USAID
FROM THE AMERICAN PEOPLE

Agrilinks

BEYOND FENCES: POLICY OPTIONS FOR BIODIVERSITY, LIVELIHOODS & TRANSBOUNDARY ANIMAL DISEASE MANAGEMENT IN SOUTHERN AFRICA

AUDIO TRANSCRIPT

JUNE 18, 2014

CONTENTS

PRESENTERS

Steve Osofsky, DVM, Wildlife Conservation Society (WCS)

Michael Colby, USAID/BFS

Andrew Tobiason, USAID/E3

Julie MacCartee, USAID/BFS (Moderator)

PRESENTATION

Julie MacCartee: All right. Good morning, everyone. My name is Julie MacCartee, and I'm a knowledge management specialist with the USAID Bureau for Food Security. I know many of the faces in the room, so I'm excited to welcome you all to the June Ag Sector Council Seminar, and also a special welcome to our webinar participants joining us online.

Today's event is titled "Beyond Fences: Policy Options for Biodiversity, Livelihoods, and Transboundary Disease Management in Southern Africa," which is quite a mouthful. Thank you, Steve. And so we're excited about this event today because it touches on so many topics that are of import to the Bureau for Food Security and our wider audience, from livestock value chains, food safety, trade, policy, many things that I hope you will come up with some good questions and grill our speaker on during the Q&A portion.

So just a couple of quick housekeeping issues. First, we always ask people to silence their cell phones, just so that we don't interrupt the speakers. So if you wouldn't mind doing that that would be great. Second, this presentation is being recorded and will be put up on the Agrilinks.org website about a week to a week and a half after this event, and so we'll make sure that all of you in attendance get a copy of the recording. Because we're recording and because we have a webinar audience, when you ask a question, we just ask that you wait for us to pass you one of these handheld microphones so that we make sure to record your question.

We generally ask you to hold questions until the Q&A period, but if you have a clarifying question in the middle, that's fine. Just raise your hand and we'll be sure to pass you a microphone. And last but not least, we have a couple of additional livestock-related events coming up, actually a Twitter chat next week on livestock and climate change that hopefully you'll get an email about, if you're on our Agrilinks mailing list, and an Ag Exchange online discussion at the end of July on livestock research priorities.

All right. So I'm going to go ahead and pass it over to a couple of folks who wanted to say a few words right at the beginning, and first, I'll pass it to Andrew Tobiason, who is our biodiversity advisor with the Office of Forestry and Biodiversity at the E3 Bureau at USAID. And then we'll pass it over to Michael Colby, who is a climate smart agriculture advisor with the USAID Bureau for Food Security. So first up, Andy.

Andrew Tobiason: Thank you, Julie. Good morning, everyone. It's a pleasure to be here, pleasure to be surrounded by people who have a similar interest in how agriculture and health and conservation intersect. I just wanted to give a little context. I'm in the Forestry and Biodiversity Office, as Julie mentioned, which is a small office at USAID, and I just – I think Mike's going to give a proper introduction to Steve, but I just wanted to mention that he used to a AAAS fellow years and years before I started – not that years and years, but anyway, he used to be in what – the team that preceded our office. So there's a long history with Steve.

So this – I believe that his talk is going to focus on the work that my office has been supporting for the last nearly five years, and this is basically through a program called the Sustainable Conservation Approaches and Priority Ecosystems, which is a wonderful USAID acronym that spells SCAPES. The idea was to encourage applications that offered innovation in how to work at the landscape scale, transboundary, and it could have been seascapes, but we didn't have any in the end, unfortunately.

But one of the landscapes that was chosen, and one of the partners was WCS, and one of their three landscapes is the Kavango Zambezi, which we're going to hear about today. So that's the context in which we're supporting Steve.

The SCAPES Program has really provided an opportunity to kind of push the boundaries on how conservation can advance development objectives, and how we can work basically with a number of different land uses, different political bodies, basically, how do you work at this scale? And so one of the main ways is through policy engagement, although Steve's – or this activity in KaZa is the only pure policy SCAPE, so it's been quite innovative as well.

