in areas not affected by the outbreak.

African wild animal supply chains have different dynamics and are often driven by the need for animal protein in the absence of accessible alternatives (de Merode et al. 2004; Wilkie et al. 2005; Jambiya et al. 2007).

In DRC, laws about bushmeat trafficking and poaching of protected species are fairly stringent. Central Africa is a sanctuary for many wildlife species and biodiversity. To protect them, nations have adopted increasingly dissuasive laws and have ratified several international conventions including CITES. DRC's legal framework and the enforcement regime for wildlife crime was strengthened following the enactment of Law No. 14/003 of February 2014 on the Conservation of Nature. Paradoxically, various forms of crime including poaching, illegal trade in protected species, and other wildlife products have simultaneously taken on distressing proportions. In DRC where poverty and the crime rate are very high, illegal trade is rampant. DRC is listed by CITES as one of the three countries with the most problems of illegal ivory trade (Ngeh et al, 2018). As part of their study "Repression of wildlife crimes in the DRC: how to improve prosecution?" Ngeh and team documented that although international conventions (CITES) and other national protective laws have been ratified, there is a serious problem of application of the law. Out of the 35 cases registered between January 2016 and March 2018 in the judicial circuit, only 3 judgments went to court. In an analysis conducted between May 28 and June 30, 2018, 6 out of 10 files brought to the Public Prosecutor's Office were weak (poorly drafted, lack of evidence, etc.), thus the prosecution usually has no choice but to dismiss them. "Due to general ignorance of certain laws, cases do not move forward, as well as sluggish investigations of wildlife crimes, weak collaboration between services and institutions working in the chain of law enforcement, influence peddling and corruption." This systemic corruption perpetuates the facade that wildlife conservation is a national priority while assuring the continuation of an invisible black market of trafficking of protected species.

Indo context about the importance of community investment

- Lee 2009 "Mixed-effect multiple regression analyses showed that the most important predictors of the support for PAs included the degree of involvement in management, presence/absence of PA-human conflict, perceived sustainability of forest resources and length of residency in Sulawesi. Notably, active participation in community management by transmigrants and the reconciliation of land-rights conflicts for natives may promote favourable conservation attitudes."
- "The extent of illegal resource harvesting activities, such as hunting and logging, were significantly influenced by a negative conservation attitude and past conflict with PA establishment."

- “Garnering support for PAs through conservation education and resolving land-rights disputes could potentially alleviate illegal resource extraction.”
- “The disparity in resource extraction patterns among the villages across all PAs confirms the importance of adopting site-specific conservation strategies that may make PAs across the biologically unique yet critically threatened Indonesian Archipelago more effective.”

Recommendations/Conclusions

Most interventions aim at reducing conservation conflicts focus on the human behaviors which impinge upon conservation interests ([Schultz, 2011](#)), and these often fall into several behavioral change categories, following Heberlein (2012): **technical interventions**, such as erection of fences or habitat manipulation (Pooley et al, 2016); or **cognitive interventions**, such as community education, training or participatory engagement about conservation benefits, or **structural interventions**, such as alternative livelihoods to divert from wildlife exploitation, or enforcement-driven interventions (ie. seizing of bushmeat or setting seasonal limitations on hunting, as described above) ([Baynham-Herd et al, 2018](#)). Structural interventions can also target the social dimensions of conflicts, such as stakeholder engagement or economic alternative livelihood programs. In contexts where there is illegal natural resource use, including wildlife hunting and trade as described above through PREDICT qualitative research, enforcement-based interventions are often recommended with the logic that greater policing of natural resources and stricter regulations will directly reduce over-harvesting and illegal behavior ([Keane et al., 2008](#); Baynham-Herd et al., 2018). As demonstrated in PREDICT interviews across countries, many participants who are active in the wild animal value chain perceive illegal behavior as being more or less legitimate and justifiable to their livelihood, so further applied research is needed to explore and validate which behavioral change model is most effective, whether through enforcement, alternative livelihood development, or participatory engagement approaches.

Authorities are even repurposing existing conservation regulations to achieve public health objectives by increasing or selectively enforcing animal trade legislation to reinforce public health interventions in the animal trade sector. At an international level, the Convention on Biological Diversity (CBD) and its report by the Liaison Group on Bushmeat, recognizes that existing policies and legal frameworks related to hunting are unpractical or unfeasible, provide unrealistic approaches for enforcement, and ignore the economic and nutritional value of bushmeat (Nasi et al., 2008). Indeed, despite regulations against commercial hunting and bushmeat trade, those activities remain important components of household economies in the Congo Basin and constitute a significant source of food and revenue for forest families (Wilkie & Carpenter, 1999).

Some positions to be considered: van Vliet & Mbazza, 2011: we suggest that efforts to encourage sustainable use of wildlife for food should go beyond enforcement to take into account the economic and cultural values of bushmeat. If stopping the trade to urban areas is unrealistic in the short-term, influencing the demand to shift consumption to the most resilient species (such as porcupines, which are both cheap and highly preferred), is an option that needs to be investigated. Preferences for different bushmeat species and different sources of protein depend on the economic, social and cultural context and should be studied carefully in each location to provide feasible recommendations. Innovative sensitization campaigns could be used to influence demand, with messages adapted to the cultural and social backgrounds of different audiences....potential to reduce the pressure of bushmeat trade to the most resilient species without necessarily having to ban all bushmeat trade.

However, research has indicated that as the most highly valued bushmeat species are among the most common, there is a non-negligible potential to reduce the trade to the most resilient species without having to ban all bushmeat trade. Second, because bushmeat serves multiple functions above the purely consumptive, there is no guarantee that demand for bushmeat will decline. (van Vliet & Mbazza, 2011).
[snappy team conclusion :)]

	Knowledge of Regulations from the qualitative data	Any top-level observations/discussions around animal regulations from the qualitative data Potential sub-sections: <ul style="list-style-type: none"> - Description of local wildlife market and value chain - Conflict zone/cross-border trade risk - Taxa-specific observations
Laos	<p>Regulations about Selling Wildlife According to the market manager, it is prohibited to sell wild animals and there is a posted sign about this. Officers will fine someone who sells wild animals: if they sell it is their own responsibility. there is a physical prohibition sign, [physical infrastructure of wildlife regulation]</p> <p>Since the market opened there are 3 shops which sell wild animals here: lots of this wild animal meat comes from Pa Thoum Phone district [at the Laos/Cambodian border],</p>	<p>Cross-border hunting/selling:</p> <ul style="list-style-type: none"> • Na Pa Kieb, Laos is near Cambodia and Laotians cross border for subsistence hunting there during March-April, ends by June (seasonal hunting): Hunting of some endangered species, ie monitor lizard, treeshrews and muntjacs mentioned, as well as non-endangered like squirrel & wild pig. • Laotians hunt in Cambodia in the morning, return the same evening. Flat area, easy hunting and close by. • Cambodians come to Laos to sell wild animals (muntjacs, flying squirrels); hunters bring them to merchants on Laos side, to sell elsewhere • Buyers from the city of Khi Nak come to the border area to buy meat for resale. They buy here in Laos & sometime people from Cambodia make appointments to sell/buy, after buying/selling they go immediately back. [how border trade extends into interior] • According to lunar calendar, people hunt in the forest from April to June. "We can make a living by go torching at night but only just a few." [seasonality? Local beliefs/timelines]
Indonesia	<p>General Awareness of Wildlife Restrictions/Regulations, Reports of Not Following the Law</p> <ul style="list-style-type: none"> • The respondents were generally able to describe regulations around 	<p>Continuing to Sell/Hunt Despite Regulations</p> <ul style="list-style-type: none"> • Several respondents described continuing to work with wildlife despite being aware of the laws regarding protected species. Examples of this included selling/hunting Yaki (NHP) and Anoa [breaking

	<p>wildlife, such as the protected status of Yaki, Anoa, Maleo, Babirusa, and deer.</p> <ul style="list-style-type: none"> • However, some respondents reported being genuinely disconnected/unaware of local regulations. [awareness of laws] • There were also reports that it was still very possible to find prohibited wildlife for sale and that people hide their goods from officials. [underground network/black market] • General awareness of the existence of waste management regulations and vaccination programs for chickens and dogs provided by the government, although not necessarily a corresponding uptake of the vaccination program. [other policies - vaccinations] 	<p>[regulations]</p> <ul style="list-style-type: none"> • Law enforcement as either absent or even participatory in the wildlife market. <p>Borders, Boundaries</p> <ul style="list-style-type: none"> • Descriptions of apprehension around boundary areas re: forbidden animals; similar to another emerging sentiment that wildlife trade near borders carries great risk. [perceptions, attitudes, fears] • There is a detailed account of what control at the border looks like. They cut off wild boars feet, and avoid certain hours due to the religious nature of the area. Control checks your hands. Sometimes, traders report on each other. Talks about dangerous areas, and possible ways they alert one another of control. LOTS of detail that I think our codebook didn't capture well. (re-examine data for black market methods of avoiding border control of meat?) • Another person talking about now stricter borders, and so fewer live animal transports • Less income when forestry officers are active, borders • Observation that dead animals transported, frozen, because officers in province borders are strict
Cameroon	<ul style="list-style-type: none"> • "They outlaw us selling chimpanzee, gorillas, and even elephants are protected now. People were selling but not now because we hardly even see anymore. It's not just anyone who sells them [the protected species]." (reference to underground sales of protected species) • A middleman buyer/seller of bushmeat at Ebolowa-si market said that her biggest challenge is the Forestry Department forcing them to have papers to sell meat, complaining that it is too expensive. [obstacles to compliance] • One restaurant owner in Ebolowa no longer prepares monkey because people are too afraid of Ebola. When people ask her what she's serving, they say, "If you are serving up Ebola, we won't eat it." (meaning monkey) She says the population heard about Ebola through public service 	<ul style="list-style-type: none"> • Cameroonian hunter/vendor travels to Oyeme, Gabon to sell meat. • One hunter says he travels regularly to the Cameroon/RoC border (as far as Meloundou) but that he never travels with bushmeat there, as they are Muslim and it would be unacceptable. • People from Equatorial Guinea come to Ebolowa market to buy turtles. • A middleman bushmeat buyer/seller in Ebolowa-si said that many types of animals arrive there, except protected species "which we don't even see." She repeats this again, "like chimps, gorillas: we do not see them." At first read, one might think that they are not hunted so do not show up at the sales point, but in reality, she more likely means that the protected species do not get to the market because they circulate through an 'invisible' underground market. [how present at market]

	<p>announcements on TV and also representatives from Eau & Foret came to talk to them about not eating/selling monkey, so she doesn't sell it anymore. [demand]</p> <ul style="list-style-type: none"> 	
DRC	<p>Inongo market:</p> <ul style="list-style-type: none"> • A vendor from Inongo market said for a 'period of time' the authorities banned the sale and consumption of monkey, but people continued to sell it (just not at the market, they sold it in secret, or in hidden locations). People in the villages still ate it, but it was forbidden to sell it in the market. He said during this time other meat was also banned and they were forced to sell only meat that was authorized by the authorities. • A veterinary service comes to inspect meat in the market, but only for the domestic animals. They do not inspect bushmeat. • When asked who does pay attention to wild animals in the market, a vendor says that it's the Hygiene Agents who come around and when they see a rotten animal, they will confiscate it and throw it away. 	<p>Public health messages during Ebola:</p> <ul style="list-style-type: none"> • During Ebola outbreaks, public health messages said that Ebola is transmitted from monkeys. "During that time, our sales were really very bad. We had a hard time liquidating our merchandise. There were very few consumers." • During Ebola, one hunter said they had been ordered to stop selling bushmeat by their doctors. so he complied with that, although for him it was just due to a bad spell that was thrown by a hunter after a theft of his game. At that time of the outbreak wild game hunting was banned and upon his return from the hunt he was informed by his wife. As he had returned with meat in his game bag, he consumed with his family to see if this meat in question was contaminated, but fortunately they are not sick in the family. He tells us that he is also used to washing his hands while he is at work with soap. <p>Laws about bushmeat trafficking/poaching of protecting species:</p> <p>Central Africa is a sanctuary for many wildlife species and biodiversity. To protect them, Nations have adopted increasingly dissuasive laws and have ratified several international conventions including CITES. Paradoxically, various forms of crime including poaching, illegal trade in protected species and other wildlife products have taken on worrying proportions. In some countries, the crime rate is very high. This is particularly the case of the DRC, which is listed by CITES as one of the three countries with the most problems of illegal ivory trade (Ngeh et al, 2018).</p> <p>As part of a study "Repression of wildlife crimes in the DRC: how to improve prosecution?", 2018 they document that although international conventions (CITES) and other national protective laws have</p>

		<p>been ratified, there is a serious problem of application of the law. Out of the 35 cases registered between January 2016 and March 2018 in the judicial circuit, only 3 judgments went to court.</p> <p>In an analysis conducted between May 28 and June 30, 2018, 6 out of 10 files brought to the Public Prosecutor's Office were weak (poorly drafted, lack of evidence, etc.), thus the prosecution usually has no choice but to dismiss them. Due to general ignorance of certain laws, cases do not move forward, as well as sluggish investigations of wildlife crimes, weak collaboration between services and institutions working in the chain of law enforcement, influence peddling and corruption.</p>
China	<p>Luoding (Guangdong province)</p> <ul style="list-style-type: none"> Several interviewees (hunters, clinicians) described the government ban on sale of wild animals. <p>Shantou (Guangdong province)</p> <ul style="list-style-type: none"> Several backyard pig farmers describe government ban on certain wildlife, including wild boars and eagles. A government ban on the sale of live poultry was about to go into effect across several markets in Shantou. Market vendors were quite incensed. [popular sentiment, intervention feasibility] <p>Provinces of Yunnan, Guangxi, and Guangdong</p> <ul style="list-style-type: none"> A few respondents have the perspectives that the gun control have helped decrease the hunting because now people don't have tools to hunt [GUN CONTROL: impact on population] Some respondents indicated vaccinating domestic animals was cheap or free, the husbandry department will visit to give vaccine on a regular base Some respondents reported the measures for rabies prevention, including free consultation with local CDC, education, vaccinating dogs, and distribution of rat poison 	<p>Luoding (Guangdong province)</p> <ul style="list-style-type: none"> Several interviewees described the sale of wild animals having been in decline over recent years. While the sale of wildlife has been banned for some time, it wasn't until recent "corruption control" efforts targeting government officials took effect that demand dropped. Most residents are unable to afford purchasing wildlife, so with government officials scared to buy the market has dropped. <p>Shantou (Guangdong province)</p> <ul style="list-style-type: none"> One pig farmer described frustrations with periodic hunters coming to the nearby mountain to hunt eagles. The farmer (an immigrant to the area) was concerned about the ensuing trouble that might follow such illegal activity. Local poultry vendors were convinced that bans of formal sale of live poultry would just push the sale of live birds into underground distribution chains. <p>Provinces of Yunnan, Guangxi, and Guangdong</p> <ul style="list-style-type: none"> Lack of policy to address human-wildlife conflicts to reduce potential human-wildlife contact Lack of access to vaccine for domestic animal in rural area Poor sanitation conditions in local markets

	<ul style="list-style-type: none"> Many respondents were aware of the illegibility of hunting, they knew some certain animals are protected, and the forestry and public security department are regulating it, some of them also indicated the penalty they would pay for illegal hunting, as well as some specific regulations at local nature reserve; Some respondents also knew selling wildlife on market is illegal, and if it's farmed animals, you would need special permit for trade A few respondents complained about wild animals ruining crops, and preying on domestic animals, they cannot kill the wild animals which would violate the law, but the government do not have any compensation policy A few respondents indicated that vaccinating domestic animals in rural areas is not easy, the policy doesn't cover rural area, and inviting vets to come takes a long time [geographical coverage of policy?] Several respondents reported there were bat caves located in local community within 10km from human dwellings The majority of respondents reported animals were observed around or in human dwellings, among which rodents, bats, and wild birds were most frequently observed A few respondents reported the observations of bats, wild boar, and ungulates at cropland eating crops Some respondent indicated they raise domestic animals range-free, and observed the wild-domestic animals interactions such as preying and sharing food 	
Vietnam	Raising wild animals in Dong Nai province <ul style="list-style-type: none"> Some wildlife famers (crocodile, rodent, snake) describe government regulations from forestry sector (FPD) on managing farmed wildlife such as farm registration, scale control, registration on selling and transporting live wild animal or wildlife product, and reporting when found dead farmed wildlife A few wildlife farmers (crocodile, rodent, snake) describe government 	Wild animal production in Dong Nai province: <ul style="list-style-type: none"> Small wild animals are raised for meat are rodents (porcupine, bamboo rat) Snakes and crocodiles are raised for their skin and usually sell them alive to the wholesalers. A few farmers can process the skin at home and eat the left-over meat. Deer are raised for their antlers. For all of the species above, the farmers need to register and report to the local

	<p>regulations on the environment issues could caused by farming. They know that their enclosures need to meet certain standards to start farming</p> <ul style="list-style-type: none"> • One wildlife farmer describe the government regulations on outbreak response • One wildlife farmer describe the ban on hunting wildlife in the forest • One restaurant owner describe government ban on wildlife consumption and hunting. 	<p>FPD (Forest Protected Department) staff on species name, population size, health issues (dead)</p>
Nepal	<p>Hunting of wild animals as a food or medicine:</p> <p>Urban Informal settlement (Jadibuti):</p> <ul style="list-style-type: none"> • People living in this area had consumed bushmeat (n=9). • Hunting and consumption of wild pig/boar (bandel) and deer is common • One person had mentioned hunting and eating porcupine, pangolin, fox and deer in his hometown jungle for arthritis treatment • One person mentioned that wild animals hunting is illegal in Nepal although he had consumed wild pork, rabbit, and pigeon when he was in his village. • One person mentioned that some people living in settlements eat fox meat brought from their village, and sometimes sold them to city people in belief of cure of uric acid problems. • Some did not know at all about the wild-animals' hunting laws and personally think they should not be hunted as it is illegal. <p>Rural area (Silinge):</p> <ul style="list-style-type: none"> • People involved in this study site mentioned eating bushmeat (bats, wild-birds e.g. Kalij pheasant, pigeons, wild cat (local name: gosya), deer meat. • Bat hunting and eating are common practices, and occur twice a year, and hunted fruit bats only as according to participants, insect eating bats stings and believe that they cause disease to them. • Bat hunting is for home consumption, and some do sold privately. 	<ul style="list-style-type: none"> • Although hunting and bushmeat consumption reported, all of them were not aware of it as illegal but they know that poaching big cats e.g. tiger is illegal. [knowledge of regulations] • [redacted]

	<ul style="list-style-type: none"> • Only those who owns “Chiuri [butter tree]” plant can hunt bat. • Few of them, knew that it is illegal and not good for health. 	
Tanzania		
Sierra Leone		<p>Regulations from Ebola Outbreak</p> <p><i>Residents with Bat Infestations</i></p> <ul style="list-style-type: none"> • Residents recall government interdictions on not eating game meat during the Ebola outbreak. • A few residents describe having been so affected by the outbreak that they have since given up game meat altogether. <p><i>Urban Adolescent Bat Hunters</i></p> <ul style="list-style-type: none"> • Hunters were told to stop hunting bats during the outbreak. One hunter describes how he continued to hunt and sell bats anyway. <p><i>Game Meat Transporters / Vendors (near Guinea border)</i></p> <ul style="list-style-type: none"> • Sale of game meat was banned during the outbreak. One transporter describes the economic hardships that ensued having to temporarily switch to agricultural trade. <p>General Regulations / Conservation Issues</p> <p><i>Game Meat Transporters / Vendors (near Guinea border)</i></p> <ul style="list-style-type: none"> • One transporter was unaware of any specific interdictions on wildlife hunting. • Same transporter said primate conservation groups had met with local transporters and convinced them to not eat / release captured baboons and chimpanzees. • A conservation program several years ago would pay hunters / transporters not to practice their trade. When the program funds ran out, there was no longer an incentive to stop the work.

Table 1. Demographic Information

		Laos	Indonesia	Cameroon	DRC	China	Vietnam	Ne Urban
Number of Interviews			83	178	136		77	67
Gender	Male		47	81	85		52	13
	Female		36	97	51		25	54
Age Group	<18		0	5	4		0	1
	18-30		10	11	3		1	10
	31-50		27	29	23		36	24
	>50		10	12	8		22	5
	Not Reported		34	136	111		18	27 (FG)
Occupatio n	hunter/trapper/fish er		23	27	24		1	
	rancher/farmer animal production business		1	11	2		75	
	wild/exotic animal trade/market business		24	55	78		0	
	wildlife restaurant business		1	48	3		1	
	other		34	6	7		0	
	Nurse/doctor/ traditional healer/community health worker			5	7			

	Extraction of minerals/gas/oil/timber			27	5			
	Not specified			1	Zoo/sanctuary worker (7)			
	Meat processing/slaughterhouse/abattoir				5			
Education	None		4					
	Primary							
	Secondary							
	Post-Secondary							
				Not recorded	Not recorded			

References

Akani, G. C., Dendi, D., & Luiselli, L. (2015). Ebola Virus Effects On The Bushmeat Trade In West Africa. *African Journal of Ecology*, 53, 613-515.

Andersen, K.G., Rambaut, A., Lipkin, W.I. *et al.* The proximal origin of SARS-CoV-2. *Nat Med* **26**, 450–452 (2020). <https://doi.org/10.1038/s41591-020-0820-9>

Baynham-Herd, Z., Redpath, S., Bunnefeld, N., Molony, T., Keane, A. (2018). Conservation conflicts: Behavioural threats, frames, and intervention recommendations, *Biological Conservation*, Volume 222, 180-188.

Bell, D., Robertson, S., & Hunter, P.R. (2004) Animal origins of SARS coronavirus: possible links with the international trade in small carnivores, *Philos. Trans. R. Soc. Lond. B Biol. Sci.*, 359, pp. 1107-1114, [10.1098/rstb.2004.1492](https://doi.org/10.1098/rstb.2004.1492)

Bennett, E.L. and M. Rao. 2002. Hunting and wildlife trade in tropical and sub-tropical Asia: Identifying gaps and developing strategies. Report of a meeting held in Khao Yai National Park, Thailand. Bangkok: Wildlife Conservation Society.

Bonwitt, J., Dawson, M., Kandeh, M., Ansumana, R., Sahr, F., Brown, H., Kelly, AH. (2018). Unintended consequences of the bushmeat ban' in West Africa during the 2013–2016 Ebola virus disease epidemic, *Social Science and Medicine*, (200) 166-173.