I don't want to take too much time away from Steve, so I'll just wrap up by saying that his project – the project he's going to describe, which I'm sure is his project, it's his baby, is actually quite illustrative of why USAID, a development agency, actually has a $200 million conservation portfolio, because of these intersections with development that we have to work on trade issues, food security, and by working with communities – I forgot how excellent this video that we all just saw is at explaining kind of the value of working with communities to increase their rights and capacity to manage natural resources, so that they actually become invested in conservation and can accrue the benefits from tourism and from sustainable, environmentally friendly activities, like ranching should be.

Anyway, so thanks for reminding – providing the excellent video, and reminding us what – why USAID is in the conservation business. The last thing I'll say is that in about three weeks, we have a biodiversity policy coming out, making its public debut, and this is a first for the agency. It may not sound like a big deal, but it actually really articulates these kinds of values that the conservation – the process of conserving biodiversity has major development benefits, and biodiversity underpins the wellbeing of people everywhere. So that's all I'm going to say. Thank you, and here's Mike.

Mike Colby: Thanks, Andy, and welcome to everyone. Our two bureaus, two livestock experts both had – both Joyce Turk and Jim Yasmin, couldn't be here today, so I get to fill in, which is a great pleasure, because I've known Steve for almost 20 years. When he was starting as an AAAS fellow, I was starting as a PASA in EGAT Bureau way back when.

And then I went away from AID Washington for about seven years and came back to EGAT – actually, I was in A&E Bureau, I think, when you were in EGAT. Yeah, that's right. And Steve told me about this program that he had with the transboundary conservation areas in Southern Africa, and it was a very, very compelling story about this issue of zoonotic diseases crossing back and forth between livestock and wildlife and humans, because at the time, there was also a connection with the buffalo to tuberculosis, which is often found with HIV/AIDS.

And so I actually – my first – the first project I ever had any responsibility for funding at AID was to support Steve for a year back in 2005 working on another one of these conservation areas on the other side called Limpopo on the border of South Africa, Mozambique, and Zimbabwe to get this kind of work started.

And we've been touching base about once every year since then to see how the progress was going with this idea of commodity-based trade with beef. And so I'm really excited to hear the latest on that, and also, before that, I want to mention, even though Steve is vertically challenged, he and WCS punch above their height, and it's been a pleasure to work with them for years. I think a lot of that is because of three things: their commitment to science, and that includes not just biology, but also social sciences like economics and anthropology and health and stuff like that.

Second, their persistence. They are willing to go to places where most environment NGOs won't go, war zones like the Congo and South Sudan, and they stay there. And as we all know, 90 percent of success in life is showing up. So they are very impressive on that front.

And lastly is this commitment to conservation, working for local people, and that means it has to work economically, socially, health-wise, everything else. And they've been leaders on that front. After I – after the project with Limpopo, I managed a project with WCS called Translinks, and one of the things Steve did under that was organize a workshop on health as an ecosystem service, which went on to get – garner a lot of support, actually, from our Health Bureau.

So he's done some – led some really interesting things, as I said, punching way above his height, and it's really a pleasure to introduce him.

I also wanted to mention, related to the video, one of my last products in the E3 Bureau was the new Nature, Wealth, and Power 2.0 report, which I wrote with my ex-teammates Mike Negahy and John Anderson. And one of the five big case studies in it is the Namibia case, mainly focusing on the wildlife, but also starting to get into the livestock, too. So I encourage people to check that out when they have a chance. It is on the RM portal. Show it again? Is that what you meant? I didn't bring hard copies with me, but – oh, okay. I think it's okay. I think it's me waving it around. Sorry. Sorry to folks online.

So anyway, without any further ado, my good friend Steve Osofsky.

[Applause]

Steve Osofsky: Thank you very much for those introductions. Thank you all for making the time to come. Thank you for those of you who are listening and watching online. As you know, the talk is called "Beyond Fences: Policy Options for Biodiversity, Livelihoods, and Transboundary Animal Disease Management in Southern Africa." And all the work I'm going to talk about is under what WCS called AHEAD umbrella, which stands for Animal and Human Health for the Environment and Development.

And this was a program launched more than ten years ago, back at the IUCN World Parks Congress in Durban, South Africa, in 2003, and the idea I had at the time was really a bit of horizon scanning. At that time, Southern African countries were starting to think about trans-frontier conservation, the values of biodiversity going forward economically, and I could kind of get a sense, because I had been living in the region at the time, that there was a potential collision coming with the livestock sector.

So we brought together really some of Southern and East Africa's top thinkers from a whole range of disciplines, from economics, from the livestock sector, from wildlife health, livestock health, other social sciences, the public health community, and we brainstormed on how to develop a way forward to hopefully find win/win policy solutions to some fundamental land use conflicts that, again, seemed likely to be looming.

And I want to take a minute out to thank USAID for really helping us launch AHEAD more than ten years ago, people like Franklin Moore, who've been followed by colleagues like Andy and Mike, and who have stuck with us in various forms to see this work through.

I want to thank the Rockefeller Foundation, who has also been an instrumental supporter of this work in terms of looking at new ways to value ecosystems, new ways of alleviating poverty, and new ways of securing healthy people and healthy livelihoods, and the US Fish and Wildlife Service Wildlife Without Borders program has also been extremely important in our work in KaZa.

So what is AHEAD? I want to give you a definition. AHEAD really, our program is a facilitative convening mechanism. We work to create an enabling environment to literally bring to the same table competing sectors. We work towards finding collaborative ways forward to address challenges, what I like to describe as the wildlife, livestock, human health and livelihood's interface, and we do this at different scales.

So in some places, we will work in a given country to literally help get members of the Ministry of Environment, Ministry of Agriculture, Ministry of Public Health to the same table, because in many places we work, including in Washington, when I first came here 20 years ago, it was the same here. These sectors are often not collaborating. We're all working in bureaucracies that tend to sectoralize our interests, but the problems we're trying to solve in the real world don't work that way.

So AHEAD works at that local scale, but also regionally, as we're going to talk about, bringing these different disciplines and sectors together to solve real world problems that are not neatly compartmentalized.

So I'd like to say – I mean, I'd like to think that we've earned a reputation as being an honest broker. Although we are the Wildlife Conservation Society, and our goals are to preserve a future for wildlife and wild lands, we really do respect all the sectoral interests

that depend on the same land uses, and we try and really help represent those interests in a fair and equitable way.

So I want to give you a bit of personal history, but also some regional history to set the stage. This is a wildebeest dead along a foot and mouth disease control fence, and this picture is from the early 1990s when I was actually the first wildlife veterinarian for the Botswana Department of Wildlife and National Parks.

But the story I really want to tell you starts much earlier than that. Let's go back to the late 1950s, when Southern Africa was quite different, and most of the places you're familiar with were either colonies or protectorates. So Botswana was British Bechuanaland. Zimbabwe was Rhodesia. Namibia was German Southwest Africa.

And in those times, and again, this is before the era of the discovery of diamonds, colonial powers were looking for ways to find economic traction. And to make a fairly complex story simpler, one of the things they seized upon was the idea of moving beef from these colonies and protectorates, from Southern Africa, back to the motherland, back to Europe.

They knew even in the late 1950s that there was this virus, the foot and mouth disease virus that naturally lives in the African buffalo. The African buffalo is the only species in the world that we know of that normally carries this virus. They don't get sick from it. They just evolved with it.

But they knew at the time that they couldn't risk getting foot and mouth into Europe. Those of you who follow the news, we've had these periodic flare-ups of this disease. Foot and mouth is the single most important disease in terms of global beef trade, because of its impact on market access. If you recall, for example, in the UK when there was an FMD outbreak, billions of dollars of losses, farmers committing suicide. There have been more outbreaks in South Korea, North Korea. This is a globally important disease.

So going back to the late fifties, these colonial entities decided to build fences, to separate those buffalo from livestock, and they proceeded on a path over the ensuing decades to build what turned out to be thousands and thousands of kilometers of fences. These fences, again, were designed to separate buffalo and other wildlife from livestock to allow for this export opportunity. Unfortunately, as you saw in the film, thousands, hundreds of thousands, if not millions, of wild animals, have died along these fences in the ensuring decades,

because in this part of the world, they need to migrate seasonally in order to access grazing and water resources.