Bourgeois Luthi N. Desk review on exposure of humans to wildlife and the risk of spread of zoonotic diseases with pandemic potential in Lao PDR [Internet]. 2012. Available: <http://dfat.gov.au/about-us/publications/Documents/desk-review-wildlife-zoonitic-diseases-pandemic-potential-lao-pdr-2012.pdf>.

Bowen-Jones, E., & Pendry, S. (1999). The threat to primates and other mammals from the bushmeat trade in Africa, and how this threat could be diminished. *Oryx*, 33, 233–246.

Brashers, D. E. (2001). Communication and uncertainty management. *Journal of Communication*, 51, 477-497. doi:10.1111/j.1460-2466.2001.tb02892.x

Brashares, JS., Golden, CD., Weinbaum, KZ., Barrett, CB., Okello, GV. (2011) Economic and geographic drivers of wildlife consumption in rural Africa. *Proceedings of the National Academy of Sciences* Aug 2011, 108 (34) 13931-13936; DOI: 10.1073/pnas.1011526108

Cawthorn, D. M., & Hoffman, L. C. (2015). The bushmeat and food security nexus: A global account of the contributions, conundrums and ethical collisions. *Food Research International (Ottawa, Ont.)*, 76, 906–925. <https://doi.org/10.1016/j.foodres.2015.03.025>

Center for Disease Control and Prevention. Prevalence of IgG antibody to SARS-associated coronavirus in animal traders—Guangdong Province, China, 2003. *MMWR*; Report No.: 52.

Clendon K. (2001). The role of forest food resources in village livelihood systems. A study in three villages in Saravan Province, Lao PDR. 47.

Cole, B. Wuhan Authorities Ban Eating Wild Animals After Wet Market Linked to COVID-19 Outbreak, *Newsweek*, 5/20/20.

Dalrymple, KE., Young, R., & Tully, M. (2016) "Facts Not Fear" Negotiating Uncertainty on Social Media during the 2014 Ebola Crisis," *Science Communication*, 1-26.

de Merode, E., Homewood, K., & Cowlishaw, G. (2004). The value of bushmeat and other wild foods to rural households living in extreme poverty in Democratic Republic of Congo. *Biological Conservation*, 118, 573–581.

Dindé, A. O., Mobio, A. J., Konan, A. G., Fokou, G., Yao, K., Easo, E. L. J. C., . . . Bonfoh, B. (2017). Response to the Ebola-related bushmeat consumption ban in rural Côte d'Ivoire. *Agriculture & Food Security*, 6(1). doi:10.1186/s40066-017-0105-9

Drury, R. (2009). Reducing urban demand for wild animals in Vietnam: Examining the potential of wildlife farming as a conservation tool. *Conservation Letters* 2:263–270.

Drury, R. (2011). Hungry for Success: Urban Consumer Demand for Wild Animal Products in Vietnam, *Conservation and Society* 9(3): 247-257.

Duonamou L, Konate A, Djègo Djossou S, Mensah GA, Xu J, Humle T. 2020. Consumer perceptions and reported wild and domestic meat and fish consumption behavior during the Ebola epidemic in Guinea, West Africa. *PeerJ* 8:e9229 <https://doi.org/10.7717/peerj.9229>

Fa, John E. & Currie, Dominic & Meeuwig, Jessica. (2003). Bushmeat and food security in the Congo Basin: Linkages between wildlife and people's future. *Environmental Conservation*. 30. 10.1017/S0376892903000067.

Ge, X.,

- Jia-Lu Li,
- Xing-Lou Yang,
- Aleksei A. Chmura,
- Guangjian Zhu,
- Jonathan H. Epstein,
- Jonna K. Mazet,
- Ben Hu,
- Wei Zhang,
- Cheng Peng,
- Yu-Ji Zhang,
- Chu-Ming Luo,
- Bing Tan,
- Ning Wang,
- Yan Zhu,
- Gary Cramer,
- Shu-Yi Zhang,
- Lin-Fa Wang,
- Peter Daszak &
- Zheng-Li Shi

(2013) Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor, *Nature* volume 503, pages 535–538.

Greuter Z.F., Olson S.H., Singhalath S., Silithammavong S., Khamvavong K., Fine A.E., Weisman W., (...), Mazet J.A.K.

(2016) Wildlife trade and human health in Lao PDR: An assessment of the zoonotic disease risk in markets, *PLoS ONE*, 11 (3) , art. no. e0150666

Hansel T. (2004). Observations on subsistence hunting along the Phu Yai mountain range, Xanakhom District, Vientiane Province, Lao PDR. *Nat Hist Bull Siam Soc.* 52: 195–200.

Heberlein, T.A. (2012). Navigating environmental attitudes, *Navig. Environ. Attitudes*, 26, 1-240, [10.1093/acprof:oso/9780199773329.001.0001](https://doi.org/10.1093/acprof:oso/9780199773329.001.0001)

Holmes, B., Henrich, N., Hancock, S., Lestou, V. (2009). Communicating with the public during health crises: Experts' experiences and opinions. *Journal of Risk Research*. 12. 793-807. 10.1080/13669870802648486.

Jambiya, G., S.A.H. Milledge and N. Mtango. 2007. 'Night time spinach': Conservation and livelihood implications of wild meat use in refugee situations in north-western Tanzania. Dar es Salaam: TRAFFIC East/Southern Africa.

Keane, A., Jones, J.P.G., Edwards-Jones, G., Milner-Gulland, E.J. (2008). The sleeping policeman:

understanding issues of enforcement and compliance in conservation, *Anim. Conserv.* , [10.1111/j.1469-1795.2008.00170.x](https://doi.org/10.1111/j.1469-1795.2008.00170.x)

Kideghesho, J.R., (2016). The Elephant Poaching Crisis in Tanzania: A Need to Reverse the Trend and the Way Forward, *Tropical Conservation Science*, Volume: 9 issue: 1, 369-388.

Kümpel, N. F. (2006). Incentives for sustainable hunting of bushmeat in Rio Muni, Equatorial Guinea. Unpublished doctoral dissertation, Institute of Zoology/Imperial College London.

Kümpel, N. F., Milner-Gulland, E. J., Cowlshaw, G., & Rowcliffe, J. M. (2010). Incentives for hunting: The role of bushmeat in the household economy in rural Equatorial Guinea. *Human Ecology*, 38, 251–264.

Latinne, A., Saputro, S., Kalengkongan, J., Kowel, C. L., Gaghiwu, L., Ransaleleh, T. A., ... & Feferholtz, Y. (2020). Characterizing and quantifying the wildlife trade network in Sulawesi, Indonesia. *Global Ecology and Conservation*, 21, e00887.

Lee, Tien Ming, Navjot S. Sodhi, and Dewi M. Prawiradilaga. "Determinants of local people's attitude toward conservation and the consequential effects on illegal resource harvesting in the protected areas of Sulawesi (Indonesia)." *Environmental Conservation* 36, no. 2 (2009): 157-170.

Li, W., Shi, Z., Yu, M., Ren, W., Smith, C., Epstein, J.H., Wang, H., Cramer, G., Hu, Z., Zhang, H., Zhang, J., McEachern, J., Field, H., Daszak, P., Eaton, B.T., Zhang, S., Wang, L.F. (2005), Bats are natural reservoirs of SARS-like coronaviruses, *Science*, 310, pp. 676-679, [10.1126/science.1118391](https://doi.org/10.1126/science.1118391)

Martin, A., Caro, T., Mulder, M.B., 2012. Bushmeat consumption in western Tanzania: A comparative analysis from the same ecosystem. *Tropical Conservation Science* 5, 352-364.

Mgawe, P., Mulder, M.B., Caro, T., Martin, A., Kiffner, C., 2012. Factors affecting bushmeat consumption in the Katavi-Rukwa ecosystem of Tanzania. *Tropical Conservation Science* 5, 446-462.

Monroe, M.C. & Willcox, A.S. (2006). Could risk of disease change bushmeat□butchering behavior? *Animal Conservation*, 9 (4) 368-369.

Brooks, C., Hopkins, M. (2016) How Protecting Animals Led to Allegations of Torture and Rape, *National Geographic*, <https://news.nationalgeographic.com/2016/09/wildlife-tanzania-poaching-human-rights-abuses/>

Ngade, I., Singer, M., Marcus, O., & Hasemann, J. (2017). Implications of Changing Attitudes towards Game Meat Consumption at the Time of Ebola in Limbe, Cameroon. *Human Organization*, 76(1).

Nguyen, S.V. 2003. Wildlife trading in Vietnam: Why it flourishes. *EEPSEA Research Reports*, Tanglin, Singapore. 1–75.

Ngeh C.P., Shabani A.N., Mabita M.C., & Djamba K.E. (2018). Traffic Report: La répression des crimes fauniques en RDC : comment améliorer les poursuites judiciaires?(Repression of wildlife crimes in the DRC: how to improve prosecution?).

Olupot, W., McNeillage, A.J., Plumptre, A.J., 2009. An Analysis of socioeconomics of bushmeat hunting at major hunting sites in Uganda. *Wildlife Conservation Society* ISSN 1530-4426. 108.

Peterson, M.N., Birkhead, J.L., Leong, K., Peterson, M.J., Peterson T.R. (2010), Rearticulating the myth of human-wildlife conflict

Conserv. Lett. [10.1111/j.1755-263X.2010.00099.x](https://doi.org/10.1111/j.1755-263X.2010.00099.x)

Pruvot, M., Khammavong, K., Milavong, P., Philavong, C., Reinharz, D., Mayxay, M., Rattanaovong, S., Horwood, P., Dussart, P., Douangngeun, B., Theppangna, W., Fine, A.E., Olson, S.H., Robinson, M., Newton, P. (2019). Toward a quantification of risks at the nexus of conservation and health: The case of bushmeat markets in Lao PDR, *Science of the Total Environment*, [Volume 676](#), Pages 732-745.

Sandman, P. M., & Lanard, J. (2003). Risk communication recommendations for infectious disease outbreaks (Paper prepared for the World Health Organization SARS Scientific Research Advisory Committee). Retrieved from <http://www.psandman.com/articles/who-srac.htm>

Schultz, P.W., (2011). Conservation means behavior, *Conserv. Biol.* 25, 1080-1083., [10.1111/j.1523-1739.2011.01766.x](#)

Srikosamatara S, Siripholdej B, Suteethorn V. (1992). Wildlife trade in Lao PDR and between Lao PDR and Thailand. *Nat His Bull Siam Soc.* 40: 1–47.

TRAFFIC. 2008. What's driving the wildlife trade? A review of expert opinion on economic and social drivers of the wildlife trade and trade control efforts in Cambodia, Indonesia, Laos and Vietnam. Washington, DC.

TRAFFIC (2020). *Wildlife Trade, COVID 19, and zoonotic disease risks*. Cambridge, UK. <https://www.traffic.org/site/assets/files/12764/covid-19-Briefing-vfinal.pdf> <https://www.traffic.org/site/assets/files/12764/covid-19-briefing-vfinal.pdf>

TRAFFIC. (2008). What's driving the wildlife trade? A review of expert opinion on economic and social drivers of the wildlife trade and trade control efforts in Cambodia, Indonesia, Lao PDR and Vietnam. East Asia and Pacific Region Sustainable Development Department, World Bank, Washington, DC.

van Vliet N., Mbazza P. (2011) Recognizing the multiple reasons for bushmeat consumption in urban areas: a necessary step toward the sustainable use of wildlife for food in Central Africa. *16(1)*: 45-54

Wang, L.-F., Shi, Z., Zhang, S., Field, H., Daszak, P., Eaton B.T. (2006). Review of bats and SARS, *Emerg. Infect. Dis.*, 12,, p. 1834, [10.3201/eid1212.060401](#)

Weber, D.S., Mandler, T., Dyck, M., De Groot, P.J.V.C., Lee, D.S. et al. (2015). Unexpected and undesired conservation outcomes of wildlife trade bans—An emerging problem for stakeholders?. *Global Ecology and Conservation*, 3, 389-400. <https://doi.org/10.1016/j.gecco.2015.01.006>

[Weissgold](#), B.J., [Knights](#), P., [Lieberman](#), S., [Mittermeier](#), R.. How We Can Use the CITES Wildlife Trade Agreement to Help Prevent Pandemics, *Scientific American*, Aug 24, 2020.

WHO. (2014). Ebola and Marburg virus disease epidemics: preparedness, alert, control and evaluation.

Wilkie, D. S., & Carpenter, J. F. (1999). Bushmeat hunting in the Congo Basin: An assessment of impacts and options for mitigation. *Biodiversity and Conservation*, 8, 927–955.

Wilkie, D., Starkey, M., Abernethy, K., Nstame, E., Telfer, P., Godoy R.. 2005. Role of prices and wealth in consumer demand for bushmeat in Gabon, Central Africa. *Conservation Biology* 19:268-274

Wood, J. et al, Ebola, bats and evidence-based policy, Ecohealth, 2014.

[Young et al., 2016](#)

J.C. Young, K. Searle, A. Butler, P. Simmons, A.D. Watt, A. Jordan**The role of trust in the resolution of conservation conflicts**
Biol. Conserv., 195 (2016), pp. 196-202, [10.1016/j.biocon.2015.12.030](#)

Zhang L, Hua N, Sun S. Wildlife trade, consumption and conservation awareness in southwest China. *Biodivers Conserv.* 2008;17(6):1493-1516. doi:10.1007/s10531-008-9358-8.

Pangolin trade

Between 2014 and 2018, the seizure of pangolin scales has increased tenfold (UNODC, 2020).

UNEP

Randolph, D.G., Refisch, J., MacMillan, S., Wright, C.Y., Bett, B., Robinson, D., Wernecke, B., ... & Kappelle, M. (2020). Preventing the Next Pandemic: Zoonotic diseases and how to break the chain of transmission. United Nations Environment Programme and International Livestock Research Institute.

UNODC World Wildlife Crime Report

Global extent and drivers of mammal population decline in protected areas under illegal hunting pressure
Rija, Alfian A., Rob Critchlow, Chris D. Thomas, and Colin M. Beale. "Global extent and drivers of mammal population declines in protected areas under illegal hunting pressure." *PloS one* 15, no. 8 (2020): e0227163. [Chicago style]

Avian Influenza in Indonesia

IDNS47 - HunterCatcher	Knowledge of AI as zoonotic In community, chicken die off, burned as thought it might be bird flu,	I: Have you ever experi death of the animals ar INNS47: Yes, chicken I: When was it? INNS47: I last year on I raining there were a lot I: What did you do on th INNS47: The communi
------------------------	--	--

		<p>as they say maybe bird become dark blue in the</p> <p>I: Do you or somebody</p> <p>INNS47: No.</p> <p>I: So only buried all of the</p> <p>INNS47: Yes, buried the</p> <p>34 year old male hunter</p>
IDNS46 CollectorVendor	Knows of bird flu	
IDNS44 Vendor	Knows~	
IDNS43 Vendor	Knows bird flu as zoonotic	
IDNS41 Vendor	Knows of bird flu (from chicken)	
IDNS40 Consumer	Bird flu from chicken and birds	
IDNS39 HunterCatcher	Knows~	
IDNS35 HunterCatcher	Bird flu from chicken	
IDNS33 HunterCatcher	knows~	
IDNS32 Vendor	Bird flu, knows zoonotic	
IDNS31 Vendor	Knows zoonotic	
IDNS29 Vendor	Bird flu zoonotic	
IDNS27 HunterCatcher	Bird flu zoonotic	INNS27: The owner has bird flu, many chickens
IDNS23 Vendor	zoonotic	
IDNS19 Vendor	From birds and chickens	
IDNS12 CollectorVendor	knows	
IDNS11 TransporterCollector	Zoonotic, issue in the area	
IDNS08 HunterCatcher	Avian influenza from TV	<p>I: Did you get some information</p> <p>INNS08: Yes, I do. I get television.</p> <p>I: What is the issue?</p>

		<p>INNS08: It is like avian influenza. I watched the</p> <p>I: Do you hear MEARS well?</p> <p>INNS08: Yes. I do. I ge</p> <p>I: Actually that's we wa because It is happenec need some prevention effect this country.</p> <p>INNS08: get informatio</p>
IDNS05 HunterCatcher	Avian influenza	
IDNS04 Huntercatcher	Avian influenza	
IDNS02f	Bird flu from avian	
IDNS01f	Influenza from chicken	
IDNS01 hunter	Heard of it, but it's not here	
IDWS02	knows	
IDWS01f	Bird flu zoonotic	
IDNS49	Heard of bird flu	
IDNS03f	Avian influenza from chickens	

From: Jonna Mazet <jkmazet@ucdavis.edu>
To: Karen Saylor <ksaylors@metabiota.com>
CC: William B. Karesh <karesh@ecohealthalliance.org>; outbreak-predict@ucdavis.edu
<outbreak-predict@ucdavis.edu>; Prime Mulembakani <pmulembakani@metabiota.com>
Sent: 5/17/2017 12:12:56 PM
Subject: Re: follow up on duck deaths

Thanks,
Jonna

On Wed, May 17, 2017 at 11:12 AM, Karen Saylor <ksaylors@metabiota.com> wrote:

Hi there.

A bit of follow-up from this morning's EB call:

Prime has talked to the FAO country team who is at the outbreak site and there is still no clear number of deaths among poultry. All he said is that 1 territory is affected in the Ituri province (along the Albert Lake) with more than 4,000 deaths of poultry (mainly ducks) over a 1-2 week period, and positive results from rapid test are showing H5. The team should be back to Kinshasa one of these days, depending on flight availability, and then PCR will be done at the Central Vet Lab and in Italy for confirmation.

Thanks,
Karen

Karen Saylor, Ph.D.
Vice President, Field Research| Metabiota
Deputy Director, PREDICT Behavioral Surveillance
425 California Street, San Francisco, CA 94104
Email: ksaylors@metabiota.com
Mobile: [\(+1\) 310 994 5770](tel:+13109945770)

CONFIDENTIALITY NOTICE: The information contained in this electronic mail (email) transmission (including attachments), is intended by Metabiota for the use of the named individual or entity to which it is addressed and may contain information that is privileged or otherwise confidential. It is not intended for transmission to, or receipt by, any individual or entity other than the named addressee except as otherwise expressly permitted in this email transmission. If you have received this email in error, please delete it without copying or forwarding it, and notify the sender of the error by email reply.

From: "William B. Karesh" <karesh@ecohealthalliance.org>
To: Karen Saylor <ksaylors@metabiota.com>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>, David Volking <djvolking@ucdavis.edu>, Eddy Rubin <erubin@metabiota.com>, Alice Latinne <latinne@ecohealthalliance.org>, Alison Andre <andre@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>
Subject: Re: Urgent request (CDI): PREDICT Community engagement
Sent: Wed, 24 May 2017 08:09:14 +0000

Hi Karen,
I met the CDI Director of Vet Services yesterday (Dr. Diarra Cisse) and mentioned PREDICT to her. She said that her office was not involved. Is there someone else that was identified to be the sign-off person or office in the agriculture sector?

Thanks,

BK

William B. Karesh, D.V.M
Executive Vice President for Health and Policy

EcoHealth Alliance
460 West 34th Street - 17th Floor
New York, NY 10001 USA

+1.212.380.4463 (direct)
+1.212.380.4465 (fax)
www.ecohealthalliance.org

President, OIE Working Group on Wildlife

Co-chair, IUCN Species Survival Commission - Wildlife Health Specialist Group

EPT Partners Liaison, USAID Emerging Pandemic Threats - PREDICT-2 Program

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On May 24, 2017, at 1:12 AM, Karen Saylor <ksaylors@metabiota.com> wrote:

Hi Jonna and Andrew.

I did speak briefly to Dr. Kalpy yesterday to let him know that there will be a management change coming within the PREDICT consortium, and I said that I believed that the IPCI relationship shouldn't be impacted. I didn't go into further details, as I knew there was an upcoming meeting with Zandra and she has more information directly from you two that she may be able to share.

Regarding the community engagement launch, Frantz has cancelled plans to travel there for the event, but we are awaiting a conversation with EHA about a transition plan before I can say more to the IPCI team about the scheduled June 1st launch. There are a number of coordination matters to be sorted, and we have scheduled a call with Peter and Billy later this week to discuss.

Karen

From: **REDACTED** on behalf of Jonna Mazet <jkmazet@ucdavis.edu>

UCDUSR0006115

Date: Tuesday, May 23, 2017 at 8:23 PM

To: Andrew Clements <aclements@usaid.gov>, Peter Daszak <daszak@ecohealthalliance.org>, Karen Saylor <ksaylors@metabiota.com>

Cc: David John Wolking <djwolking@ucdavis.edu>, "Pereira, Alisa (GH/HIDN)" <apereira@usaid.gov>, Shana Gillette <sgillette@usaid.gov>, Billy Karesh <karesh@ecohealthalliance.org>, Eddy Rubin <erubin@metabiota.com>, Alice Latinne <latinne@ecohealthalliance.org>, Alison Andre <andre@ecohealthalliance.org>

Subject: Re: Urgent request (CDI): PREDICT Community engagement

I'm just seeing the message now, but I believe that Karen has spoken with Kalpy to let him know that a transition is coming and that the IPC relationship should not be impacted.

She can advise on communication status but may not see this message until after OOB in Cdl, as that's in the middle of our night.

Jonna

On Tue, May 23, 2017 at 3:14 AM, Andrew Clements <aclements@usaid.gov> wrote:

Please see below and let us know ASAP if you will be able to touch base with the local PREDICT CDI team before OOB tomorrow (Abidjan time). Thanks!

----- Forwarded message -----

From: **Zandra Andre** <zandre@usaid.gov>

Date: Tue, May 23, 2017 at 12:09 PM

Subject: PREDICT Community engagement

To: Andrew Clements <aclements@usaid.gov>, sgillette@usaid.gov, Alisa Pereira <apereira@usaid.gov>

Cc: Regina Konan <nkoko@usaid.gov>, Marie Ahmed <mahmed@usaid.gov>

Hi All,

Thanks for the call yesterday to clarify the plans for moving forward with the PREDICT project. It is clear that you've got a good plan forward that maintains our progress/operations in country.

In continuing to move forward, we have a June 1st community engagement event for PREDICT in its final planning stages. Regina and I met with the project today in fact to go over the details of the event. Our folks on the ground here are under the impression that either Frantz or Karen are coming in for the event. We didn't disabuse them if this notion since as we discussed yesterday, PREDICT HQ will do so but this is a pressing issue.

We have a meeting with the PI here for PREDICT tomorrow to go over the hopefully penultimate version of the ceremony and it will be in our best interest to have everyone on the same page.

It would be greatly appreciated if someone from HQ could inform the project here about the impending plan for PREDICT by OOB tomorrow.

Please confirm if this is possible.

Thanks,

Zandra

Sent from my iPhone

--

Andrew Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development

UCDUSR0006116

Mobile phone: [1-571-345-4253](tel:1-571-345-4253)

E-mail: aclements@usaid.gov

For more information on USAID's Emerging Pandemic Threats program, see: <http://www.usaid.gov/ept2>

From: Elizabeth Leasure <ealeasure@ucdavis.edu>
To: Molly Turner <turner@ecohealthalliance.org>
Cc: Evelyn Luciano <luciano@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>, Predict inbox <predict@ucdavis.edu>
Sent: Fri, 28 Jul 2017 17:30:55 +0000
Subject: [predict] Confirmation needed regarding IDEEAL-like activity in Indonesia (PREDICT)

Hi Molly. USAID just asked us to confirm that the IDEEAL-like activity in Indonesia will continue until all funds for that activity are expended, even if it goes beyond September 2017 (meaning the funds are not all spent before the end of September and would need to carry over into Y4). I confirmed that this is the case (per my understanding of the situation), but please clarify if I misspoke so I can correct any misunderstandings. Apparently there was a perception in the field that the funds for this activity will expire at the end of September (which isn't the case), which is why this question has come up.

Thanks,
Liz

Elizabeth Leasure
One Health Institute
University of California, Davis
530-754-9034 (office)
REDACTED (cell)

From: 
To: Eddy Rubin <erubin@metabiota.com>, Nathan Wolfe <nwolfe@metabiota.com>, Brooke Watson <watson@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>
Cc: Dennis Carroll <dcarroll@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>
Subject: Call next Monday
Sent: Fri, 19 Jan 2018 18:29:38 +0000

Hi Eddy, Peter, Nathan and Brooke,

Dennis and Jonna would like to have a call with the core group next Monday regarding PMAC agenda, as we are getting closer to the date.

Are you available next Monday Jan 22 at 10am PT/1pm ET?

Thanks,



From: Brooke Watson <watson@ecohealthalliance.org>
Sent: Fri, 19 Jan 2018 13:41:43 -0500
Subject: Re: Call next Monday
To: [REDACTED]
Cc: Eddy Rubin <erubin@metabiota.com>, Nathan Wolfe <nwolfe@metabiota.com>, Peter Daszak <daszak@ecohealthalliance.org>, Dennis Carroll <dcarroll@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, Alison Andre <andre@ecohealthalliance.org>

Hi all,
I could be available at that time - ccing Alison to help with Peter's scheduling.

Best,

Brooke

On Fri, Jan 19, 2018 at 1:29 PM, [REDACTED] wrote:

Hi Eddy, Peter, Nathan and Brooke,

Dennis and Jonna would like to have a call with the core group next Monday regarding PMAC agenda, as we are getting closer to the date.

Are you available next Monday Jan 22 at 10am PT/1pm ET?

Thanks,

[REDACTED]

--

Brooke Watson, MSc
Research Scientist

EcoHealth Alliance
460 West 34th Street – 17th floor
New York, NY 10001

1.212.380.4497 (direct)
[REDACTED] (mobile)
1.212.380.4465 (fax)
www.ecohealthalliance.org

*EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems.
With this science we develop solutions that promote conservation and prevent pandemics.*

From: Dennis Carroll <dcarroll@usaid.gov>
Sent: Sat, 20 Jan 2018 19:18:22 -0500
Subject: Re: Call next Monday
To: Eddy Rubin <[REDACTED]>
Cc: Alison Andre <andre@ecohealthalliance.org>, Brooke Watson <watson@ecohealthalliance.org>, [REDACTED]
[REDACTED], Nathan Wolfe <nwolfe@metabiota.com>, Peter Daszak <daszak@ecohealthalliance.org>, Jonna Mazet <jkmazet@ucdavis.edu>

Different topic. As you know our government has shut down - which for the moment has me furloughed. While discussions are still underway there is a strong chance that come PMAC we will remain closed and in principle I will be grounded in DC. I took a precautionary step on Friday to put in for annual leave the week of PMAC and if necessary I will cover my own costs to Bangkok. This is to say - come hell or high water I will be there
Onwards

d

Dr Dennis Carroll
Director, Emerging Threats Program
U.S. Agency for International Development
Office: (202) 712-5009
Mobile: [REDACTED]

On Jan 20, 2018, at 3:28 AM, Eddy Rubin <[REDACTED]> wrote:

I unfortunately am on travel and will be passing through airports /customs that Monday 2:00 ET so though I will try I suspect will not succeed in getting on the call. If by chance Monday does not work my Wednesday and Thursday are completely open.
Eddy

On Fri, Jan 19, 2018 at 7:00 PM, Dennis Carroll <dcarroll@usaid.gov> wrote:

2:00 works for me

d

On Fri, Jan 19, 2018 at 1:57 PM, Alison Andre <andre@ecohealthalliance.org> wrote:

Hi All,

Peter has a meeting from 12:00-2:00 but would be available at 2:00pm ET/11:00am PT or 3:00pm ET/12:00pm PT.

Best,
Alison

From: Brooke Watson <watson@ecohealthalliance.org>
Date: Friday, January 19, 2018 at 1:41 PM
To: [REDACTED]
Cc: Eddy Rubin <erubin@metabiota.com>, Nathan Wolfe <nwolfe@metabiota.com>, Peter Daszak <daszak@ecohealthalliance.org>, Dennis Carroll <dcarroll@usaid.gov>, Jonna Mazet <jkmazet@ucdavis.edu>, Alison Andre <andre@ecohealthalliance.org>
Subject: Re: Call next Monday

Hi all,
I could be available at that time - ccing Alison to help with Peter's scheduling.

Best,

Brooke

On Fri, Jan 19, 2018 at 1:29 PM, [REDACTED] > wrote:

Hi Eddy, Peter, Nathan and Brooke,

Dennis and Jonna would like to have a call with the core group next Monday regarding PMAC agenda, as we are getting closer to the date.

Are you available next Monday Jan 22 at 10am PT/1pm ET?

Thanks,

[REDACTED]

--

Brooke Watson, MSc

Research Scientist

EcoHealth Alliance

[460 West 34th Street – 17th floor](#)

[New York, NY 10001](#)

[1.212.380.4497](tel:12123804497) (direct)

[REDACTED] (mobile)

[1.212.380.4465](tel:12123804465) (fax)

www.ecohealthalliance.org

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

--

Dr. Dennis Carroll

Director, Emerging Threats Program

Bureau for Global Health

U.S. Agency for International Development

Office: 202-712-5009

Mobile: [REDACTED]

From: Andrew Clements <aclements@usaid.gov>
Sent: Fri, 23 Feb 2018 05:42:49 -0800
Subject: Re: GVP UC Davis press release
To: **REDACTED**>
Cc: Jonna Mazet <jkmazet@ucdavis.edu>

Thanks!

Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov

On Feb 22, 2018, at 11:59 PM, **REDACTED**> wrote:

Hi Andrew,

Following the UC Davis press release, the GVP paper was published in *Science* today.
<http://science.sciencemag.org/content/359/6378/872>

Best wishes,

REDACTED

REDACTED
One Health Institute
School of Veterinary Medicine
University of California, Davis

From: Andrew Clements [<mailto:aclements@usaid.gov>]
Sent: Thursday, February 22, 2018 11:17 AM
To: **REDACTED**
Cc: Jonna Mazet <jkmazet@ucdavis.edu>
Subject: Re: GVP UC Davis press release

Thanks, **REDACTED**

Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov

On Feb 22, 2018, at 7:32 PM **REDACTED**> wrote:

Dear Andrew,

It is a pleasure to be in touch with you. I would like to share the press release for the Global Virome Project *Science* paper, written by the UC Davis press team. It is embargoed until 11am PT today.

Best wishes,

REDACTED

REDACTED
One Health Institute

<UCDavis_GVP_finalpr.docx>

Sent: Tue, 1 May 2018 15:34:49 -0700
Subject: Re: For JM review: PREDICT-2 Equipment Request Year 4 No. 4
From: Jonna Mazet <jkmazet@ucdavis.edu>
To: Elizabeth Leasure <ealeasure@ucdavis.edu>
Cc: "predict@ucdavis.edu" <predict@ucdavis.edu>, Kevin N Gonzalez <kngonzalez@ucdavis.edu>, "Kevin J. Olival" <olival@ecohealthalliance.org>, Peter Daszak <daszak@ecohealthalliance.org>, Corina Grigorescu Monagin <cgmonagin@ucdavis.edu>

Approved, but please double check that the items can be delivered in time to be used in current and final Predict testing, as time is now short.

J

On Mon, Apr 30, 2018 at 2:16 PM, Elizabeth Leasure <ealeasure@ucdavis.edu> wrote:

Hi Jonna. Please find attached an equipment request for CDI, Indonesia, and Senegal for your review/approval. Please note that the PREDICT headers and footers added to the vendor quotes will be removed before submission to Andrew. Let me know if you have any questions.

Thanks!

Liz

Elizabeth Leasure

Financial Operations Manager

One Health Institute

REDACTED (cell)

530-754-9034 (office)

Skype: ealeasure

From: Andrew Clements <aclements@usaid.gov>
To: Jonna Mazet <jkmazet@ucdavis.edu>
Sent: 6/8/2018 3:13:05 AM
Subject: Re: UPDATE PREDICT DRC EVD outbreak 7 June 2018

Thanks

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jun 8, 2018, at 6:15 AM, Jonna Mazet <jkmazet@ucdavis.edu> wrote:

Today's update,
Jonna

--

You received this message because you are subscribed to the Google Groups "PREDICTMGT" group.
To unsubscribe from this group and stop receiving emails from it, send an email to predictmgt+unsubscribe@usaid.gov.
To post to this group, send email to predictmgt@usaid.gov.
To view this discussion on the web visit https://groups.google.com/a/usaid.gov/d/msgid/predictmgt/CAO5tDrES2ROYjC9SKFizQ0ibbd_kPm%3DX-a9Si%3DLjZS8Ofa%2BPCQ%40mail.gmail.com.

From: Andrew Clements <aclements@usaid.gov>
To: William B. Karesh <karesh@ecohealthalliance.org>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; PREDICT-oubreak <predict-outbreak@ucdavis.edu>
Sent: 7/27/2018 5:34:19 AM
Subject: Re: Ebola - Cameroon/Gabon

Thanks for the heads up.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Jul 27, 2018, at 7:52 AM, William B. Karesh <karesh@ecohealthalliance.org> wrote:

on the local French Radio news this morning - suspicion of an Ebola outbreak along the Cameroon-Gabon border.

BK

William B. Karesh, D.V.M
Executive Vice President for Health and Policy

EcoHealth Alliance
460 West 34th Street - 17th Floor
New York, NY 10001 USA

+1.212.380.4463 (direct)
+1.212.380.4465 (fax)
www.ecohealthalliance.org

President, OIE Working Group on Wildlife

Co-chair, IUCN Species Survival Commission - Wildlife Health Specialist Group

EPT Partners Liaison, USAID Emerging Pandemic Threats - PREDICT-2 Program

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

From: Cara Chrisman <cchrisman@usaid.gov>
Sent: Wed, 3 Oct 2018 09:37:56 -0400
Subject: ELSI Contracts
To: Jonna Mazet <jkmazet@ucdavis.edu>
Cc: Dennis Carroll <dcarroll@usaid.gov>

REDACTED

Hi Jonna & **REDACTED**

I keep meaning to follow up on the conversation we had with Sam Halabi a couple weeks ago. He mentioned his contract and asked us for an update on how things were progressing and if we needed to follow up on it.

Apologies, but I have to admit I'm a little behind on the status and not remembering if there's anything we need to discuss related to extending him or Gian Luca. Is there anything that we need to do on our end related to that? Please let me/us know if there's anything we can do to assist.

Thanks,
Cara

Cara J. Chrisman, PhD
Senior Infectious Diseases Technical Advisor
U.S. Agency for International Development (USAID) Contractor
Bureau for Global Health, Office of Infectious Disease, Emerging Threats Division
2100 Crystal Drive, CP3-8091A, Arlington, VA 22202
Desk: (571) 551-7413

Cell: **REDACTED**
E-mail: cchrisman@usaid.gov

GHSI-III - Social Solutions International, Inc. prime contractor

From: Cara Chrisman <cchrisman@usaid.gov>
Sent: Wed, 23 Jan 2019 14:07:45 -0500
To: David J Wolking <djwolking@ucdavis.edu>
Cc: "Clements, Andrew (GH/HIDN)" <AClements@usaid.gov>, Lindsay Parish <lparish@usaid.gov>, Alisa Pereira Emerging Threats Division <apereira@usaid.gov>, PREDICTMGT <predictmgt@usaid.gov>, "predict@ucdavis.edu" <predict@ucdavis.edu>
Subject: [predict] Re: Save the date: PREDICT semi-annual consortium meeting (April 30 - May 1, 2019) Vancouver, Canada

Hi David,
Thanks for the head's up, I've added it to our team calendar and we will flag for Andrew when he's back online.

Best,
Cara

Cara J. Chrisman, PhD
Senior Infectious Diseases Technical Advisor
U.S. Agency for International Development (USAID) Contractor
Bureau for Global Health, Office of Infectious Disease, Emerging Threats Division
2100 Crystal Drive, CP3-8091A, Arlington, VA 22202
Desk: (571) 551-7413

Cell: **REDACTED**
E-mail: cchrisman@usaid.gov

GHSI-III - Social Solutions International, Inc. prime contractor

On Wed, Jan 23, 2019 at 12:44 PM David J Wolking <djwolking@ucdavis.edu> wrote:

Hi PREDICT Management Team,
We just wanted to follow-up from our New York City meeting with an update on our next PREDICT semi-annual meeting. This event will be held April 30 to May 1, 2019 in Vancouver, Canada and will be hosted by our Metabiota partners.

Please save the date and let us know if you have any questions or concerns.

David

From: Andrew Clements <aclements@usaid.gov>
To: David J Wolking <djwolking@ucdavis.edu>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; William Karesh
<Karesh@ecohealthalliance.org>; Patrick Dawson <dawson@ecohealthalliance.org>; Christine
Kreuder Johnson <ckjohnson@ucdavis.edu>; PREDICTMGT
<predictmgt@usaid.gov>; predict@ucdavis.edu <predict@ucdavis.edu>
Sent: 3/14/2019 9:30:56 AM
Subject: Re: PPT Template for FAO MERS update

Received. Thanks, David.

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

On Mar 14, 2019, at 5:07 PM, David J Wolking <djwolking@ucdavis.edu> wrote:

Hi Andrew,

Please find attached the requested MERS template with P2 information.

Let us know if you have any questions,

David

On Thu, Feb 28, 2019 at 7:50 AM Andrew Clements <aclements@usaid.gov> wrote:
Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

*Andrew P. Clements, Ph.D.
Senior Scientific Advisor
Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health
U.S. Agency for International Development
Mobile phone: 1-571-345-4253
Email: aclements@usaid.gov*

From: William B. Karesh <karesh@ecohealthalliance.org>
To: David Wolking <djwolking@ucdavis.edu>
CC: Jonna Mazet <jkmazet@ucdavis.edu>; Patrick Dawson
<dawson@ecohealthalliance.org>; Chris Johnson
<ckjohnson@ucdavis.edu>; predict@ucdavis.edu <predict@ucdavis.edu>
Sent: 3/15/2019 12:04:20 PM
Subject: Re: PPT Template for FAO MERS update

Thanks David.

Nice work.

BK

William B. Karesh, D.V.M
Executive Vice President for Health and Policy

EcoHealth Alliance
460 West 34th Street - 17th Floor
New York, NY 10001 USA

+1.212.380.4463 (direct)
+1.212.380.4465 (fax)
www.ecohealthalliance.org

President, OIE Working Group on Wildlife

Co-chair, IUCN Species Survival Commission - Wildlife Health Specialist Group

EPT Partners Liaison, USAID Emerging Pandemic Threats - PREDICT-2 Program

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that promote conservation and prevent pandemics.

On Mar 14, 2019, at 12:07 PM, David J Wolking <djwolking@ucdavis.edu> wrote:

Hi Andrew,

Please find attached the requested MERS template with P2 information.

Let us know if you have any questions,

David

On Thu, Feb 28, 2019 at 7:50 AM Andrew Clements <aclements@usaid.gov> wrote:
Hi all,

Would you be able to fill in information in the attached slides by next Friday (March 8)? I'm trying to see where we are with MERS work across the P2 and FAO portfolios. (We will be meeting with FAO the

following week and have asked for them to provide the same information.)

Thanks in advance.

Andrew

Andrew P. Clements, Ph.D.

Senior Scientific Advisor

Emerging Threats Division/Office of Infectious Diseases/Bureau for Global Health

U.S. Agency for International Development

Mobile phone: 1-571-345-4253

Email: aclements@usaid.gov

From: Jon Epstein <epstein@ecohealthalliance.org>
To: Terra Kelly <trkelly@ucdavis.edu>
CC: Woutrina A Smith <wasmith@ucdavis.edu>; Oladele Ogunseitan <oladele.ogunseitan@uci.edu>; alexandra zuber <alexandrazuber@atahealthstrategies.com>; Judy Khanyola <jkhanyola@icapkenya.org>; McNeil, Carrie S. <csmcnei@sandia.gov>; Jutta Lehmer <JLehmer@salud.unm.edu>; Omar Romero-hernandez <oromero@haas.berkeley.edu>; Federico Castillo <f.castillo@berkeley.edu>; Ndola PRATA <ndola@berkeley.edu>; David John Wolking <djwolking@ucdavis.edu>; Rabkin, Miriam <mr84@cumc.columbia.edu>; Jaber Amine Belkhiria <jabelkhiria@ucdavis.edu>; Corina Grigorescu Monagin <cgmonagin@ucdavis.edu>; Kirsten Gilardi <kvgilardi@ucdavis.edu>; Brian H Bird <bhbird@ucdavis.edu>; Tracey Goldstein <tgoldstein@ucdavis.edu>; onehealthnextgen Sympa List <onehealthnextgen@ucdavis.edu>
Sent: 10/7/2019 8:20:38 AM
Subject: [onehealthnextgen] Re: OHW-NG OHCEA Working Group

Hi Terra,

The 16th and 17th don't work for me - I'm going to be in India. The following week is pretty clear in the mornings, so my preference would be for the week of the 21st.

Cheers,
Jon

On Sun, Oct 6, 2019 at 11:47 PM Terra Kelly <trkelly@ucdavis.edu> wrote:
Hi All and greetings from Tanzania!

I look forward to working with all of you! It would be wonderful if we could schedule a meeting for the latter part of next week or the following week to touch base before we are scheduled to have our initial discussions with OHCEA. Given the different time zones for our group, we will shoot for a meeting in the morning US time/evening East Africa time. Could each of you reach out to me and let me know if there are slots that **do not** work for you for a meeting on Wed and Thurs, Oct. 16th and 17th and the week of October 21st (morning US time/evening East Africa time)?

In the meantime, I have pulled together a folder with resources on OHW and OHCEA that I have been able to compile from various online sources. Here is a link to that folder: <https://ucdavis.box.com/s/66li3i9s0gyu1en3k17o22ci30us98ky>. Please feel free to add any resources that you come across.

Thank you!
Terra

On Fri, Oct 4, 2019 at 10:27 AM Woutrina A Smith <wasmith@ucdavis.edu> wrote:
Hi Terra,

To make it easier for you, in the main email line I've added folks from our core OHW-NG consortium organizations that are listed as lead organization reps for the OHW-NG OHCEA Working Group in our draft Management Structure table. I've only listed Judy from ICAP and Jon from EHA for now, as I wasn't sure whether and when messaging with internal team members has or will happen to get the additional folks involved who are listed in the management structure table from their groups, but it doesn't have to be right away and they can let you know when to broaden the email list. I've added Ndola Prata who is our gender lens lead so she can participate at least initially.

Please feel free to reach out to this group to coordinate a call in the next week or two where you can discuss what you want to learn from the OHCEA organization, what we already know based on publicly available documents, what should be proposed

as part of our initial scope of work activities to initially support the networks over the next 6 months, and what beyond that may be possible as additional funding becomes available in Year 1. For call timing, I think Judy is based in Nairobi so trying for a morning meeting slot might be helpful given time zones. I look forward to working with all of you!

Best wishes, Woutrina

Woutrina Smith, DVM, MPVM, PhD
Professor of Infectious Disease Epidemiology
Associate Director, UCD One Health Institute
Technical Director, USAID One Health Workforce - Next Gen
Co-Director, UCGHI Planetary Health Center of Expertise
School of Veterinary Medicine, UC Davis
1089 Veterinary Medicine Dr
Davis, CA 95616 USA
wasmith@ucdavis.edu
+1 530 219-1369

--

Jonathan H. Epstein DVM, MPH, PhD

Vice President for Science and Outreach

EcoHealth Alliance
460 West 34th Street, Ste. 1701

New York, NY 10001

1.212.380.4467 (direct)
1.917.385.5315 (mobile)

web: ecohealthalliance.org

Twitter: [@epsteinjon](https://twitter.com/epsteinjon)

EcoHealth Alliance leads cutting-edge scientific research into the critical connections between human and wildlife health and delicate ecosystems. With this science, we develop solutions that prevent pandemics and promote conservation.

From: Peter Daszak <daszak@ecohealthalliance.org>
To: Woutrina A Smith <wasmith@ucdavis.edu>
CC: onehealthnextgen Sympa List <onehealthnextgen@ucdavis.edu>; Alison Andre <andre@ecohealthalliance.org>
Sent: 12/12/2019 2:41:12 PM
Subject: [onehealthnextgen] RE: OHW-NG work planning and budget tasks

Thanks for the details Woutrina,

All this makes sense, but we're supposed to get comments back to our objective leads with details of EHA's proposed work and staffing. I think I should hold off on that until after our call. I'll let the objective leads know that they'll get EHA's comment by COB Friday.

Look forward to talking.

Cheers,

Peter

Peter Daszak
President

EcoHealth Alliance
460 West 34th Street – 17th Floor
New York, NY 10001

Tel. +1 212-380-4474
Website: www.ecohealthalliance.org
Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance leads cutting-edge research into the critical connections between human and wildlife health and delicate ecosystems. With this science we develop solutions that prevent pandemics and promote conservation.