So it's easy to sort of Monday morning quarterback this, look back in history. I'm not necessarily criticizing exactly the way this rolled out. It's very complex in terms of the economics of it. But the reality is that those fences were subsidized by the World Bank, by USAID, by the Europeans. We've all contributed to this. And there really was no environmental impact assessment process in place. And so what you really had was what I can safely describe as a slow motion environmental train wreck.

This is – brought us to a situation whereas we saw in the movie wildlife has declined throughout the region because of this, but the context was not ill intent. This was a mono-sectoral plan that didn't take account of other sectors. Wildlife was a value-less resource. Livestock was a valued resource, and decision-making followed that path. So again, whether I would have made those decisions if I was an advisor in the late 1950s, I can't really say. I'm just trying to give you the historical context.

So just so you can sort of visualize, these are just some of the major fences in this part of the world. And if you're a wildebeest or any other kind of migratory animal, you're going to have a lot of trouble navigating that. On this right hand side here, you can see those are – those are maintenance roads, basically border roads, along a cordon fence, and I wanted to make sure you know what a cordon fence looks like. This is just an example from Namibia. They're double fences. They're about 12 feet high. And if they're well-maintained, wildlife's just not going to be able to get through them.

Okay, so that's sort of a very quick thumbnail overview of the history, and a lot of bad news from an environmental point of view. But I want to talk about good news. I want to fast forward to today, okay? We talked about an era where wildlife was not a valued resource. Today, nature-based tourism, nature-based activities, contribute as much or more to the growth domestic product of the Southern Africa region than agriculture, forestry, and fisheries combined. Now think about that. That is a remarkable macroeconomic change. Wildlife is a valuable resource.

In fact, it's so valuable that the heads of state of many of ____ countries have decided to create trans-frontier conservation areas, I'll call them TFCAs, or peace parks. There are now about 14 of these areas gazette or underway, and again, the driver here is macroeconomic.

My job, as – when I talk to students, they ask me, what do I do? And I tell them, my job is to help make wildlife an economically rational and socio-culturally acceptable land use choice, and that's happening. And it's okay that the primary motivation is economic. That makes perfect sense.

We're talking about the boldest experiment in land use planning on the planet. The Southern Africans really deserve to be commended for exploring this path. If you add up all these areas conservatively, they add up to about 750,000 square kilometers, depending on how you count. That's bigger than the State of Texas. This is a vast, vast set of land use changes that are underway, again, with wildlife becoming an important economic driver.

The simple way to think about it is wildlife really is Southern Africa's global comparative advantage. Southern Africa is never really going to compete on the global meat market. You know, they're never going to compete with an Argentina for beef, but in terms of the last great places to see free-ranging wildlife, Southern and East Africa really are it, and the heads of state have not lost sight of this fact.

So the – again, to make it clear, the reasoning behind this experiment, if you will, in land use change, in rezoning, is threefold. First, it's driven primarily by a recognition that it allows for expansion of economic opportunities, socioeconomic development, based on nature based activities. And I don't want to underplay the fact that there really is a reason they were called peace parks, to promote this culture of peace and cooperation. A lot of the countries that are collaborating now on these transboundary initiatives historically haven't been the best of friends, if you will. The Great Limpopo that Mike mentioned, we have South Africa, Zimbabwe, Mozambique working together. That's important from a piece point of view. And then, of course, this is all grounded in the conservation of biodiversity.

I want to emphasize, again, the massive scale of this, and how important it is that Southern Africa is taking a leadership role. This is the Kavango Zambezi Trans-Frontier Conservation Area. You saw it featured in the file, which, by the way, was a true story. The Kavango Zambezi TFCA has been made up of five countries: Botswana, Namibia, Angola, Zambia, and Zimbabwe. They've come together to create this vast area, and just so you can, again, get a sense of scale, that's – the shape of it's superimposed on the Northeastern United States. Again, this is vast conservation real estate.

But I want to be clear. It's not about creating one giant national park. These are multi-use areas, as you saw in the film. There are people

living in these areas. There are livestock. There are railroads. There's irrigation agriculture. This is about creative land use planning and rezoning. It's not about exclusion and only having land available for wildlife.