From: Woutrina A Smith [mailto:wasmith@ucdavis.edu]
Sent: Monday, December 9, 2019 4:27 PM
To: Peter Daszak
Cc: onehealthnextgen Sympa List; Alison Andre
Subject: OHW-NG work planning and budget tasks

Hi Peter,

Thanks very much for sending Jon to represent EHA at the AfrOHUN launch meetings last week in Entebbe. I think it made a big impression to have many of our key global consortium partners represented in person. I'm also glad we have now linked Kevin in with SEAOHUN to dig in to their proposed work plan ideas and to see how EHA can help invigorate the MyOHUN, INDOHUN, and THOHUN programs. I see we have a call scheduled with you for this Friday, so have a read over the email below and we can discuss as needed on our call.

Now that we have completed the SEAOHUN as well as AfrOHUN launch meetings, the activities that we need to make progress on over the next couple of weeks involve the three big ticket items below:

I. Global consortium partner Year 1 scope of work and budget drafting (EHA-specific): With the 27% Year 1 reduction in target budgets per USAID, EHA has up to \$854,629 to work with for Oct 1, 2019 - Sept 30, 2020 costs. The tasks and

deliverables for you associated with these EHA funds beyond the current launch and work planning tasks that are underway, include (note e and h would be great to have EHA lead):

- 1) Participation in Obj 1, 2 and 3 Working Group calls, as well as AfrOHUN and SEAOHUN Working Group calls, as relevant for EHA interests, activity implementation, and reporting activities;
- 2) Provide EHA personnel time and travel funds to significantly contribute to deliverables associated with:
 - a. Objective 1, Activity 1.1.1. Curate and update existing One Health competencies, learning objectives, evaluation tools, and training materials.
 - b. Objective 1, Activity 1.1.2. Develop new prioritized One Health curricula to complement existing offerings.
 - c. Objective 1, Activity 1.2.1. Establish an open One Health Academy online structure to house existing and new One Health curricula.
 - d. Activity 1.2.2. Launch a regional community of practice for One Health faculty.
 - *e. Objective 2, Activity 2.3.1. Review existing data and fill gaps to map national and regional One Health coordinating bodies, with a special focus on: mapping coordination of OH workforce activities; identifying countries/regions with the strongest multisectoral partnerships for OHW planning and management and distilling best practices; and identifying countries/regions with opportunities to enhance OHW coordination.
 - *f. Objective 2, Activity 2.3.2. Engage with One Health coordinating bodies to identify regions/countries in which university network needs and priorities align with the need to enhance OHW coordination; share relevant best practices and tools.
 - g. Objective 3, Activity 3.2.1. Create an organizational sustainability community of practice to share best practices, discuss challenges, and build competencies across university networks.
- 4) Provide an EHA part time global consortium country liaison for Malaysia, Indonesia, and Thailand who can work with the secretariat-funded in country teams, to ensure appropriate implementation of activities and reporting tasks at the country level; and
- 5) Provide EHA technical expertise to the Malaysia, Indonesia, and Thailand country teams as needed during implementation of training activities to ensure high quality experiences for trainees.
- 6) Provide EHA personnel to work closely with the OHW-NG leads in order to support implementation of the Gender Action Plan as well as the Monitoring, Evaluation and Learning Plan in SEAOHUN and AfrOHUN regions.

I would expect your costs to mainly include your personnel time, travel, materials or costs associated with the activities above, and organizational overhead. The Secretariats take care of covering the in-country team technical activity costs (MyOHUN \$300,000; INDOHUN \$450,000; THOHUN \$350,000, for activities conducted mainly in the Feb-Sept 2020 window and including funding the country teams).

I realize we are hoping to bring additional countries into the OHW-NG portfolio, and as we have updates on these opportunities we will certainly reach out to explore whether EHA wants to provide a country liaison to help foster those program, but that is not expected to be in Year 1.

II. Global work plan Year 1 Objective activity and budget mapping and drafting - this goes into the main OHW-NG Work Plan document using the same format that the countries are using to develop their proposed activities. So you should map out the tasks associated with the proposed Obj 2 e and h activities listed above, and provide text for each activity description, the activity details, and the budget details per the previously shared work plan template. For budget details in this first draft, you can simply mention the types of costs involved if you don't know exact numbers yet. So for example you might list 'global consortium working group effort' to represent the time that other global consortium partners will dedicate to participating in working group calls and activities, as EHA is not responsible for covering the time and travel of other global consortium team members. You might list at least ballpark costs that you are aware of that go along with the activity outside global consortium team effort, such as in-country workshops if needed. The budget numbers will not go into the final workplan text document to USAID, as they will be captured in a separate set of budget excel and word justification docs, but we will have to show how costs are attached to each activity, so we need to start making the linkages for now in the main work plan document to help with alignment.

III. Work plan appendix drafting - EHA does not need to lead the drafting of the appendices but we will share drafts for your review and refinement.

We will have time in early January to further align, refine, and finalize documents for workplan compilation and submission in mid-January, so the deadlines in December are meant to share the working documents to see how things are coming together in order to identify gaps and to give people time off for the holidays while still positioning us to make the mid-January deadlines.

Best wishes, Woutrina

Woutrina Smith, DVM, MPVM, PhD
Professor of Infectious Disease Epidemiology
Associate Director, UCD One Health Institute
Technical Director, USAID One Health Workforce - Next Gen
Co-Director, UCGHI Planetary Health Center of Expertise
School of Veterinary Medicine, UC Davis
1089 Veterinary Medicine Dr
Davis, CA 95616 USA
wasmith@ucdavis.edu
+1 530 219-1369

From: "Sepulveda, Jaime" <Jaime.Sepulveda@ucsf.edu>
To: Dean Jamison <djamison@uw.edu>, "Feachem, Richard" <Richard.Feachem@ucsf.edu>, "Boyle, Colin" <Colin.Boyle@ucsf.edu>, "Reid, Michael" <Michael.Reid@ucsf.edu>, "Rutherford, George" <George.Rutherford@ucsf.edu>, Stefano Bertozzi <sbertozzi@berkeley.edu>, "Ben Oppenheim" <boppenheim@metabiota.com>, Nicole Stephenson <nstephenson@metabiota.com>, Nita Madhav <nmadhav@metabiota.com>, "Fewer, Sara" <Sara.Fewer@ucsf.edu>, "Beyeler, Naomi" <Naomi.Beyeler@ucsf.edu>, Jaclyn Guerrero <jguerrero@metabiota.com>, Nathan Wolfe <nw@nathanwolfe.net>, "Mazet, Jonna" <jkmazet@ucdavis.edu>, Eran Bendavid <ebd@stanford.edu>, Michelle Barry <mbarry11@stanford.edu>, Eric Goosby **REDACTED** "Gosling, Roland (Roly)" <Roly.Gosling@ucsf.edu>, Haile Debas <hdebas@globalhealth.ucsf.edu>
Subject: Re: Coronavirus lockdowns will starve people in low-income countries - The Washington Post.pdf
Sent: Sun, 3 May 2020 22:31:12 +0000

Very nice article, by another brilliant member of the Jamison family. Congratulations!

Jaime Sepulveda, MD, MPH, MSc, DrSc
Haile T. Debas Distinguished Professor of Global Health
Executive Director, Institute for Global Health Sciences

University of California, San Francisco
Mission Hall, Box 1224
550 16th Street, Third Floor
San Francisco, CA 94158
tel: 415.476.5489 | 415.476.5524
Jaime.Sepulveda@ucsf.edu

Administrative Assistant:

Lisette Irizarry
Sr. Executive Assistant to Dr. Jaime Sepulveda
Institute for Global Health Sciences
550 16th Street, 3rd floor, Box 1224
San Francisco, CA 94158
Tel. 415-476-5489 | lisette.irizarry@ucsf.edu



Globalhealthsciences.ucsf.edu | UCSF.edu | Facebook.com/GlobalHealthatUCSF | Twitter.com/GHSatUCSF

CONFIDENTIALITY NOTICE - This communication and any attachments may contain confidential and privileged information for the use of the designated recipient/s named above. Distribution, reproduction or any other use of this transmission by any party other than the intended recipient/s is prohibited.

From: Dean Jamison <djamison@uw.edu>
Date: Sunday, May 3, 2020 at 10:41 AM
To: Richard Feachem <Richard.Feachem@ucsf.edu>, Colin Boyle <Colin.Boyle@ucsf.edu>, "Sepulveda, Jaime" <Jaime.Sepulveda@ucsf.edu>, "Reid, Michael" <Michael.Reid@ucsf.edu>, George Rutherford <George.Rutherford@ucsf.edu>, Stefano Bertozzi <sbertozzi@berkeley.edu>, Ben Oppenheim <boppenheim@metabiota.com>, Nicole Stephenson <nstephenson@metabiota.com>, Nita Madhav <nmadhav@metabiota.com>, "Fewer, Sara" <Sara.Fewer@ucsf.edu>, "Beyeler, Naomi" <Naomi.Beyeler@ucsf.edu>, Jaclyn Guerrero <jguerrero@metabiota.com>, Nathan Wolfe <nw@nathanwolfe.net>, Jonna Mazet <jkmazet@ucdavis.edu>, Eran Bendavid <ebd@stanford.edu>, Michele Barry <mbarry11@stanford.edu>, Eric Goosby **REDACTED** "Gosling, Roland (Roly)" <Roly.Gosling@ucsf.edu>, Haile Debas <hdebas@globalhealth.ucsf.edu>
Subject: Coronavirus lockdowns will starve people in low-income countries - The Washington Post.pdf

Dear Bay area colleagues

This Op-Ed from last Sunday's Washington Post deals with a subject that I think has been concerning all of us — what will happen of COVID accelerates beyond its current geographical concentration? I'd like to think I find it good beyond it's having been written by

my son...

Best

Dean

From: Oladele Ogunseitan <oladele.ogunseitan@uci.edu>
Subject: OHW-NG Training & Empowerment: Agenda for Meeting on Friday 22 May 2020 at 10am (Pacific Time)
Sent: Wed, 20 May 2020 23:10:57 -0700
Cc: onehealthnextgen Sympa List <onehealthnextgen@ucdavis.edu>
To: Christine Kreuder Johnson <ckjohnson@ucdavis.edu>, David John Wolking <djwolking@ucdavis.edu>, Terra Kelly <trkelly@ucdavis.edu>, Tracey Goldstein <tgoldstein@ucdavis.edu>, Michael S Wilkes <mswilkes@ucdavis.edu>, "Martin H. Smith" <mhsmith@ucdavis.edu>, alexandra zuber <alexandrazuber@atahealthstrategies.com>, Catherine Machalaba <machalaba@ecohealthalliance.org>, Bruce Baird Struminger <BStruminger@salud.unm.edu>, "McNeil, Carrie S." <csmcnei@sandia.gov>, Jutta Lehmer <JLehmer@salud.unm.edu>, Ndola PRATA <ndola@berkeley.edu>, "Rabkin, Miriam" <mr84@cumc.columbia.edu>, "Getachew B. Kassa" <gk2353@cumc.columbia.edu>, Kirsten Gilardi <kgilardi@ucdavis.edu>, Jonna Mazet <jkmazet@ucdavis.edu>, Jennifer K Lane <jklane@ucdavis.edu>, Emily Hagan <hagan@ecohealthalliance.org>, Woutrina A Smith <wasmith@ucdavis.edu>, Amy J Armistad <AArmistad@salud.unm.edu>, Constance Were <cwere@salud.unm.edu>, "th2604@columbia.edu" <th2604@columbia.edu>, Jon Epstein <epstein@ecohealthalliance.org>, "Tiffany G. Harris" <th2604@cumc.columbia.edu>, Alexandra Zuber <[REDACTED]>, Omar Romero-hernandez <oromero@haas.berkeley.edu>, Federico Castillo <f.castillo@berkeley.edu>, Emmanuel Okello <eokello@ucdavis.edu>, Jaber Belkhiria <jabelkhiria@ucdavis.edu>
[One Health Competency Framework DRAFT V1 5.8.2020.docx](#)
[OH Competency Framework.pptx](#)
[Rwanda One Health Implementation.pdf](#)
[OHW-NG-Training & Empowerment 22 May 2020.pdf](#)

Greetings,

I have attached to this email the agenda for our meeting on Friday 22 May at 10:00am (Pacific Time).

For your review before the meeting, I attach the One Health Competency Framework document shared by Getch as part of Objective-2 activities that informs the next stage of our training curation project. A PowerPoint file that will guide our discussion is also attached.

As we review ideas for competency-based One Health training for the next generation workforce, implementation strategies is increasingly recognized as a knowledge gap. I attach to this email, an article describing a case study in Rwanda. Michael Wilkes is a co-author of the article.

As always, all comments, questions, and suggestions are welcome.

Thanks, and best wishes for staying healthy and well.

-Dele

Dele Ogunseitan
University of California Presidential Chair
Professor of Population Health & Disease Prevention
Irvine CA 92697

www.linkedin.com/in/deleogunseitan <<http://www.linkedin.com/in/deleogunseitan>>
<https://zoom.us/my/deleogunseitan> <<https://zoom.us/my/deleogunseitan>>

OHW-NG: Training & Empowerment

Update

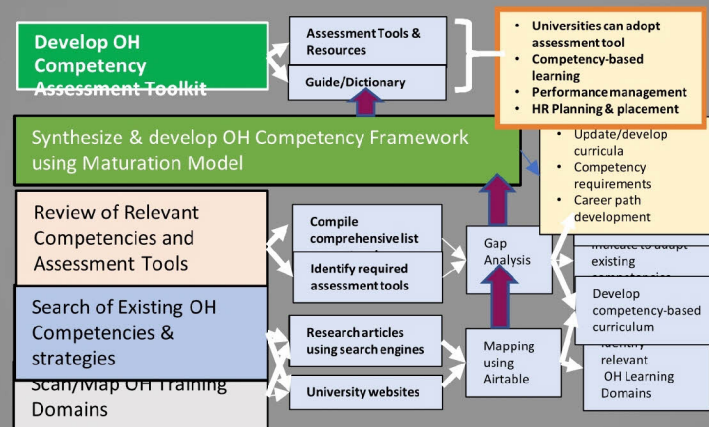
One Health Competency Framework Development

OH Competency Assessment Toolkit



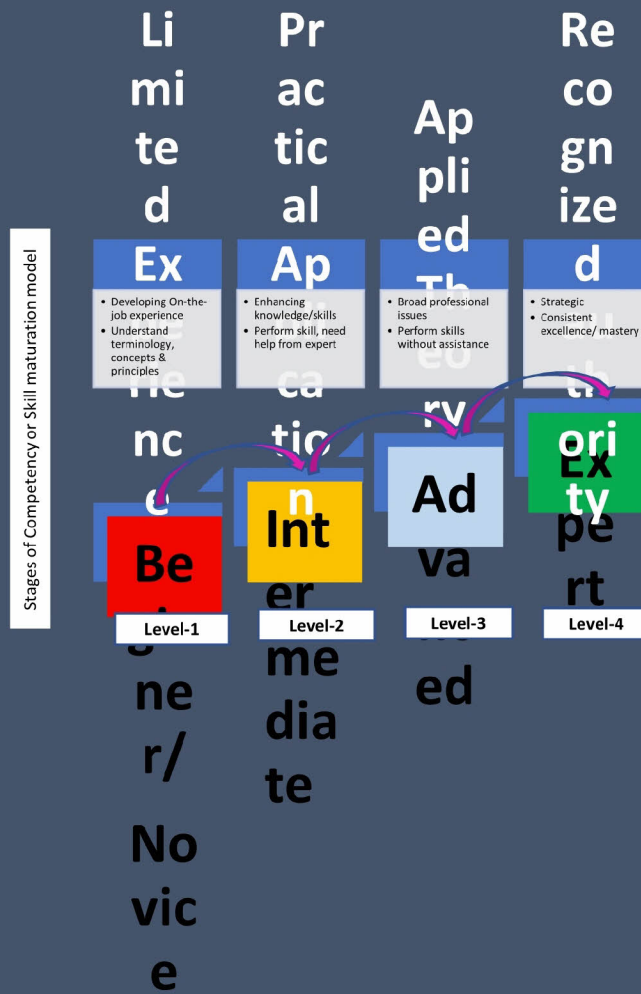
ICAP

Empowering Health
Columbia University
Mailman School
of Public Health



Domain	Competency	Subcompetency
Outbreak/ Emergency Management and Response Domain Code= OIR	OIR 1.00 Review investigation and outbreak management experiences for applying best practices	OIR 1.01 Preparation for outbreak/ emergency events
		OIR 1.02 Emergency response training
		OIR 1.03 Identification of key partners
		OIR 1.04 Execution of agreements with partners
		OIR 1.05 Outbreak/Emergency preparedness and response networks
	OIR 2.00 Use a systematic approach for outbreak response	2.01 Monitoring for a potential outbreak
		2.02 Determining cause of an outbreak
		2.03 Establish a case definition
		2.04 Collecting and testing samples
		2.05 Determining need for outbreak/emergency notification
	OIR 3.00 Respond to outbreaks or emergency events: Use systematic approach for outbreak response	OIR 3.01 Situational briefing
		OIR 3.02 Surge capacity
		OIR 3.07 Outbreak/Emergency communication
	OIR 4.00 Establish outbreak recovery measures : Use systematic approach to recover from outbreak and return to SOP	OIR 4.01 Return to normal operating procedures
		OIR 4.02 Obtain and incorporate stakeholder feedback
		OIR 4.03 Obtain and incorporate stakeholder feedback

Domain	Competency	Subcompetency
Gender, Domain Code = GEN	GEN 1. Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)	Gen 1.0: Gender Awareness: Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)
	GEN 2. Evaluate how gender intersects with emerging pandemic threats	Gen 2.0: Gender Analysis: Evaluate how gender intersects with emerging pandemic threats
	GEN 3. Develop gender sensitive response plans for emerging pandemic threats	Gen 3.1: Gender Healthcare: Provide gender-sensitive interdisciplinary healthcare for EPT
		Gen 3.2: Gender Healthcare Education: Integrate gender and EPT into interdisciplinary healthcare education
		Gen 3.3: Gender Program: Develop gender-sensitive programming for EPT
		Gen 3.4: Gender Policy: Develop gender-sensitive policies and frameworks for the health sector and EPT



Competency: OIR 1.00 Preparation for outbreaks or emergency events: Review investigation and outbreak management experiences for applying best Practices

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT
OIR 1.01 Preparation for outbreak/ emergency events	Explains the outbreak response plan and sustainability of Operations Plan	Assists with development and implementation of the outbreak response plan and sustainability of Operations Plan	Manages development and implementation of the outbreak response plan	Oversees outbreak response plan, including implementation of the sustainability of Operations Plan with external partners
OIR 1.02 Emergency response training	Participates in outbreak response training, exercises, and drills	Contributes to the development of outbreak response training, exercises, and drills	Conducts outbreak response training, exercises, and drills in collaboration with stakeholder agencies	Oversees the collaboration with stakeholders to conduct training, exercises, and drills, ensuring proper resources are available
OIR 1.03 Identification of key partners	Describe partners and their relationships with the institution	Interacts with partners on staff	Engages partners to sustain relationships and ensure an effective response	Develops new partnerships to ensure effective emergency response
OIR 1.04 Execution of agreements with partners	Describes emergency agreements between the institution and other partners	Updates agreements with partners to ensure emergency response capability	Trains staff on agreements in place to ensure emergency response capability	Negotiates agreements between partner organizations to ensure emergency response capability

Competency Framework: Capability Maturation Model (2)

Competency: OIR 4.00 Establish outbreak recovery measures : Use systematic approach to recover from outbreak and return to SOP

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT
OIR 4.01 Return to normal operating procedures	Return to standard, daily roles and responsibilities	Provide updates and guidance to staff on changes to SOP and distributed updates	Manage and implement changes in SOP	Revise and oversee SOP to mitigate outbreak or infection recurrence
OIR 4.02 Obtain and incorporate stakeholder feedback	Record feedback from patient/families/visitors/o ther engaged stakeholders in a systematic manner	Review stakeholder feedback and identify common trend for improvement(I)	Identify how feedback can be operationalized into institutional functioning	Implement and assess strategies and new systems based on stakeholder feedback
OIR 4.03 Obtain and incorporate stakeholder feedback	Record feedback from patient/families/visitors/o ther engaged stakeholders in a systematic manner	Review stakeholder feedback and identify common trend for improvement	Identify how feedback can be operationalized into institutional functioning	Implement and assess strategies and new systems based on stakeholder feedback

Competency Framework: Capability Maturation Model (3)

Competency: GEN 1.0 Gender Awareness: Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)				
Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT
GEN 1.0: Gender Awareness	Identify basic gender principles and related concepts including sex, gender, gender roles, equity, equality, and life cycle in relation to EPT.	Contemplate the impact of cultural beliefs about gender and the impact of those beliefs on one health and access to health care in EPT	Apply gender-sensitive approaches to address gender dynamics in response to EPT	Advocate and promote gender equality and equity in response to EPT
Competency: Gen 2.0: Gender Analysis: Evaluate how gender intersects with emerging pandemic threats				
Gen 2.0: Gender Analysis	Identify basic principles and related concepts of gender and EPT epidemiology, disease transmission, and the response cycle (preparation, detection, response, and evaluation).	Utilize gender analysis tools in EPT disease surveillance, response, prevention and control	Analyze how gender impacts and is impacted by EPT through conducting gender analysis and systemic monitoring and evaluation	Report and use gender-relevant lessons learned including gender best practices in EPT and resources to address those gaps and apply findings for subsequent program adaptation

- The competency Framework:**
- Identifying training needs on OH
 - Updating/developing curriculum
 - Link requirement to organizational strategic goals
 - provide a roadmap for employee development and career planning
 - Provide a common understanding of the behaviors needed to achieve organizational objectives

Significance of competency framework/mapping



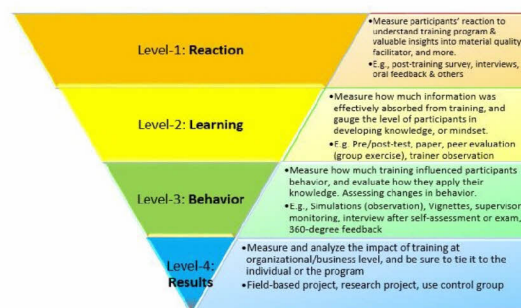


Figure 4: Kirkpatrick's Four Levels of Training Evaluation

Domain: Outbreak Investigation and emergency Response		Kirkpatrick's Evaluation			
Competency	Subcompetency	Level I	Level II	Level III	Level IV
OIR 1.00 Review investigation and outbreak management experiences for applying best practices	OIR 1.01 Preparation for outbreak/ emergency events	x	x	NONE	None
	OIR 1.02 Emergency response training	x	x		
	OIR 1.03 Identification of key partners	x	x		
	OIR 1.04 Execution of agreements with partners	x	x		
	OIR 1.05 Outbreak/Emergency preparedness and response networks	x			
OIR 2.00 Use a systematic approach for outbreak response	2.01 Monitoring for a potential outbreak	x			
	2.02 Determining cause of an outbreak	x			
	2.03 Establish a case definition	x	x		
	2.04 Collecting and testing samples	x			
	2.05 Determining need for outbreak/emergency notification	x	x		
OIR 3.00 Respond to outbreaks or emergency events: Use systematic approach for outbreak response	OIR 3.01 Situational briefing	x	x		
	OIR 3.02 Surge capacity	x	x		
	OIR 3.07 Outbreak/Emergency communication	x			
OIR 4.00 Establish outbreak recovery measures : Use systematic approach to recover from outbreak and return to SOP	OIR 4.01 Return to normal operating procedures	x			
	OIR 4.02 Obtain and incorporate stakeholder feedback	x	x		
	OIR 4.03 Obtain and incorporate stakeholder feedback	x			

Gender, Domain Code = GEN					
Competency	Subcompetency	Level I	Level II	Level III	Level IV
GEN 1. Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)	GEN 1.0: Gender Awareness: Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)	x	x	x	x
	GEN 2. Evaluate how gender intersects with emerging pandemic threats	x			
GEN 3. Develop gender sensitive response plans for emerging pandemic threats	Gen 3.1: Gender Healthcare: Provide gender-sensitive interdisciplinary healthcare for EPT	x	x	x	x
	Gen 3.2: Gender Healthcare Education: Integrate gender and EPT into interdisciplinary healthcare education	x	x	x	x
	Gen 3.3: Gender Program: Develop gender-sensitive programming for EPT	x	x		
	Gen 3.4: Gender Policy: Develop gender-sensitive policies and frameworks for the health sector and EPT	x			

OHW-NG: Training & Empowerment

Bi-weekly Implementation Meetings
Friday 22 May 2020 10:00am Pacific Time

<https://zoom.us/REDACTED>

Agenda

1. **Administrative Updates** – USAID, Management Team, and Executive Board
2. **Strategy 1.1 One Health Training Content Curation and Development**
 - Coordinating Next Generation One Health Competency Framework
 - Key Concepts and Structure of the Framework – Getch
 - Competency in Gender Context of One Health – Ndola
 - Advancing Training Activities Curation with next Generation Competency Framework
 - One Health Implementation Science Sequence: Surveillance, Response, and Resilience
 - Implementing One Health as an integrated approach to health in Rwanda (Nyatanyi T, M. Wilkes *et al.* BMJ Glob Health 2017;2:e000121. doi:10.1136/bmjgh-2016-000121).
3. **Strategy 1.2 One Health Academy**
 - One Health Academy – Steering Committee
 - Communities of Practice – ECHO-COVID-19 Sessions
 - Diagnostic testing approaches for COVID-19 – May 20 and 21
 - Immunity issues and interventions for COVID-19 – June 4
 - One Health approaches addressing COVID-19 origins and spillover – June 18
 - ECHO Immersion Training for AFROHUN – Week of June 22
 - Student One Health Innovation Clubs – Digital Awareness Competition
4. Reflections and Recommendations

OBJECTIVE 2: ONE HEALTH WORKFORCE ASSESSMENT AND TRACKING

Standardized OH Workforce Competency Framework and Assessment Toolkit using a Capability Maturity Model

April 2020



USAID
FROM THE AMERICAN PEOPLE



Table of Contents

Contents

Table of Contents	2
Definitions	3
Introduction.....	4
Competency-based Framework	4
Competency framework development approach	5
Competency-based Workforce Assessment	6
One Health Workforce Competency Framework	8
Methods used to scan and map the existing OH related competencies	8
One Health Workforce Competencies & sub-Competencies	9
OH Competency Framework and Capability Maturity Model	11
Existing Competency Assessment Tools	18
Annexes.....	21
Annex-1. Gender domain assessment tool (draft example)	21
Level 1: Reaction to the training	21
Level 2: Learning (Knowledge and Skill)	21
Level 3: Behavior	24
Level 4: Results (Organizational and Institutional)	25
References	28

Definitions

- **Competencies** are a blend of tacit and explicit knowledge, behaviour and skills that gives someone the potential for effectiveness in task performance.¹ Competencies allow individuals to function in an organizational setting, or when referred to as work readiness competencies, impact the success of individuals and organizations, and that can be improved by training and development. E.g. Sets of competencies for analytical thinking, interpersonal skills, leadership, communication, system thinking and technical expertise in a particular area like One Health competencies to attain the organizational goals efficiently and effectively.
- **Competency proficiency assessment** is a measurement that assigns an expected level of competence on a given competency. Leading practice scales have behavioral indicators as their building blocks with related behaviors organized under each competency. Scale ratings range from three to seven mastery levels, with five levels being the most common.
- **Competency tier level:** Each competency requires number of layers of knowledge to integrate with the identified work assigned to the individual in the organization. Workplace competencies are needed in the knowledge economy to ensure their acquisition of skills as they progress through work tasks and job roles. Individuals progress through the levels of beginner, intermediate, advanced and expert as they gain further education, experience and application of specific job duties. Beginners are new entries to the field with minimal application of skill an experience while experts are leaders in the field with a wide variety of skills including organizational leadership and management.²
- **Competency management** is the set of management practices that identify and optimize the skills and competencies required to deliver on an organization's business strategy. Competency management provides the foundation to develop strategic talent management practices such as workforce planning, acquiring top talent, and developing employees to optimize their strengths.
- **Competency-based framework (CBF)** is a set of selected competencies of various domains for a specific discipline or organization needed to achieve professional results. CBF provides a shared understanding and common language of the necessary knowledge, behavior and skills needed to achieve organizational objectives, and the framework will be used to design and develop evaluation strategies/tools.³
- **Domain:** Competencies grouped in a large set by the type/area of knowledge or skill involved. E.g. One health management, outbreak investigation and response, system thinking.⁴
- **Module:** A set of separate parts that, when combined, form a complete whole. In a single class, a module is a chapter, class meeting or lecture on a specific topic. A domain may have different modules based on list of topics.⁵

¹ Sharma, P. (2017). Competence Development at the Workplace: a Conceptual framework. *JK International Journal of Management and Social Science*, 1(1). <https://www.jkbschool.org/Chapter4.pdf>

² National Institute of Health: Competencies Proficiency Scale. Available at: <https://hr.nih.gov/working-nih/competencies/competencies-proficiency-scale>

³ Benayouny, A. (2017). Competency-Based Framework: The Benefits and the Challenges. *International Journal of Management and Applied Science*, 3(9), 6-11. http://www.ijar.in/journal/journal_file/journal_pdf/14-407-15115027096-11.pdf

⁴ Competency-to-Curriculum Toolkit, Columbia University: http://www.phf.org/resourcestools/Documents/Competency_to_Curriculum_Toolkit08.pdf

⁵ Definition of Module: <https://www.reference.com/world-view/module-education-24493465c954da62>

Introduction

Effective competency-based frameworks create a real-time and predictive inventory of the capability of any workforce. By defining required job roles and associated competency proficiency, leadership can readily identify strengths and skill gaps. Competency management then informs targeted skills development learning solutions improving individual and organizational performance, leading to better business results. These competencies are used to develop a competency framework that becomes an outline for learning development. The learning development may range from beginner through to expert/mastery for each of the competencies established in the framework structure. This document aims to provide the strategies to develop One Health competency-based framework using a staging system from beginner/novice to expert level. One Health (OH) training encompass various technical and soft-skill domains. Two domains, namely Outbreak Investigation and Response, and Gender, are prioritized to demonstrate the strategies and methods used to develop a generic OH competency-based framework and assessment toolkits.

Competency-based Framework

A competency framework defines the knowledge, skills, and attributes needed for people within a profession or organization. Each role will have its own set of competencies required to perform a specific function effectively. Such a framework usually includes a number of competencies that are applied to multiple levels and occupational roles. Each competency statement defines, in generic terms, excellence in working behavior; this definition then establishes the benchmark against which individuals are assessed. A competency framework is a means by which institutions communicate in which behaviors or skills are required, valued, recognized and rewarded with respect to specific professional or occupational roles. The competency-based framework has the following expected key benefits:

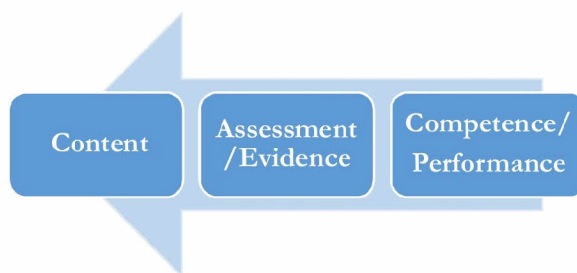
- linking job requirement to organizational strategic goals,
- reduce the cost of training by identifying real training needs through identifying the competency gaps,
- providing a roadmap for employee development and career planning,
- providing a common understanding of the behaviors needed to achieve organizational objectives, and
- promoting employees based on performance rather than solely on seniority.

Competency framework includes domains, high-level competencies and sub-competencies, and functional competencies. Functional competencies are defined by duties and responsibilities assumed by individuals for a given task.

Competency framework development approach

The Backward Design (BD) approach is well-known for creating competency-based training, and is a compelling strategy for achieving results-based, participant-centered education program.⁶ The BD approach defines the competencies needed to achieve organization's strategic goals, and, in the context of One Health, provides a vehicle for integrating the health needs of a country with the priorities of the profession. The three steps backward design, as indicated in Fig 1, begins by defining the desired competency or performance, determining acceptable evidence of learning through designing evaluation methods and measures, and developing the educational content. The competencies are the building blocks for high-quality individual and organizational performance and development assessment strategies and tools. Competency evaluation is the foundation of competency management of workforce development.⁷ Thus, the BD approach will be used to develop a generic One Health education competency-based framework followed by competency assessment toolkits.

Figure 1. The three steps backward design for educational planning.



The detailed steps of BD course planning are well depicted in Fig 2, which ICAP at Columbia University adapted from the Wiggins et al. (2005) model, from defining competencies to development of evaluation methods and contents.⁸ The first stage of the model is also broken down into the sequence of identifying/developing competency statements, specifying sub-competencies for each competency statement (when needed) and then writing cognitive, behavioral and affective learning objectives for each competency or sub-competency statement. The second stage includes the development of assessments which provide evidence of skill acquisition and competency development. In this competency framework, Kirkpatrick's Four Levels of Evaluating Training Programs is specified for developing measures and evaluation methods. Evaluation is the crucial step of a competency-based training program because the competency assessments make up the participants level of knowledge and skills and are the sole determiner of success. The third stage identifies the instructional methods and materials that will be used to achieve the learning outcomes. This includes various types of instructional delivery and activities such as hands-on procedures, demonstrations, lecture or guided practice. The fourth stage is added for specific development of individual class/session lesson plans.

⁶ Reynolds, H. L., & Kearns, K. D. (2017). A planning tool for incorporating backward design, active learning, and authentic assessment in the college classroom. *College Teaching*, 65(1), 17-27.

⁷ Scoresby, J., Tkatchov, M., Hugus, E., & Marshall, H. (2018). Applying service design in competency-based curriculum development. *The Journal of Competency-Based Education*, 3(3), e01171.

⁸ Wiggins, G., Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. ASCD. Page 18.

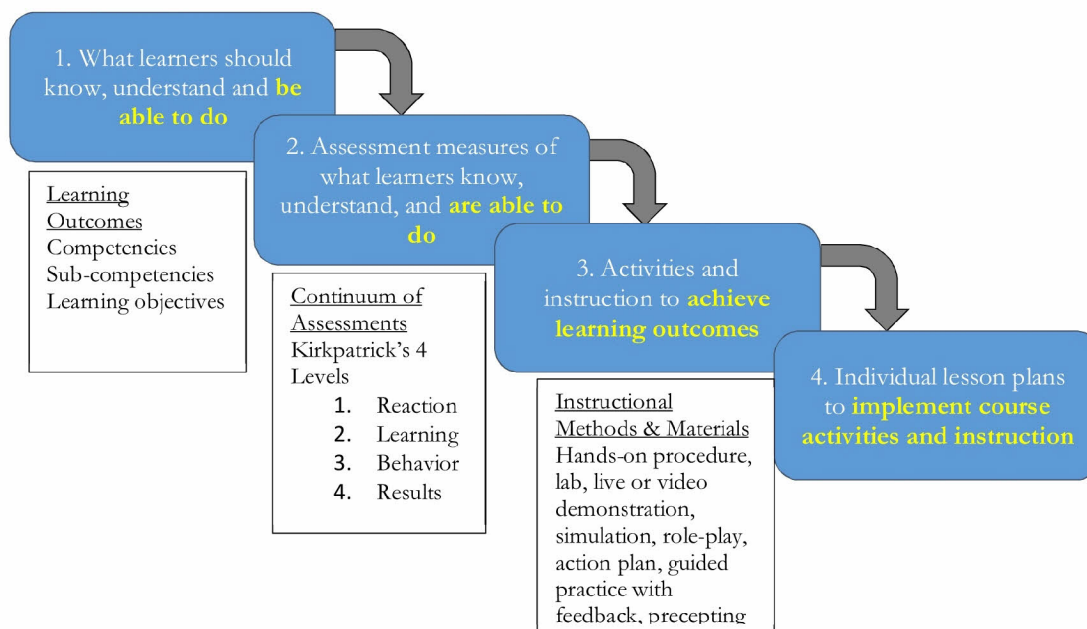


Figure 2. Backward educational planning and curriculum development approach. Adapted from Wiggins et al. (2005).

Competency-based Workforce Assessment

Competency management is the entire process of assigning, assessing, and tracking the knowledge, skills, and experience required to perform specific activities. Institutions have an objective approach of ranking and evaluating trainees or employees against the training and learning that is being performed.

Competency assessment in professional development programs clears the path for more detailed and accurate workforce planning, certification, skill acquisition, deployment of changing healthcare needs, and many other purposes (Fig 3).



Figure 3. Significance of competency management and evaluation

The Kirkpatrick Model,⁹¹⁰ is well-recognized to design evaluation strategies for classroom training, e-learning, informal learning, social learning, or any other type of modality in which individuals gain knowledge or skills to do their jobs more effectively. This model will be used for developing/updating OH assessment strategies and tools (Fig 4). The Model consists of four hierarchical levels of evaluation. The most basic level, Level 1 (i.e., Reaction), assesses the degree to which training participants find the training program favorable, engaging, and relevant to their jobs. The next level, Level 2 (i.e. Learning) measures the extent to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training. Level 3 (i.e. Behavior) evaluates the degree to which participants can apply what they learned during the training when they are back at their jobs, so long as they are provided with the support they need. The highest level of evaluation, Level 4 (i.e. Results) assesses the degree to which targeted outcomes at organizations occur as a result of the training.

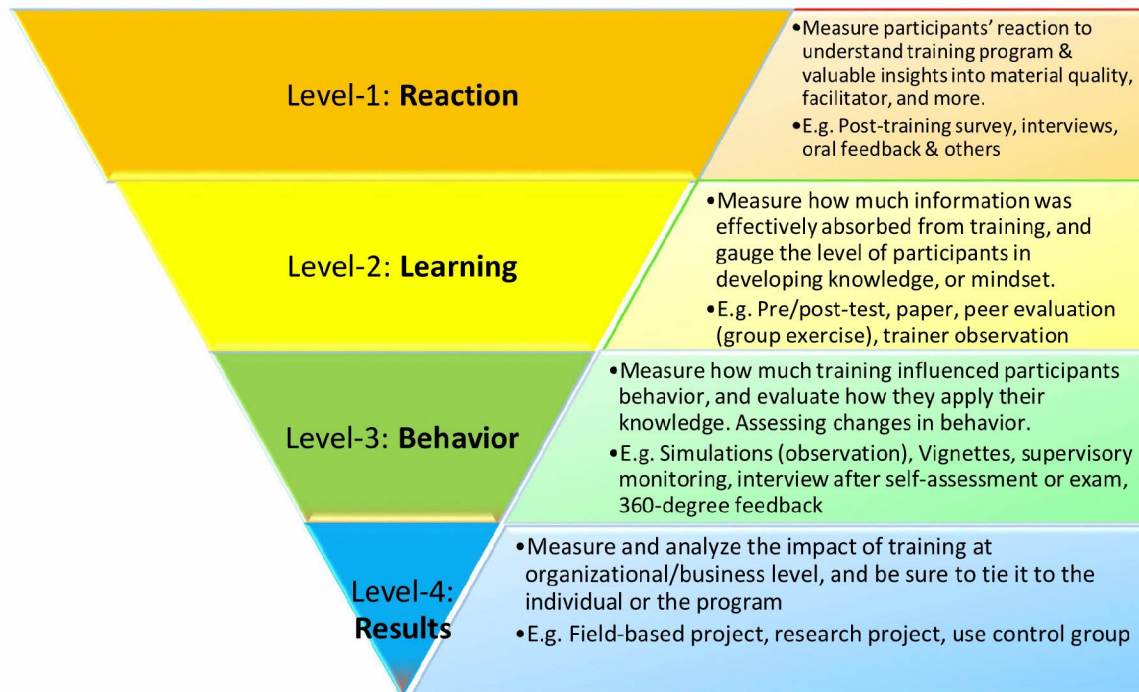


Figure 4: Kirkpatrick's Four Levels of Training Evaluation

⁹ Kirkpatrick DL, Kirkpatrick JD. *Evaluating training programs*. 3rd ed. Oakland, CA: Berrett-Koehler Publishers, 2006.

¹⁰ Kirkpatrick JD, Kirkpatrick WK. *Kirkpatrick's four levels of training evaluation*. Alexandria, VA: ATD Press; 2016.

One Health Workforce Competency Framework

A competency framework for two domains of One Health has been drafted through mapping the existing One Health competencies, sub-competencies, learning objectives, evaluation methodologies and tools. The OH competency framework is designed to show workflows and competency levels, driving the ability to review/design different types of evaluation strategies and tools linked with specific competencies. The framework is a deep-dive into competency levels to identify gaps and all the resources required to close these gaps. The framework ties competencies and sub-competencies with learning and evaluation strategies, and it is consolidated and provides a clear visual aid for identifying competency gaps. Based on competency gaps, institutions and/or users can review and/or develop a training package and integrate the framework with different competency management systems. Furthermore, the generic competency framework would be critical for workforce demand analysis and planning. It can also be a reference for executives to gain key insights into the OH competencies for different roles and skill requirements and create competency role profiles to meet organizational needs.

Methods used to scan and map the existing OH related competencies

Online search engine and university websites were used to identify the existing OH related training materials. Competency sets and evaluation strategies to each learning objectives were scanned not only from AFROHUN and SEAHUN websites but also other institutions providing training or program related to the OH domains. Additional literature reviews were completed for each domain to augment the competencies with more targeted and details levels of skill acquisitions. We used an online database – Airtable for organizing and tagging OH competencies and evaluation tools. Each domain has an ID and code (Table 1), and the competencies are also coded to tag training materials for mapping and to document scanned documents.

Table 1. List of domains with specific code and domain ID used for tagging documents on Airtable

CODE	Domain ID	Domain Names
OHC	OH-1	One Health Principles and Concepts
IDF	OH-2	Fundamentals of Infectious Diseases (specific to OH)
IDM	OH-3	Infectious Disease Management (specific to OH)
OIR	OH-4	Outbreak Investigation and Response (specific to OH)
ECH	OH-5	Ecosystem Health
EPI	OH-6	One Health Epidemiology
RIA	OH-7	One Health Risk Analysis
RES	OH-8	One Health Research
LDS	OH-9	One Health Leadership

MGT	OH-10	One Health Management
STH	OH-11	Systems Thinking
CAP	OH-12	One Health Collaboration and Partnership
CAI	OH-13	One Health Communication and Informatics
GEN	OH-14	Gender, One Health and Infectious Disease Management
PAA	OH-15	One Health Policy and Advocacy
BCH	OH-16	Behavior Change (specific to One Health)
CVE	OH-17	Culture, Beliefs, Values and Ethics (specific to One Health)
PHI	OH-20	Principles of Public Health (related to One Health)
AMR	OH-18	Antimicrobial Resistance Stewardship
IPC	OH-19	Infection Prevention and Control

One Health Workforce Competencies & sub-Competencies

The multidisciplinary nature of the One Health approach requires One Health professionals are proficient in knowledge, skills, behaviors, and attitudes through competency-based education necessary for individuals to contribute to One Health efforts successfully. Identifying a set of One Health competencies is critical to prepare professionals to tackle the health threats by working collaboratively with peers in other areas of expertise using a One Health approach. Identifying a set of competencies enables institutions and organizations to have a clear understanding of the behaviors and skills to be exhibited and the levels of performance expected to achieve organizational results. A set of competencies and sub-competencies are organized in Table 2, and the following two domains are selected considering the current COVID-19 outbreak to deep dive into the strategies of competency-based framework development.