So just to give you a bit more background on the Kavango Zambezi, or KaZa for short, it is in fact, if it is successful, going to be the largest terrestrial area dedicated to conservation not just in Africa, but in the world, at least 450,000 square kilometers, more than 1.5 times the size of the UK. It is home to about 1.5 million people and their livestock. And as you saw in the film, it's home to the most important population of elephants left in the world. About 250,000 elephants live in KaZa. Unfortunately, because of the poaching crisis, that's now more than half of the world's African elephants.

There are significant pressures. There are parts of this landscape, like the Okavango, that appear pristine, but the reality is in most of this landscape, wildlife is declining because of fences, human/wildlife conflicts, conflicts with agriculture. There are lots of issues to resolve to get this on a more sustainable path.

The other thing I'd be remiss if I didn't mention is all the climate change models for Southern Africa point to an ongoing drying trend, and it's important to keep in mind that in terms of an adaptive strategy, about the only thing Southern African pastoralists can do with their livestock, and about the only thing wildlife can do under this ongoing drying trend, is to be able to migrate.

And so in fact some of the rezoning and realignment of fences that we are working with Southern African governments to evaluate are probably the only opportunity for climate adaptation available, allowing north-south migrations that currently are precluded. So there's actually a nice synergy between trying to mitigate the impacts of climate change and the trans-frontier conservation area movement, both for wildlife and for livestock and pastoralists.

And if it's not already clear, it will be clear in the next half hour: foot and mouth disease threatens the viability of the entire peace parks enterprise. It really is – foot and mouth, as strange as it seems, is a fundamental driver of land use planning in this part of the world for over 70 years.

I want to take a minute for those of you who aren't familiar with WCS to sort of put this into context. I manage the wildlife health portfolio for the Wildlife Conservation Society, and we work at a range of scales. Just as an example, we have people in the Russian Far East

right now working on an outbreak of canine distemper in tigers. This is a virus having a serious impact on one of the most important tiger populations left on the planet.

We're working in the Congo basin on the impacts of Ebola on great apes, gorillas and chimpanzees. Those are sort of species level interventions.

This project that we're talking about here today is what I like to think of as a great example of how we work at the landscape scale, how health is actually relevant to landscape level conservation. So we work along that whole continuum.

The other thing I think it's important to recognize, and I think both Andy and Mike alluded to this, is everything we do is grounded in the recognition that the ultimate sustainability in terms of conservation of the last great wilderness areas is dependent on the stewards who live in and around these places, the local communities. If the local communities are not aligned in terms of their interests, in terms of their own livelihoods and economic development, anything we do is unlikely to succeed. And so we really go out of our way to work in partnership with local communities, to look at their needs and try and find, again, those win/win solutions, both from a social and an economic point of view.

In the case of Southern Africa, I think everyone in this room is well aware that cattle have long played an integral role, not just economically but socially and culturally. In a place like Botswana, which is really the center of the KaZa landscape, cattle first were brought in around the sixth century. So we have to be very sensitive to the fact that cattle are part and parcel of the core culture, and we have to work with that recognition.

Again, in terms of table setting, to get everyone on the same page, because of this unique assemblage of wild species, all of these different bovines, these antelopes, Southern Africa has also got an incredible array of diseases in animals. We call them transboundary animal diseases. You might hear me say TADs for short. Transboundary animal diseases are often highly contagious diseases that can move back and forth across national boundaries, and they can cause serious socioeconomic harm, and in the case of zoonotic diseases, like Mike mentioned, bovine tuberculosis, they can be serious in terms of public health threats.

So my goal here today is unfortunately not to make you all veterinarians, so rather than run through all the interesting diseases,

I'm only going to focus on foot and mouth, because it's most relevant to our discussions today.

So to summarize the fundamental land use conundrum, there are some fundamental sectorial issues that we have to reconcile, okay? Trans-frontier conservation areas, for them to be successful, they require, by definition, the free movement of wildlife over these large geographic areas. For populations of wild species to have long term viability, that genetic exchange that they need over time, they have to be able to move, to interbreed across large areas. As you've seen, and I hope most of the folks online were also able to view the film in advance, the current internationally accepted approaches to the management of these transboundary animal diseases prevents movement of animals by things like fencing, to separate animals into categories of where there are certain transboundary animal diseases, and where there are not diseases.