1. OIR Outbreak/Emergency Management and Response (OIR)
2. Gender (GEN)

Table 2. List of competencies/sub-competencies for each domain

Outbreak/Emergency Management and Response, Domain Code= OIR	
OIR 1.00 Preparation for outbreaks or emergency events: Review investigation and outbreak management experiences for applying best practices	
OIR 1.01	Prepare for outbreak/ emergency events
OIR 1.02	Engage in an emergency response training
OIR 1.03	Identify key partners
OIR 1.04	Execute agreements with partners

OIR 1.05 Engage outbreak/emergency preparedness and response networks
OIR 2.00 Responding to outbreaks or emergency events: Use a systematic approach for outbreak response
2.01 Monitor for a potential outbreak
2.02 Determine cause of an outbreak
2.03 Establish a case definition
2.04 Collect and testing samples
2.05 Determine need for outbreak/emergency notification
OIR 3.00 Establish outbreak recovery measures: Use systematic approach to recovery from outbreak and return to SOP
OIR 3.01 Complete a situational briefing
OIR 3.02 Plan for surge capacity
OIR 3.03 Implement outbreak/emergency communication
OIR 4.00 Establish outbreak recovery measures Use systematic approach to recover from outbreak and return to SOP
OIR 4.01 Return to normal operating procedures
OIR 4.02 Obtain and incorporate stakeholder feedback
Gender, Domain Code = GEN
GEN 1. Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)
GEN 2. Evaluate how gender intersects with emerging pandemic threats
GEN 3. Develop gender sensitive response plans for emerging pandemic threats
Gen 3.1: Gender Healthcare: Provide gender-sensitive interdisciplinary healthcare for EPT
Gen 3.2: Gender Healthcare Education: Integrate gender and EPT into interdisciplinary healthcare education
Gen 3.3: Gender Program: Develop gender-sensitive programming for EPT
Gen 3.4: Gender Policy: Develop gender-sensitive policies and frameworks for the health sector and EPT

OH Competency Framework and Capability Maturity Model

The key OH competencies are categorized along a continuum from beginner to expert using capability maturity model, defining performance. Based on the complexity and level of responsibility, an average of three to five functional competencies is assigned under each task in the drafted OH competency framework, as shown below in Table 3. The functional competencies are further categorized using the capacity maturation model (CMM) from beginner to an expert level based on the level of education and experiences of skill acquisition.

Table 3. Description of the level of capability tier level for the OH competency framework

Proficiency tier level	Description of the competency staging levels ¹¹¹²¹³¹⁴
Beginner/ Novice	A beginner worker is one who can demonstrate an elementary level of performance and <u>focusing on developing understanding through on-the-job experience</u> . Beginners might have gained enough classroom or on-the-job training to note recurring principles and themes but might not yet be able to apply them consistently. The beginner worker might have sufficient subject matter knowledge but has limited experiential knowledge needed to perform a task, behavior, or function without frequent guidance or oversight.
Intermediate	An intermediate professional is one who has been in the same or similar job and who begins to see their actions within the context of the OH's long-range goals and plans and <u>focusing on enhancing knowledge or skill</u> . The intermediate OH professional is developing knowledge and experience to recognize a situation in terms of an overall picture or in terms of which aspects are most salient or most important. The intermediate worker has the necessary ability to cope with OH approaches and is able to perform a task, behavior, or function with a high degree of independence.
Advanced	Advanced OH professionals understand situations as a whole and perceive their meaning in terms of the OH long-term goals, and focusing on broader professional issues. The advanced person learns from experience or has taken intensive experiential training with practical application and knows how plans need to be modified in response to specific events. The advanced OH professional uses established principles to manage complex processes and has developed sufficient mastery to integrate or design a new task, behavior, or function.
Expert	The expert OH professional, with substantial experience and knowledge, has an intuitive grasp of situations and focuses on the root of the problem at a <u>strategic</u>

¹¹ Fisher, C., Cusack, G., Cox, K., Feigenbaum, K., & Wallen, G. R. (2016). *Developing competency to sustain evidence-based practice. The Journal of nursing administration*, 46(11), 581.

¹² Benner, P. (1984). *From novice to expert*. Menlo Park.

¹³ Dreyfus SE, Dreyfus HL. *A five-stage model of the mental activities involved in directed skill acquisition*. Berkeley, CA: University of California–Berkeley; 1980.

¹⁴ National Institute of Health: *Competencies Proficiency Scale*. Available at: <https://hr.nih.gov/working-nih/competencies/competencies-proficiency-scale>

level. The expert operates from a deep understanding of the total situation and integrates systems thinking, collaborative relationships, and the resources at their disposal to achieve the OH strategic goals. The expert has acquired mastery to design new strategies, policies, tasks, behaviors, and functions that support quality operations.

The stages of competency or skill of the maturation model (Figure 5) was used for developing the OH competency framework of the two domains which is designed and developed with the key functional competencies in Table 4. Following the development of the OH competency framework with the capability maturity model, the next step will be identifying existing assessment methods and tools that map to each competency and develop these where they are missing. These resources will be compiled into a toolkit, enabling educators and trainees to establish and document OH skills effectively. The generic OH competency framework and evaluation tools will benefit university networks and countries to use as a reference and adapt to the local settings, in consultation with national OH coordinating bodies, policymakers, professional associations, and/or licensing agencies.

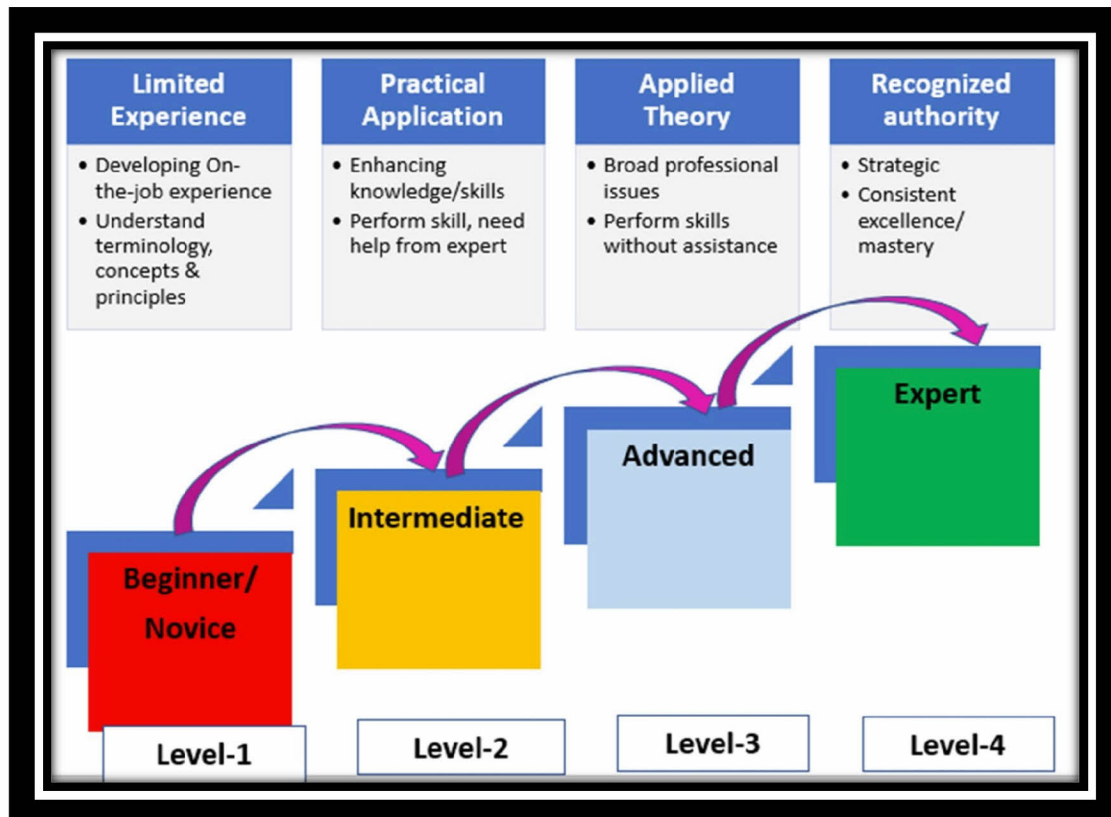


Figure 5: Stages of competency or skill of maturation model used for developing the OH competency framework

Table 4. Competencies organized using the capacity maturation model (CMM) from novice/beginner to expert level.

I. Outbreak/Emergency Investigation and Response

Competency: OIR 1.00 Preparation for outbreaks or emergency events: Review investigation and outbreak management experiences for applying best Practices

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
OIR 1.01 Prepare for outbreak/emergency events	Explains the outbreak response plan and sustainability of Operations Plan	Assists with development and implementation of the outbreak response plan and sustainability of Operations Plan	Manages development and implementation of the outbreak response plan	Oversees outbreak response plan, including implementation of the sustainability of Operations Plan with external partners	BEL/SHEA /APHL/CD COI
OIR 1.02 Engage in emergency response training	Participates in outbreak response training, exercises, and drills	Contributes to the development of outbreak response training, exercises, and drills	Conducts outbreak response training, exercises, and drills in collaboration with stakeholder agencies	Oversees the collaboration with stakeholders to conduct training, exercises, and drills, ensuring proper resources are available	BEL/SHEA /APHL/CD COI
OIR 1.03 Identify key partners	Describe partners and their relationships with the institution	Interacts with partners on staff	Engages partners to sustain relationships and ensure an effective response	Develops new partnerships to ensure effective emergency response	BEL/SHEA /APHL/CD COI
OIR 1.04 Execute agreements with partners	Describes emergency agreements between the institution and other partners	Updates agreements with partners to ensure emergency response capability	Trains staff on agreements in place to ensure emergency response capability	Negotiates agreements between partner organizations to ensure emergency response capability	BEL/SHEA /APHL/CD COI
OIR 1.05 Engage outbreak/emergency preparedness and response networks	Explains how the OH interacts with emergency preparedness and response networks	Describes the plans, policies and procedures the institution has in place to prepare for and respond to a public health emergency	Develops the organizational plans, policies and procedures to prepare for and respond to a public health emergency	Oversees the collaboration with emergency preparedness and response networks to develop and implement plans, policies, and procedures to prepare for and respond to a public health emergency	BEL/SHEA /APHL/CD COI

Competency: OIR 2.00 Outbreak Investigation: Apply standard procedures in conducting an outbreak investigation

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
------------------	----------	--------------	----------	--------	--------

2.01 Monitor for a potential outbreak	List sources of information that might be used to indicate unusual disease activity (clinicians, patients, surveillance data, media)	Gather information from various sources of disease reporting	Develop data collection tools to ensure accurate information collection from different sources	Evaluate the quality information from various sources of disease reporting	CDCOI/N WCPHP/N WOI
2.02 Determine cause of an outbreak	Identify what constitutes an unusual occurrence of a disease and a potential outbreak	Utilize data from collected information to develop hypothesis on cause of outbreak	Test hypothesis on the cause of outbreak to determine the cause and develop descriptive features of the outbreak	Evaluate the hypothesis testing and determine a cause and descriptive features the outbreak	CDCOI/N WCPHP/N WOI
2.03 Establish a case definition	Collect information to formulate the demographic and temporal description of the apparent outbreak	Utilize data from collected information to establish a case definition hypothesis	Test hypothesis to establish a case definition and develop descriptive features of a case definition	Evaluate hypothesis to establish a case definition and determine descriptive feature of a case	CDCOI/N WCPHP/N WOI
2.04 Collect and testing samples	List and describe the procedures for collecting, storing and transporting clinical and/or environmental samples	Collect clinical and environmental samples according to procedure	Develop collection procedures and determine clinical and environmental samples to be collected	Evaluate collection procures and determination of which clinical/environmental samples are collected	CDCOI/N WCPHP/N WOI
2.05 Determine need for outbreak/emergency notification	Describes requirements for notification of outbreaks according to organizational/national plans and policies	Implements organizational plans and policies for notification of emergencies and/or outbreaks	Develops internal policies and procedures for notification of emergencies and/or outbreaks	Oversees the collaboration with stakeholders and agencies to develop and implement plans and policies for notification of emergencies and/or outbreaks	CDCOI/N WCPHP/N WOI
Competency: OIR 3.00 Responding to outbreaks or emergency events: Use systematic approach for outbreak response					
Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
OIR 3.01 Complete a situational briefing	Participates in meetings and conference calls to receive information on the situation	Prepares information on the situation	Facilitates the briefing of key stakeholders to create situational awareness	Manages implementation of COOP measures and ICS activation	CDCOI/SH EA/BEL

OIR 3.02 Plan for surge capacity	Describes circumstances for, and varying degrees of surge	Adjusts workflow to ensure timeliness of diagnostic testing in collaboration with surge partners	Identifies creative strategies to manage surge or overflow testing	Implements a management system that promotes flexibility and maximizes the ability to deliver surge capacity	CDCOI/SH EA/BEL
OIR 3.07 Implement outbreak/emergency communication	Describes the emergency communication plan and the policies and procedures for receiving and disseminating information with emergency response partners and/or public	Complies with the emergency communication plan and the policies and procedures for receiving and disseminating information with emergency response partners and/or public	Ensures rapid and secure communications with emergency response partners and/or public during emergencies and surge outbreaks	Manages the emergency communication plan and the policies, processes, and procedures for securely receiving and disseminating information with emergency response partners and the public during emergencies and surge incidents	CDCOI/SH EA/BEL

OIR 4.00 Establish outbreak recovery measures : Use systematic approach to recover from outbreak and return to SOP

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
OIR 4.01 Return to normal operating procedures	Return to standard, daily roles and responsibilities	Provide updates and guidance to staff on changes to SOP and distributed updates	Manage and implement changes in SOP	Revise and oversee SOP to mitigate outbreak or infection recurrence	SHEA/BEL
OIR 4.02 Obtain and incorporate stakeholder feedback	Record feedback from patient/families/visitors/other engaged stakeholders in a systematic manner	Review stakeholder feedback and identify common trend for improvement	Identify how feedback can be operationalized into institutional functioning	Implement and assess strategies and new systems based on stakeholder feedback	SHEA/BEL

Source Abbreviations: **BEL:** Belfroid et al. *BMC Infectious Diseases*; **CDCOI:** Center for Disease Control Principles of Epidemiology in Public Health Practice Third Edition An Introduction to Applied Epidemiology and Biostatistics; **APHL:** The Associations of Public Health Laboratories; **NWCPHP:** Northwest Center for Public Health Practice Epidemiology Competencies; **NWOI:** Northwest Center for Public Health Practice University of Washington School of Public Health, Department of Health Services, Introduction to Outbreak Investigation; **SHEA** Society for Healthcare Epidemiology of America Outbreak Response and Incident Management: SHEA Guidance and Resources for Healthcare Epidemiologists in United States Acute-Care Hospitals.

II. Gender Domain

GEN 1.0: Gender Awareness: Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)					
Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
GEN 1.0: Gender Awareness	Identify basic gender principles and related concepts including sex, gender, gender roles, equity, equality, and life cycle in relation to EPT.	Contemplate the impact of cultural beliefs about gender and the impact of those beliefs on one health and access to health care in EPT	Apply gender-sensitive approaches to address gender dynamics in response to EPT	Advocate and promote gender equality and equity in response to EPT	AFROHUN /SEAHUN

Gen 2.0: Gender Analysis: Evaluate how gender intersects with emerging pandemic threats

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
Gen 2.0: Gender Analysis	Identify basic principles and related concepts of gender and EPT epidemiology, disease transmission, and the response cycle (preparation, detection, response, and evaluation).	Utilize gender analysis tools in EPT disease surveillance, response, prevention and control	Analyze how gender impacts and is impacted by EPT through conducting gender analysis and systemic monitoring and evaluation	Report and use gender-relevant lessons learned including gender best practices in EPT and resources to address those gaps and apply findings for subsequent program adaptation	AFROHUN

Gen 3.0: Gender Response: Develop gender-sensitive response plans for emerging pandemic threats

Sub-Competencies	BEGINNER	INTERMEDIATE	ADVANCED	EXPERT	Source
Gen 3.1: Gender Healthcare: Provide gender-sensitive interdisciplinary healthcare for EPT	Identify relevant Sex and Gender Specific Health epidemiology, pathophysiology, clinical presentation, and therapeutic response	Apply SGSH considerations in clinical decision making and patient care	Incorporate SGSH in scientific inquiry and research design	Teach SGSH information to others (peer health professionals or patients)	LWBIWH
Gen 3.2: Gender Healthcare Education: Integrate gender and EPT into interdisciplinary healthcare education	Integrate gender and EPT into healthcare education at a basic level by including a limited focus on gender through women's reproductive health and EPT	Integrate gender and EPT into healthcare education at a mid-level by including gender and EPT in a lecture series or guest lecture	Integrate gender and EPT into healthcare education at a high level by incorporating gender and EPT into curriculum and including specialized certificate programs	Integrate gender and EPT into healthcare education at an advanced level by incorporating gender and EPT into curriculum for inter-professional health education and exports expertise to national level	HRSA, 2013

Gen 3.3: Gender Program: Develop gender-sensitive programming for EPT	Recognize impacts of gender-sensitive programming for responding to EPT	Develop Gender Sensitive programs that adapts to gender norms, work around existing gender differences and inequalities to ensure equitable allocation/services/support aligned with the pre-existing gender differences, structures, systems, and power divisions in society.	Develop Gender Responsive programs that challenge inequitable gender norms and respond to the different needs and constraints of individuals based on their gender and sexuality, open space for discussing, challenging, and engaging with inequitable gender structures, systems, divisions, and power relations.	Develop Gender Transformative programs that change inequitable gender norms and relations to promote equality, demonstrating both the ambition to transform gender and the resources, willingness and capacity to institutionalize transformative programming.	CARE, 2019
Gen 3.4: Gender Policy: Develop gender-sensitive policies and frameworks for the health sector and EPT	Recognize impacts of policy on promoting gender equality in response to EPT	Develop gender neutral policies that attempt to target both women and men effectively, working within existing gender divisions of resources and responsibilities	Develop gender specific policies that respond to gender specific needs, working within existing gender divisions of resources and responsibilities	Develop gender redistributive policies intended to transform existing distributions to create a more balanced relationship between men and women	WHO, 2002

Source Abbreviations: **AFROHUN:** African One Health University Network; **CARE** CARE 2019 Gender Competency Emergency Response Program; **HRSA** Health Resources and Services Administration HRSA 2013 Gender CMM Gender Institution Competencies; **LWBIWH** Laura W Bush Institute for Womens Health; **SEAOHUN** South East Asian One Health University Network.

Existing Competency Assessment Tools

Existing assessment tools for each domain were scanned, and table 5 indicates the available assessments based on the four levels of Kirkpatrick's evaluation. The scan of existing or available assessment tools in the domain of Outbreak Investigation and Emergency Response (OIR) found certain tools at Level One Reaction and Level Two Knowledge. Many available educational packages had instructional foci on a singular outbreak event or disease and the available evaluations assessed participants' overall appraisal of the training or contained minimal knowledge assessments such as targeted case studies, short answers or multiple-choice questions. Individual performance-based assessments that could be aligned with the Level Three Behavior and Level Four Reaction evaluations were not found during the scan. Many of the OIR competencies and sub-competencies are performance and experience-based and will, therefore, require higher-level tools to evaluate skill acquisition and proficiency.

The scan of existing or available assessment tools in the domain of Gender and One Health found tools to evaluate all four levels of Kirkpatrick Evaluation model, including reaction, learning, behavior, and results. SEAOHUN and AFROHUN training materials on Gender included assessment tools for Kirkpatrick Levels 2 (Learning) and 3 (Behavior). The SEAOHUN assessment tool for Level 2, Learning, used self-report on a 5-point scale to assess learners' ability to understand and apply competencies after training. The AFROHUN assessment tool for Level 3, Behavior, used a simulation self-assessment and team-assessment tool to measure the behavioral performance of competencies after the training on a 5-point scale. Additional assessment tools were gathered during scanning to complement the existing SEAOHUN and AFROHUN assessment tools and to evaluate Levels 1-4 of the Kirkpatrick model. The IGWG, USAID, Participant Evaluation Form was identified during the scan as a useful assessment tool to evaluate Level 1, Reaction, using a 5-point scale and short answers to assess participants' satisfaction with the training on gender and to gather participant feedback. The PHF Competency Assessment Tool for Public Health Professionals was identified during the scan as a useful assessment tool for evaluating Level 2, Learning, using learners' self-report of knowledge and skill on a five-point scale. The Academic health council, Interprofessional collaborator assessment rubric was identified during the scan to evaluate Level 3, Behavior, by using direct observation of demonstrated competency based on frequency of behavior and independence of performance on a four-point scale. The CARE Gender Marker assessment tool was identified during the scan to evaluate Level 4, Results, by assessing organizational level results of integrating gender sensitivity into programs on a five-point scale. The WHO tool evaluates Level 4, Results, by assessing gender sensitive policies on a five-point scale. The HRSA tool for Integrating Gender into Health Professional Education was identified to evaluate Level 4, Results, by assessing Education Institution on a scale of 1-4 for Institutional Readiness for Interprofessional Sex and Gender Specific Women's Health Education. Existing evaluation tools from SEAOHUN and AFROHUN were synthesized together with additional assessment tools identified during the scanning and compiled into a comprehensive assessment tool for evaluating Gender and One Health on all four levels of Kirkpatrick Evaluation Model. The Gender evaluation tool in Annex 1 below is developed to provide an example for a synthesized comprehensive evaluation tool for a given domain (Annex 1).

Table 5: Available assessment tools for various competencies and sub competencies of each domain

Domain: Outbreak/Emergency Management and Response, Domain Code= OIR		Available Tool per Kirkpatrick's Level of Evaluation			
Competency	Sub competency	Level I	Level II	Level III	Level IV
OIR 1.00 Review investigation and outbreak management experiences for applying best practices	OIR 1.01 Prepare for outbreak/ emergency events	x	x	NONE	NONE
	OIR 1.02 Engage in emergency response training	x	x		
	OIR 1.03 Identify key partners	x	x		
	OIR 1.04 Execute agreements with partners	x	x		
	OIR 1.05 Engage outbreak/emergency preparedness and response networks	x			
OIR 2.00 Use a systematic approach for outbreak response	2.01 Monitor for a potential outbreak	x			
	2.02 Determine cause of an outbreak	x			
	2.03 Establish a case definition	x	x	x	
	2.04 Collect and testing samples	x			
	2.05 Determine need for outbreak/emergency notification	x	x		
OIR 3.00 Respond to outbreaks or emergency events: Use systematic approach for outbreak response	OIR 3.01 Complete a situational briefing	x	x		
	OIR 3.02 Plan for surge capacity	x	x	x	
	OIR 3.07 Implement outbreak/emergency communication	x			
OIR 4.00 Establish outbreak recovery measures : Use systematic approach to recover from outbreak and return to SOP	OIR 4.01 Return to normal operating procedures	x			
	OIR 4.02 Obtain and incorporate stakeholder feedback	x	x		
Gender, Domain Code = GEN		Available Tool per Kirkpatrick's Level of Evaluation			
Competency	Sub competency	Level I	Level II	Level III	Level IV

GEN 1. Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)	GEN 1.0: Gender Awareness: Demonstrate awareness of gender dynamics in emerging pandemic threats (EPT)	x	x	x	x
GEN 2. Evaluate how gender intersects with emerging pandemic threats	Gen 2.0: Gender Analysis: Evaluate how gender intersects with emerging pandemic threats	x	x		
GEN 3. Develop gender sensitive response plans for emerging pandemic threats	Gen 3.1: Gender Healthcare: Provide gender-sensitive interdisciplinary healthcare for EPT	x	x	x	x
	Gen 3.2: Gender Healthcare Education: Integrate gender and EPT into interdisciplinary healthcare education	x	x	x	x
	Gen 3.3: Gender Program: Develop gender-sensitive programming for EPT	x	x	x	x
	Gen 3.4: Gender Policy: Develop gender-sensitive policies and frameworks for the health sector and EPT	x	x		

Annexes

Annex-1. Gender domain assessment tool (draft example)

Level 1: Reaction to the training

Gender and One Health Training Satisfaction Evaluation¹⁵¹⁶

Please rate how well each of the training goals was met. Use a scale from one to four (1 to 4) with one (1) being the lowest and four (4) being the highest.	
1. Participants are more effective in their disciplines by being aware of gender dynamics and applying gender sensitive approaches to emerging pandemic prevention, disease control, surveillance and response.	
2. Participants have the skills and knowledge to be effective agents of gender responsive One Health approaches.	
3. Participants become transformative agents by promoting gender equality and equity in all aspects of their work and sharing this information with others.	
4. Participants become gender trainers, helping to incorporate gender sensitive indicators and assessment tools in their courses as well as sharing information with other colleagues	
Were the workshop materials clear and easy to understand?	
Please tell us what you found most useful in the workshop and why.	
How will you use the knowledge and skills gained from the workshop in your work?	
What types of follow-up (e.g., technical assistance) would be helpful to you?	
How might we improve the workshop in the future?	
Additional comments or suggestions:	

Level 2: Learning (Knowledge and Skill)

Gender & One Health Competency Assessment: Self-report of Knowledge & Skill¹⁷

¹⁵ OCHEA, Gender and One Health Goals of the Training,
<https://airtable.com/tbl729wTU9hZmGC7/viwAAAeWuPUPNIDk8?blocks=hide>

¹⁶ IGWG, USAID, 2017, Participant Evaluation Form, <https://www.igwg.org/wp-content/uploads/2017/05/EvaluationForm.pdf>

¹⁷ PHF, 2014, Competency Assessment for Public Health Professionals,
http://www.phf.org/resourcestools/Documents/Competency_Assessment_Tier1_2014.pdf

Self-evaluate your competency in Gender and One Health on a scale of 1 to 4 based on perceived knowledge and skill	
1 = None: I am unaware or have very little knowledge of the skill	
2 = Aware: I have heard of, but have limited knowledge or ability to apply the skill	
3 = Knowledgeable: I am comfortable with my knowledge or ability to apply the skill	
4 = Proficient: I am very comfortable, am an expert, or could teach this skill to others	
NR = Not relevant to my role	
To what degree are you able to effectively...	
Gender Awareness	
1. Identify basic gender principles and related concepts including sex, gender, gender roles, equity, equality, and life cycle in relation to emerging pandemic threats. (B)	
2. Contemplate the impact of cultural beliefs about gender and the impact of those beliefs on One Health and access to health care in emerging pandemic threats. (I)	
3. Apply gender sensitive approaches to address gender dynamics in response to emerging pandemic threats. (A)	
4. Advocate and promote gender equality and equity in response to emerging pandemic threats. (E)	
Gender Analysis	
5. Identify basic principles and related concepts of gender and emerging pandemic threat epidemiology, disease transmission, and the response cycle (preparation, detection, response, and evaluation). (B)	
6. Utilize gender analysis tools in emerging pandemic threat disease surveillance, response, prevention and control. (I)	
7. Analyze how gender impacts and is impacted by emerging pandemic threats through conducting gender analysis and systemic monitoring and evaluation. (A)	
8. Report and use gender-relevant lessons learned including gender best practices in emerging pandemic threats and resources to address those gaps and apply findings for subsequent program adaptation. (E)	
Gender-Sensitive Healthcare	
9. Identify relevant Sex and Gender Specific Health epidemiology, pathophysiology, clinical presentation, and therapeutic response in relation to emerging pandemic threats (B)	
10. Apply sex and gender specific health considerations in clinical decision making and patient care in response to emerging pandemic threats (I)	
11. Incorporate sex and gender specific health in scientific inquiry and research design in response to emerging pandemic threats (A)	
12. Teach sex and gender specific health information to others (peer health professionals or patients) in relation to emerging pandemic threats (E)	
Gender-Sensitive Health Education	
13. Recognize the impacts of gender sensitive interdisciplinary health education for responding to emerging pandemic threats. (B)	
14. Integrate gender and EPT into healthcare education at a intermediate level by including gender and EPT in a lecture series or guest lecture (I)	
15. Integrate gender and EPT into healthcare education at an advanced level by incorporating gender and EPT into curriculum and including specialized certificate programs (A)	

16. Integrate gender and EPT into healthcare education at an expert level by incorporating gender and EPT into curriculum for inter-professional health education and exports expertise to national level	
Gender-Sensitive Programs	
17. Recognize the impacts of gender sensitive programming for responding to emerging pandemic threats. (B)	
18. Develop Gender Sensitive programs that adapts to gender norms, work around existing gender differences and inequalities to ensure equitable allocation/services/support aligned with the pre-existing gender differences, structures, systems, and power divisions in society. (I)	
19. Develop Gender Responsive programs that challenge inequitable gender norms and respond to the different needs and constraints of individuals based on their gender and sexuality, open space for discussing, challenging, and engaging with inequitable gender structures, systems, divisions, and power relations. (A)	
20. Develop Gender Transformative programs that change inequitable gender norms and relations to promote equality, demonstrating both the ambition to transform gender and the resources, willingness and capacity to institutionalize transformative programming. (E)	
Gender-Sensitive Policies	
21. Recognize the impacts of gender sensitive policies for responding to emerging pandemic threats. (B)	
22. Implement gender policies that attempt to target both women and men effectively, working within existing gender divisions of resources and responsibilities. (I)	
23. Develop gender specific policies that respond to gender specific needs, working within existing gender divisions of resources and responsibilities. (A)	
24. Advocate and ensure implementation of gender redistributive policies intended to transform existing distributions to create a more balanced relationship between men and women. (E)	
Total Score (Add all scores and enter total here)	
Average Total (Divide the "Total Score" by 24 and enter the result here)	

Comments:

Level 3: Behavior

Gender and One Health Competency Assessment: Direct Observation of Behavior¹⁸¹⁹²⁰

Directly observe demonstrated competency in Gender and One Health on a scale of 1 to 4 based on frequency of behavior and independence of performance	
1. None: Behavior is not demonstrated and/or task is not performed.	
2. Developing: Behavior is demonstrated occasionally and/or task is performed with supervision.	
3. Competent: Behavior is demonstrated frequently and/or task is performed independently.	
4. Mastery: Behavior is demonstrated consistently and/or task is performed and taught to others.	
NR = Not relevant to role	
To what degree does the learner demonstrate...	
Gender Awareness	
1. Identify basic gender principles and related concepts including sex, gender, gender roles, equity, equality, and life cycle in relation to emerging pandemic threats. (B)	
2. Contemplate the impact of cultural beliefs about gender and the impact of those beliefs on One Health and access to health care in emerging pandemic threats. (I)	
3. Apply gender sensitive approaches to address gender dynamics in response to emerging pandemic threats. (A)	
4. Advocate and promote gender equality and equity in response to emerging pandemic threats. (E)	
Gender Analysis	
5. Identify basic principles and related concepts of gender and emerging pandemic threat epidemiology, disease transmission, and the response cycle (preparation, detection, response, and evaluation). (B)	
6. Utilize gender analysis tools in emerging pandemic threat disease surveillance, response, prevention and control. (I)	
7. Analyze how gender impacts and is impacted by emerging pandemic threats through conducting gender analysis and systemic monitoring and evaluation. (A)	
8. Report and use gender-relevant lessons learned including gender best practices in emerging pandemic threats and resources to address those gaps and apply findings for subsequent program adaptation. (E)	
Gender-Sensitive Healthcare	
9. Identify relevant Sex and Gender Specific Health epidemiology, pathophysiology, clinical presentation, and therapeutic response in relation to emerging pandemic threats (B)	
10. Apply sex and gender specific health considerations in clinical decision making and patient care in response to emerging pandemic threats (I)	
11. Incorporate sex and gender specific health in scientific inquiry and research design in response to emerging pandemic threats (A)	

¹⁸ Academic health council, Interprofessional collaborator assessment rubric,
<file:///C:/Users/janel/Downloads/ICAR.pdf>

¹⁹ Public health nursing competency evaluation tool,
<https://www.nursing.umn.edu/sites/nursing.umn.edu/files/competencies-for-public-health-nursing-practice-instrument.pdf>

²⁰ Clinical skills performance evaluation tool,
http://www.ast.org/uploadedFiles/Main_Site/Content/Educators/ClinPerf_ClinEval1.pdf

12. Teach sex and gender specific health information to others (peer health professionals or patients) in relation to emerging pandemic threats (E)	
Gender-Sensitive Health Education	
13. Recognize the impacts of gender sensitive interdisciplinary health education for responding to emerging pandemic threats. (B)	
14. Integrate gender and EPT into healthcare education at a intermediate level by including gender and EPT in a lecture series or guest lecture (I)	
15. Integrate gender and EPT into healthcare education at an advanced level by incorporating gender and EPT into curriculum and including specialized certificate programs (A)	
16. Integrate gender and EPT into healthcare education at an expert level by incorporating gender and EPT into curriculum for interprofessional health education and exports expertise to national level	
Gender-Sensitive Programs	
17. Recognize the impacts of gender sensitive programming for responding to emerging pandemic threats. (B)	
18. Develop Gender Sensitive programs that adapts to gender norms, work around existing gender differences and inequalities to ensure equitable allocation/services/support aligned with the pre-existing gender differences, structures, systems, and power divisions in society. (I)	
19. Develop Gender Responsive programs that challenge inequitable gender norms and respond to the different needs and constraints of individuals based on their gender and sexuality, open space for discussing, challenging, and engaging with inequitable gender structures, systems, divisions, and power relations. (A)	
20. Develop Gender Transformative programs that change inequitable gender norms and relations to promote equality, demonstrating both the ambition to transform gender and the resources, willingness and capacity to institutionalize transformative programming. (E)	
Gender-Sensitive Policies	
21. Recognize the impacts of gender sensitive policies for responding to emerging pandemic threats. (B)	
22. Implement gender policies that attempt to target both women and men effectively, working within existing gender divisions of resources and responsibilities. (I)	
23. Develop gender specific policies that respond to gender specific needs, working within existing gender divisions of resources and responsibilities. (A)	
24. Advocate and ensure implementation of gender redistributive policies intended to transform existing distributions to create a more balanced relationship between men and women. (E)	
Total Score (Add all scores and enter total here)	
Average Total (Divide the "Total Score" by 24 and enter the result here)	

Level 4: Results (Organizational and Institutional)

Gender and One Health Program Evaluation²¹

Score the program on a scale of 1-4 for achievement of integrating gender into programs responding to emerging pandemic threats.			
1. Neutral	2. Sensitive	3. Responsive	4. Transformative

²¹ CARE, 2019, Gender Marker Self-Assessment Program Quality Tool, [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational?preview=CARE_Gender-Marker-Guidance_new-colors1.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational?preview=CARE_Gender-Marker-Guidance_new-colors1.pdf)

Works with gender norms in response to emerging pandemic threats. Reinforces and may take advantage of pre-existing gender inequitable structures, systems, and divisions in society relating to gender. Does not consider how gender roles and relations can impede the achievement of programming outcomes, or how programming can negatively affect gender roles and relations.	Adapts to gender norms in response to emerging pandemic threats. Works around existing gender differences and inequalities to ensure equitable allocation/services/support aligned with the pre-existing gender differences, structures, systems, and power divisions in society.	Challenges inequitable gender norms in response to emerging pandemic threats. Responds to the different needs and constraints of individuals based on their gender and sexuality, open space for discussing, challenging, and engaging with inequitable gender structures, systems, divisions, and power relations.	Changes inequitable gender norms and relations to promote equality in response to emerging pandemic threats. Demonstrates both the ambition to transform gender and the resources, willingness and capacity to institutionalize transformative programming in response to emerging pandemic threats.
--	---	---	--

Comments:

Gender and One Health Education Institutional Evaluation²²

Score the Education Institution on a scale of 1-4 for Institutional Readiness for Inter-professional Sex and Gender Specific Women's Health Education in Response to Emerging Pandemic Threats	
1. Basic	Institutions at this stage include women's health education in a limited fashion, often focusing solely on reproductive health. There are minimal or no interdisciplinary sex- and gender-specific health programs within the institution's health sciences schools or colleges.
2. Mid-level	Institutions at this stage have expanded women's health education outside of the reproductive arena. The curriculum includes sex- and gender-specific health education incorporated into more than 50 percent of the degree curriculum and,

²² HRSA, 2013, Integrating Gender into Health Professional Education, [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Articles?preview=Womens+health+interprofessional+curricula+report.+hrsa.+2014.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Articles?preview=Womens+health+interprofessional+curricula+report.+hrsa.+2014.pdf)

	when applicable, clinical women's health education expands outside of the Obstetrics and Gynecology Department. Students might have an option to choose an elective in women's health. These institutions may have a designated NIH ORWH Women's Health Center of Excellence (COE) or Clinical Center of Excellence (CCOE).
3. High-level	Institutions at this stage have integrated women's health education throughout the 4-year curricula (when applicable) and into post-graduate training. The curriculum includes an awareness of sex and gender as individual variables to be integrated throughout. These institutions may host women's health fellowships, women's health residency tracks, and specialized student certificate programs in women's health.
4. Advanced	These institutions established activities to promote interdisciplinary sex- and gender-specific women's health programs, schools and colleges in addition to inter-professional education across schools/colleges. They fully integrated women's health, and sex and gender, as a curricular thread throughout all levels of health professional education. They have avoided creating stand-alone curricula or modules, choosing instead to layer sex- and gender-specific women's health into existing curricula as appropriate.

Comments:

References

- Gender and OneHealth self evaluation, AFROHUN: [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=OHCEA.+Gender.+SelfEvaluation.+Simulation.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=OHCEA.+Gender.+SelfEvaluation.+Simulation.pdf)
- Gender and OneHealth team evaluation, AFROHUN: [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=OHCEA.+Gender.+TeamEvaluation.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=OHCEA.+Gender.+TeamEvaluation.pdf)
- Gender and OneHealth goals of the training, AFROHUN: <https://airtable.com/tbl729wTU9hZmGC7/viwAAAeWuPUPNIDk8?blocks=hide>
- Gender and OneHealth self evaluation, SEAOHUN: [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=SEAOHUN.Gender.SelfEvaluation.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=SEAOHUN.Gender.SelfEvaluation.pdf)
- Competency assessment for public health professionals, PHF, 2014: http://www.phf.org/resourcestools/Documents/Competency_Assessment_Tier1_2014.pdf
- Gender medical education student self-evaluation, LWBIWH, 2014: [https://www.dropbox.com/preview/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational/sex_gender-medical-education-national-student-survey.pdf?role=personal](https://www.dropbox.com/preview/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational/sex_gender-medical-education-national-student-survey.pdf?role=personal)
- Gender capacity self-assessment tool, UNWOMEN, 2014: https://trainingcentre.unwomen.org/pluginfile.php/453/mod_page/content/1/Capacity_AssessmentTool_En.pdf
- Satisfaction with training self-evaluation tool, IGWG and USAID: <https://www.igwg.org/wp-content/uploads/2017/05/EvaluationForm.pdf>
- Gender self-assessment, UNICEF, 2012: https://www.unicef.org/evaldatabase/files/EO_2007_Gender_Mainstreaming_Report.pdf
- Integrating Gender into Curricula for Health Professionals, WHO, 2006, <https://www.who.int/gender-equity-rights/knowledge/gwh-curricula-web2.pdf?ua=1>
- Integrating Gender into Health Education Curricula, HRSA, 2013, [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Articles?preview=Womens+health+interprofessional+curricula+report.+hrsa.+2014.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Articles?preview=Womens+health+interprofessional+curricula+report.+hrsa.+2014.pdf)
- Gender and Health Analysis, WHO, 2002: [https://www.dropbox.com/preview/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational/who%202002%20institutional%20competency%20in%20gender%20integration.pdf?role=personal](https://www.dropbox.com/preview/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Organizational/who%202002%20institutional%20competency%20in%20gender%20integration.pdf?role=personal)
- Gender sensitivity of Programs self-assessment, CARE, 2019: [https://www.dropbox.com/home/OHW-NG%20\(shared\)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=CARE.+Gender.+SelfEvaluation.pdf](https://www.dropbox.com/home/OHW-NG%20(shared)/3.%20Competency%20Framework/Literature%20review/Gender/Gender%20Evaluation%20Strategies%20and%20Tools/Individual?preview=CARE.+Gender.+SelfEvaluation.pdf)

[aluation%20Strategies%20and%20Tools/Organizational?preview=CARE_Gender-Marker-Guidance_new-colors1.pdf](#)

- Gender mainstreaming in programs self-assessment, UNICEF, 2012:
https://www.unicef.org/evaldatabase/files/EO_2007_Gender_Mainstreaming_Report.pdf
- Gender in humanitarian action, IASC, 2018:
https://interagencystandingcommittee.org/system/files/2018-iasc_gender_handbook_for_humanitarian_action_eng_0.pdf

Implementing One Health as an integrated approach to health in Rwanda

Thierry Nyatanyi,^{1,2} Michael Wilkes,^{3,4,5} Haley McDermott,^{3,6} Serge Nzietchueng,^{2,7} Isidore Gafarasi,⁸ Antoine Mudakikwa,⁹ Jean Felix Kinani,⁹ Joseph Rukelibuga,¹⁰ Jared Omolo,¹⁰ Denise Mupfasoni,¹⁰ Adeline Kabeja,¹¹ Jose Nyamusore,¹¹ Julius Nziza,⁴ Jean Leonard Hakizimana,¹¹ Julius Kamugisha,¹¹ Richard Nkunda,¹¹ Robert Kibuuka,⁴ Etienne Rugigana,⁴ Paul Farmer,^{5,6,12} Philip Cotton,⁴ Agnes Binagwaho^{5,12}

To cite: Nyatanyi T, Wilkes M, McDermott H, *et al.* Implementing One Health as an integrated approach to health in Rwanda. *BMJ Global Health* 2017;**2**:e000121. doi:10.1136/bmjgh-2016-000121

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bmjgh-2016-000121>).

Received 4 July 2016
Revised 21 December 2016
Accepted 22 December 2016



CrossMark

For numbered affiliations see end of article.

Correspondence to
Dr Michael Wilkes;
mswilkes@ucdavis.edu

ABSTRACT

It is increasingly clear that resolution of complex global health problems requires interdisciplinary, intersectoral expertise and cooperation from governmental, non-governmental and educational agencies. 'One Health' refers to the collaboration of multiple disciplines and sectors working locally, nationally and globally to attain optimal health for people, animals and the environment. One Health offers the opportunity to acknowledge shared interests, set common goals, and drive toward team work to benefit the overall health of a nation. As in most countries, the health of Rwanda's people and economy are highly dependent on the health of the environment. Recently, Rwanda has developed a One Health strategic plan to meet its human, animal and environmental health challenges. This approach drives innovations that are important to solve both acute and chronic health problems and offers synergy across systems, resulting in improved communication, evidence-based solutions, development of a new generation of systems-thinkers, improved surveillance, decreased lag time in response, and improved health and economic savings. Several factors have enabled the One Health movement in Rwanda including an elaborate network of community health workers, existing rapid response teams, international academic partnerships willing to look more broadly than at a single disease or population, and relative equity between female and male health professionals. Barriers to implementing this strategy include competition over budget, poor communication, and the need for improved technology. Given the interconnectedness of our global community, it may be time for countries and their neighbours to follow Rwanda's lead and consider incorporating One Health principles into their national strategic health plans.

WHY ONE HEALTH?

One Health refers to the collaboration of multiple disciplines, sectors and groups working locally, nationally and globally to

Key questions

What is already known about this topic?

One Health is the term that refers to the collaboration of multiple disciplines, sectors and multiple groups working locally, nationally and globally to attain optimal health for people, animals and the environment.

What are the new findings?

There is little information on how to institutionalise and operationalise One Health. Rwanda has set out to achieve, in policy and practice, what has yet to be implemented across any nation: an evidence-based, interconnected system to address 'One Health' problems. In this paper, we present Rwanda's 'One Health'-oriented response to global grand challenges as a call to action.

Recommendations for policy

If successful, Rwanda's One Health approach will result in speedier achievement of meaningful health outcomes with more innovative solutions to pressing health problems, and will serve as a model for other countries that may benefit from incorporating One Health principles into their national strategic environmental, livestock and health plans.

attain optimal health for people, animals and the environment.¹ Recent examples of new and emerging diseases in animals and humans (Ebola, Middle East respiratory syndrome, avian flu (H5N1), swine flu (H1N1), severe acute respiratory syndrome) show how quickly balance changes and how vulnerable humans, animals and crops are to disease outbreaks.^{2 3} Infectious diseases are transmitted between humans and animals by a variety of routes including direct contact (rabies), the environment (anthrax), via food (campylobacter/salmonella/brucella/bovine

tuberculosis), or through bites by arthropod vectors (malaria/leishmaniasis/Rift Valley fever). As we have recently seen with the Ebola and Zika outbreaks, in our interconnected world, an animal pathogen can catch a ride on the sole of a shoe, beneath a finger nail, or in respiratory passages, and travel from one remote corner of the globe to another in less than a day. Furthermore, zoonotic illness is not a small or insignificant problem; the majority of human pathogens are zoonotic (60%) and three-quarters of new and emerging pathogens are zoonotic from wildlife species.^{4 5} However, One Health, which is larger than simply zoonosis (other examples include land use, water toxins, forest degradation and climate change (see online supplementary appendix A)), can have a great impact on people and the quality of their lives as well as local and national economies.

Although perhaps the most discussed, infectious diseases are not the only relevant One Health concerns affecting the globe. Waste dumped in or near water flows through streams, rivers and lakes, affecting entire communities—crops, animals and people. Meanwhile, as the human population on the planet increases, humans are forced to live in closer proximity to both wild and domestic animals, which increases exposure to new pathogens, and forces the sharing of limited supplies of water (see online supplementary appendix B). Add to this the growing pressures to increase agricultural production, global warming with the resultant decrease in water supplies, changing microbial patterns, and deforestation, and the result is a deterioration of natural resources and a reduction in many of the protections and checks and balances that have previously been afforded to human populations.

Despite the complex nature of these challenges, most governments have offices or units that focus vertically on specific diseases, and these offices often compete with each other for limited resources. Non-government organisations (NGOs) that align themselves with one issue or disease are often disconnected from interventions for others. It is this sort of Brownian approach to improving health that results in poor communication between disciplines, duplication of services with resulting higher costs, ignoring of common antecedent causes of poor health, and inefficient utilisation of available resources such as specialised reference laboratory facilities. Academic communities, local and national governments, and scientists worldwide are now recognising that the next logical step in problem solving is to connect interdisciplinary and government agency experts so that they can focus on the root causes of illness and the need for prevention and detection rather than responding separately and acutely to each disease. The activities and conditions of each individual, each region, and each country affect others on a variety of levels including economic, cultural, physical, social and more. While very few sub-Saharan African countries are taking steps to put these ideas into action, Rwanda is unique in that it is well on its way.

ONE HEALTH IN RWANDA

Known as ‘the land of 1000 hills’, Rwanda has a north-south mountain range, various water sheds, rain forests and grazing lands. The nation confronts various challenges: energy sustainability, natural gas extraction from beneath Lake Kivu, a growing population, land degradation, crop raiding, wildlife poaching⁶; a loss of biodiversity, conversion of forests to farm land and the risk of soil overexploitation; and climate change resulting in an increasingly variable rainfall. In addition, Rwanda is one of the most densely populated (415 people/square mile) countries in the world,⁷ where One Health disasters can quickly affect large populations. Further, areas with high population density are more prone to food insecurity, soil erosion, decreased grazing lands, and forest degradation, which in turn leads to increased food insecurity and other measures of poor health.^{8 9} The eastern part of Rwanda is home to pastoral communities, which move from place to place in search of water and pastures to feed their animals. Movement is not limited to the national borders, thus pastoralists are at risk of picking up animal pathogens that can be disastrous to the livestock population in Rwanda such as foot and mouth disease and contagious bovine pleural pneumonia, both of which have become endemic.^{10 11} These diseases have high mortality and thus affect food security and the economic well-being of these nomads. Contagion between animals (wild and domestic) and humans does not happen in only one direction. In 2011, one of the mountain gorillas, which provide large eco-tourism revenue for Rwanda, succumbed to a human virus (human meta-pneumovirus) passed on by a tourist.¹²

Through these experiences, Rwanda has learned that the eradication of hunger through initiatives such as Girinka (one cow per family (see online supplementary appendix B)), improvements in public health indicators (eg, improved maternal health, reduction in HIV, reducing malaria and other vector borne illnesses), and environmental sustainability all depend on interdependent systems, shared responsibility, involvement of the community, and collaboration across government agencies, content specialists and policies—all ideas embodied by One Health, a burgeoning global approach to integrated health. The government of Rwanda has therefore framed policies and priorities to drive toward an integrated, holistic-system approach to promoting health. Moreover, it has led to the adoption of the One Health approach by the East African Community, and Rwanda is also working with its neighbours to address regional issues that recognise the inextricable connection between the health of the country’s people, animals and environment and the importance of this interconnection in development. The concept and approach of One Health provides an opportunity for the Rwandan government to expand its reforms to address important interdisciplinary, intersectoral health problems and work to meet the Sustainable Development Goals. Rwanda has

therefore set out to achieve, in policy and practice, what has yet to be implemented across any nation—an evidence-based, interconnected system to address One Health problems.¹³

THE RWANDA ONE HEALTH STRATEGIC PLAN

In 2015, the Government of Rwanda developed and approved a One Health strategic plan to streamline cross-sectoral and institutional interventions, minimise duplication of efforts, and maximise the use of public resources. The goals are to:

- ▶ Promote integrated disease surveillance, prevention and response (animals, humans and agriculture);
- ▶ Improve education and communication among animal, human and environmental professionals;
- ▶ Expose and integrate students engaged in professional education at university level to concepts related to One Health;
- ▶ Promote interprofessional collaboration around innovation, research and discovery;
- ▶ Develop educational tools for pre-university education that introduces concepts of One Health;
- ▶ Develop policy focused on upstream drivers of disease emergence including land use, water access and deforestation;
- ▶ Address issues that relate to land use planning, reducing contact between humans, domestic and wildlife with minimal changes to critical habitat; and
- ▶ Address nutritional access by developing safer practices related to bush meat and animal consumption.

This multipronged strategic plan is problem focused rather than discipline focused, and seeks to bring together the newly realigned University of Rwanda, the Ministries of Health, Agriculture and Animal Resources and Education, The Wildlife Unit of the Rwanda Development Board, and other ministries and civil society. The strategic plan reflects Rwanda's belief that complex health problems can be addressed through integrated policy and interventions that simultaneously and holistically address multiple causes of poor health (eg, poverty, limited education, unsafe and scarce water, lack of sanitation, food insecurity, gender inequality, and close proximity of humans and animals).¹⁴ To further reinforce One Health principles and uphold accountability to the strategic plan, Rwanda has set out to meet three core One Health objectives over the next few years.

Objective 1: Rwanda's government response

Rwanda's One Health response (table 1) goes beyond the traditional approach of disease surveillance, outbreak investigations and response. It also includes new competencies around leadership/governance, efficiencies in resource utilisation, disaster management, delivery of healthcare, systems-related approaches, and vigorous attention to training for life-long learning. In the past, the Ministry of Health, the Ministry of

Agriculture and Animal Resources, other government organisations, academic institutions and NGOs had separate roles with little overlap. Despite limited resources, Rwanda's One Health approach is intended to develop collaborative leaders committed to improving health equity and social justice by addressing health disparities that impact on efficiency by promoting shared resources and collaboration among those working at the animal (wildlife, livestock and companion animals), ecosystem and human health interface.

Objective 2: Rwanda's One Health community response

Another important goal of Rwanda's One Health Strategy is to empower and mobilise various experts and lay workers and establish a One Health workforce to prepare, coordinate and manage epidemiological outbreaks of infectious, toxic or environmental health concern or health events. For example, the Rwandan strategic plan requires the inclusion of veterinarians, wildlife experts and environmental experts who work on emergency management committees. Similarly, disease surveillance of both zoonotic and potential zoonotic disease is monitored by a multidisciplinary team. This is a bottom-to-top approach that involves community health workers (CHWs), community-based animal health workers, NGOs, health clinics, hospitals, park rangers, farmers and domestic animal owners. These experts are prepared and trained to act rapidly and collaboratively given evolving information.

One idea moving forward is to create a hub-and-spoke network using the nearly 45 000 CHWs (spokes) linked to hubs (centres of expertise) through mobile phone technology. Perhaps one day the CHWs will be rebranded 'One Health CHWs' (OHCHWs) given that they are well situated to quickly identify unusual events or problems affecting humans, animals or ecology/agriculture. Hub centres would be connected via the internet to district centres and eventually to a central repository and command centre. OHCHWs would routinely collect local information on the health of humans, animals and crops and notify hub centres when there are sudden changes or concerns.

Objective 3: Rwanda's One Health educational (academic) response

Interprofessional team work and collaboration such as that mentioned above has the best chance of becoming routine if education and training starts early and focuses on core competencies that stress problem solving, team work, leadership, creativity, conflict management, communication, project management, transparency and outcomes. However, despite extensive capacity-building efforts in Rwanda, there remains an undersupply of physicians, veterinarians and environmental scientists. To combat this problem, several colleges and universities have recently coalesced into the University of Rwanda to improve opportunities for interprofessional training, interdisciplinary scholarship and research innovation,

Table 1 One Health strategic objectives

Objective	Strategies
1 (government level): promote and strengthen interdisciplinary collaboration to promote a One Health approach	<ul style="list-style-type: none"> ▶ Improve communication and interactions between ministries responsible for animal, human and environmental issues and regional agencies ▶ Engage in One Health strategic planning focused on systems-thinking that considers the diverse range of complex and inter-related One Health issues impacting on animals, human health and the environment at the local, national and international level ▶ Collaborate with the East African Community to expand the One Health concept across the region, given that toxins, infections and environmental degradation do not respect political borders ▶ Provide financial incentive and support for One Health initiatives to incentivise collaborative problem solving
2 (community/NGO level): strengthen surveillance, prevention, early detection, rapid response, and control of zoonosis in both animals and humans	<ul style="list-style-type: none"> ▶ Improve the capacity within Rwanda to conduct community surveillance, treatment and monitoring of outcomes of One Health problems including emerging and re-emerging zoonotic diseases, neglected diseases, and other public health events of international concern that pose a threat to human health ▶ Introduce technologies including computers, mobile phone data collection applications, and tele-conferencing to improve detection, monitoring and intervention related to One Health problems at the community level ▶ Promote timely and goal-directed communication between local communities, ministries, NGOs and neighbouring nations
3 (academic level): build capacity and promote applied research at the human, animal and ecosystem interface	<ul style="list-style-type: none"> ▶ Improve training capacity of both professionals and mid-level providers to develop skills necessary to identify, monitor and respond to One Health problems that may cross outside of their area of expertise ▶ Modify health science and environmental training programmes/curriculum to promote graduation competencies related to collaboration and cross-disciplinary problem solving ▶ Develop training programmes for existing professionals to promote the sharing of knowledge, skills and resources to address current and future One Health needs ▶ Train, keep current and incentivise One Health problem solvers to stay in Rwanda. Despite the huge investment of national resources, it is not unusual for trained health experts to leave the country for economic gain or even to be pulled away for other national service ▶ Protect national resources include the gorilla population and other wild animals that could be damaged by exposure to life-threatening human infectious diseases

and work force expansion. Harmonisation of the environmental health programmes offered by the old veterinary college and the old 'human health sciences' college has now provided another great opportunity to articulate One Health as a cross-disciplinary approach.

As a start, Rwanda has created a One Health curriculum embedded in its Master of Global Health Delivery

programme which integrates collaborative problem-solving approaches with elements of infectious disease, epidemiology, ecology, environment, finances, food safety and leadership. Plans are also underway to integrate One Health modules into the Master of Public Health and Epidemiology courses, developing a 1-month community-focused field boot camp in 2017 to

further train animal–human–ecosystem providers in integrated problem solving, leadership and communication skills related to One Health. Finally, a vibrant One Health students' club for undergraduates was established in 2012, the first of its kind in the region, that links virtually with other health sciences schools around the world who share a commitment to learning related to One Health. It consists of students from veterinary medicine, environmental health, nursing, medicine and agriculture. The goal of the club is to bring One Health skills, approaches and attitudes to a new generation of scientists and problem solvers who will embrace the importance of working together to serve the community rather than working in silos.

ENABLERS OF AND BARRIERS TO IMPLEMENTING ONE HEALTH IN RWANDA

While Rwanda has been forward thinking in developing a One Health-focused national strategic plan, several important factors have enabled this innovative change. Following the 1994 genocide, Rwanda has benefited greatly from two decades of social and political stability from transparent governance with local, regional and national representation. The elaborate network of CHWs has been a key element in primary healthcare delivery. Rwanda's rapid response teams previously developed in response to outbreaks of Ebola and yellow fever in neighbouring Uganda and the Democratic Republic of Congo are now being used to address other One Health problems by coordinating surveillance, information sharing, and planning of risk reduction and communication.

The country also benefits from many international academic partnerships involving medicine, public health, veterinary medicine, agriculture and the environment. However, until recently, most of these partnerships were solitary and often focused on one disease or a narrow sub-population. In the new model, driven by the One Health strategic plan, interventions are highly coordinated. Finally, within Rwanda there is relative equity between female and male health professionals, making it easier to address important gender and cultural issues relevant to improving One Health.

Resolution of One Health problems often pits one discipline or sector against another with resultant perceptions of 'winners' and 'losers', at least in terms of resources. Other barriers that need to be overcome include a lack of experts trained in a One Health approach, competition for government resources, battles over curricular time in training programmes, issues related to licensing and certification, and interdisciplinary turf wars. There has long been a need to develop infrastructure such interdisciplinary laboratories and structures that promote interdisciplinary, interministerial collaboration focused on problem solving (eg, childhood diarrhoea linked to bovine mastitis). In Rwanda, the key ministries related to One Health have already

coalesced to form a ministerial 'Social Cluster' which meets monthly, with the goal of ensuring that there is little competition for resources between ministries and that shared issues are addressed collectively. However, additional efforts to create a robust infrastructure that would support collaboration and interdisciplinary training would further enable Rwanda's One Health response.

The One Health approach is in evolution and will still require a cultural shift in Rwanda as power and organisational structures become realigned to provide new reporting structures, new offices, new education and new lines of communication. Moving forward, Rwanda's government needs to fund the implementation and embrace the concept of 'oneness' such that the separate ministries can develop common policies, approaches and evaluations that can feed into action plans and improved health infrastructure such as providing better equipped laboratories and data tracking. Academics need to think beyond the traditional silos (medicine, public health, veterinary medicine, engineering, etc) in ways that will stimulate innovation and encourage problem solving.

CONCLUSION

As in most countries, the health of Rwanda's people and its economy are highly dependent on the health of the environment. One Health offers the opportunity to recognise shared interests, set common goals and drive toward team work to benefit the health of a nation. Rwanda's One Health approach provides innovations that are important to both acute (disaster or emerging zoonotic disease) and chronic (animal, human and ecosystem) health problems and offers synergy across systems, resulting in improved communication, development of a new generation of systems-thinkers, improved surveillance, decreased lag time of response, and improved health and economic savings. Given the interconnectedness of our global community in which humans, animals and the environment impact on each other and do not respect geopolitical boundaries, it may be time for all countries and their neighbours to follow Rwanda's lead and consider incorporating One Health principles into their national strategic health plans.

Author affiliations

¹Ministry of Health, Kigali, Rwanda

²University of Minnesota, Minneapolis, Minnesota, USA

³University of California Davis, Davis, California, USA

⁴University of Rwanda, Butare, Rwanda

⁵Harvard Medical School, Boston, Massachusetts, USA

⁶Partners in Health, Rwanda

⁷USAID Preparedness and Response Project

⁸Rwanda Agricultural Board, Kigali, Rwanda

⁹Rwanda Development Board, Kigali, Rwanda

¹⁰Centers for Disease Control and Prevention (CDC), Kigali, Rwanda

¹¹Rwanda Biomedical Center, Kigali, Rwanda

¹²University of Global Health Equity

Handling editor Seye Abimbola.

Twitter Follow Jean Felix Kinani @ohac_gorilla, jfkinani, gorillahealth

Contributors The following are members of the One Health Strategic Planning Task Force, Ministry of Health, Rwanda: TN, SN, IG, AM, JFK, JR, JO, DM, AK, JNy, JNz, JLH, JK, RN, RK, ER, PF and AB provided guidance on this project. TN and MW were the primary authors. TN is the guarantor of the article. TN, MW, SN and HM drafted and revised the paper based on comments from all members of the One Health strategic planning task force. All members of the strategic planning committee developed the plan for the paper. PC provided review and comments on drafts of the paper. PF and AB reviewed the final draft of the paper and provided comments.

Competing interests None declared.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement No additional data are available.

Transparency declaration TN, the manuscript's guarantor, affirms that the manuscript is an honest, accurate and transparent account of the study being reported, that no important aspects of the study have been omitted, and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Open Access This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

REFERENCES

1. Association AVM. *One Health: a new professional imperative, One Health Initiative Task Force: final report*. Schaumburg, IL, USA: American Veterinary Medical Association, 2008. <http://www.avma.org/onehealth/default.asp>
2. Gibbs E. Emerging zoonotic epidemics in the interconnected global community. *Vet Rec* 2005;157:673.
3. Mwacalimba KK, Green J. 'One health' and development priorities in resource-constrained countries: policy lessons from avian and pandemic influenza preparedness in Zambia. *Health Policy Plan* 2015;30:215–22.
4. Jones KE, Patel NG, Levy MA, *et al*. Global trends in emerging infectious diseases. *Nature* 2008;451:990–3.
5. Taylor LH, Latham SM, Mark E. Risk factors for human disease emergence. *Philos Trans R Soc Lond B Biol Sci* 2001;356:983–9.
6. Wronski T, Bariyanga J, Apio A, *et al*. Interactions between wildlife, humans and cattle: activity patterns of a remnant population of impala on the degraded Mutara Rangelands, Rwanda. *Rangeland J* 2015;37:357–65.
7. Commission RNC. *Fourth population and housing census*. Kigali, Rwanda, 2012.
8. Blarel B, Hazell P, Place F, *et al*. The economics of farm fragmentation: evidence from Ghana and Rwanda. *World Bank Econ Rev* 1992;6:233–54.
9. Drechsel P, Gyiele L, Kunze D, *et al*. Population density, soil nutrient depletion, and economic growth in sub-Saharan Africa. *Ecol Econ* 2001;38:251–8.
10. Ekou J. Dairy production and marketing in Uganda: current status, constraints and way forward. *Afr J Agric Res* 2014;9:881–8.
11. Teklehiorghis T, Moormann RJ, Weerdmeester K, *et al*. Foot-and-mouth disease transmission in Africa: implications for control, a review. *Transbound Emerg Dis* 2016;63:136–51.
12. Palacios G, Lowenstine LJ, Cranfield MR, *et al*. Human metapneumovirus infection in wild mountain gorillas, Rwanda. *Emerging Infect Dis* 2011;17:711.
13. Lee K, Brumme ZL. Operationalizing the One Health approach: the global governance challenges. *Health Policy Plan* 2013;28:778–85.
14. Collaboration F-O-W. *Tripartite Concept Note: sharing responsibilities and coordinating global activities to address health risks at the animal-human-ecosystems interfaces*. World Health Organization, 2010. http://www.oie.int/fileadmin/Home/eng/Current_Scientific_Issues/docs/pdf/FINAL_CONCEPT_NOTE_Hanoi.pdf (accessed 2013).

From: Peter Daszak <daszak@ecohealthalliance.org>
To: JoKo Pamungkas <[REDACTED]>, Tracey Goldstein <tgoldstein@ucdavis.edu>, Ava Sullivan <sullivan@ecohealthalliance.org>, Kevin Olival <olival@ecohealthalliance.org>
Cc: PREDICT CCs <predict-coordinators@ucdavis.edu>, predict-survei. <predict-surveillance@ucdavis.edu>, David Wolking <djwolking@ucdavis.edu>, Johnson Chris <ckjohnson@ucdavis.edu>, Jonna Mazet <jkmazet@ucdavis.edu>, Alexandra Shaffer <aashaffer@ucdavis.edu>, Alexandre Tremeau-Bravard <atreneau@ucdavis.edu>
Subject: PREDICT country approvals
Sent: Mon, 20 Jul 2020 15:23:55 +0000

Imung – we're waiting for the country approvals to release the results from Predict samples that Ava and Kevin spoke with you about 2 weeks ago.

Please push this through – we're reaching critical at this point!

Cheers,

Peter

Peter Daszak

President

EcoHealth Alliance
520 Eighth Avenue, Suite 1200
New York, NY 10018-6507
USA

Tel.: +1-212-380-4474
Website: www.ecohealthalliance.org
Twitter: [@PeterDaszak](https://twitter.com/PeterDaszak)

EcoHealth Alliance develops science-based solutions to prevent pandemics and promote conservation

From: predict-coordinators-request@ucdavis.edu <predict-coordinators-request@ucdavis.edu> **On Behalf Of** JoKo Pamungkas
Sent: Friday, June 19, 2020 12:46 PM
To: Tracey Goldstein <tgoldstein@ucdavis.edu>
Cc: PREDICT CCs <predict-coordinators@ucdavis.edu>; predict-survei. <predict-surveillance@ucdavis.edu>; David Wolking <djwolking@ucdavis.edu>; Johnson Chris <ckjohnson@ucdavis.edu>; Jonna Mazet <jkmazet@ucdavis.edu>; Alexandra Shaffer <aashaffer@ucdavis.edu>; Alexandre Tremeau-Bravard <atreneau@ucdavis.edu>
Subject: Re: [predict-coordinators] Re: Thermo Fisher - Lab supplies purchasing option

Many thanks, Tracey.

I was going to ask exactly what you have sent us the answer already. You are a mind reader!

All the best,
Imung.

Dr. drh. Joko Pamungkas, MSc.

- Senior Scientist, Primate Research Center
- Associate Professor, Faculty of Veterinary Medicine

REDACTED

REDACTED

REDACTED (office)
REDACTED (fax)
REDACTED (mobile)

Skype: jok041959

On 19 Jun 2020, at 22.48, Tracey Goldstein <tgoldstein@ucdavis.edu> wrote:

Dear All,

Please find attached an updated file with a contact for Indonesia.

Best Tracey

On Thu, Jun 18, 2020 at 11:39 AM Tracey Goldstein <tgoldstein@ucdavis.edu> wrote:
Dear PREDICT team,

Many of you are in the process of or have new amendments in place to assist with PREDICT extension activities as well as have other ongoing lab projects. For a while now I have been working with Thermo Fisher to try to improve supply chains and access to lab reagents in a timely manner to the various regions.

It looks like these efforts have finally come together and global and country points of contacts for purchasing have now all been briefed on our project and ready to help procure supplies! I can't guarantee this will work in all countries but I am hopeful!

Attached is a list of contacts for each country (name, email, phone #) for you to reach out to to purchase lab supplies. When you do please put PREDICT in the subject line and also cc Li Chen (Li.Chen@thermofisher.com) who is the global lead. It is important you include Li on your email as she will help coordinate and will help to push supplies out to the regional hubs if she sees a number of you are requesting the same reagents.

My hope is that this will be helpful to you beyond the PREDICT project so please do reach out to the POC for your country. Please also forward this email to anyone I may have missed.

Good luck and happy purchasing!
Best Tracey

--

Tracey Goldstein, PhD
Associate Director, One Health Institute
Professor, Department of Pathology, Microbiology and Immunology
Director, One Health Institute Laboratory
One Health Institute

School of Veterinary Medicine
University of California
Davis, CA 95616
Phone: (530) 752-0412
Fax: (530) 752-3318

UCDUSR0006191

E-mail: tgoldstein@ucdavis.edu

--

Tracey Goldstein, PhD
Associate Director, One Health Institute
Professor, Department of Pathology, Microbiology and Immunology
Director, One Health Institute Laboratory
One Health Institute

School of Veterinary Medicine

University of California

Davis, CA 95616

Phone: (530) 752-0412

Fax: (530) 752-3318

E-mail: tgoldstein@ucdavis.edu

<Thermo Fisher contacts v2.xlsx>