So there's one main land use choice that requires connectivity, and the other sector requires boundaries. So obviously the vision for trans-frontier conservation and current policy approaches that are accepted globally for the management of these diseases are fundamentally incompatible.

Our premise, and the premise for the work that USAID has supported us to do, is that sustainable livelihoods depend on finding a way forward, a new approach, a recognition of this conflict, and a way to resolve it.

So again, I can't go into great detail, but I also want to make it clear that the current business as usual approach, that story I told you that started in the late 1950s, doesn't really translate into equity under the current paradigm. So using Botswana as an example, areas are actually zoned, and just because there are fences up, it doesn't mean that everyone in Botswana who has cattle, for example, can access international markets.

So if you're in Northern Botswana around the Okavango delta, in this pink area, that's a dirty – quote/unquote dirty zone. That's an infected zone, because you – if you're the poorest of the poor pastoralists, you tend to be relegated to the lands closest to wildlife. You're very near buffalo. You can't trade your cattle under the current regime. You are in a dirty zone.

Generally, in most countries, not all, the wealthier cattle owners live farthest away from wildlife in a green zone. It's that green zone that's separated from the wildlife where you can have access to

international markets under this geographic-based approach. So there is an important equity issue that I don't think is always recognized under the current system.

The other thing I find that some of my colleagues have lost sight of, particularly over the past 20 years, is that the current system is actually failing. I drew some numbers together from Botswana, Namibia, and South Africa to show that you if you just look, for example, from the 1980s to now, the last 30 years, foot and mouth outbreaks are on the rise. The current fencing system isn't working. The currently available vaccines don't actually match the strains that are in circulation. So it's important to recognize that even if we do nothing to change the current system, it's failing. And in fact, many countries aren't exporting beef for this reason.

So let's look at this amoeba shape, this five country transboundary area, again, Namibia, Angola, Zambia, Zimbabwe, Botswana. There are lots of things you need to do if you're going to create a transboundary conservation area. I mean, just to name a few, you've got to harmonize transboundary law enforcement. If you're a paramilitary force chasing poachers, you've got to have jurisdiction across boundaries, or at least a collaborative agreement.

You've got to reconcile customs and immigration, if you've got tourists trying to move freely across this space. There's all kinds of legal and jurisdictional issues, revenue sharing issues that have to be worked out. These are complex issues. But the reason we got involved is the fundamental physical barriers to the whole premise of this, this connectivity, these wildlife quarters, comes down to foot and mouth disease management. So that's why we chose to work in this landscape, because for us, this is a place where our issues are make or break for the vision that these countries have put forward for themselves.

So very quickly, I threw up a few examples of current barriers to that historical connectivity, where animals used to migrate. So those little red areas, the circles and the arrows, show fences that are combined with natural barriers like rivers that are blocking migratory paths across areas where wildlife used to freely move.

And I want to just use one example to go into more detail. This is the Okavango delta. This is what was until recently called the Caprivi Strip of Namibia, now renamed the Zambezi region, and then up here would be Angola. This corridor right now is open for about 30 kilometers, and it's a very important path for elephants and other

species. But 30 kilometers isn't big enough to have the ease of passage that these animals need.

These yellow and black dotted lines are veterinary fences, and when this fence was put up here, it actually ended up creating a pocket full of elephants, and those elephants right now, around 10,000 to 15,000, are stuck in this pocket, and they're growing. This is a hotbed of human-wildlife conflict, elephants trampling and eating crops. Just as one example, these elephants need to be part of the wider landscape in order to survive and to mitigate this ___. They need a release valve.

So one of the things we're doing as we look at some of the policy dimensions of rezoning, if we could work with local partners in Botswana and Namibia, and these discussions are underway in collaboration with a whole range of NGOs as well as governments, if you could have the elephants when they're up here, and they move up here at certain parts of the year, take down this fence, and instead move it this way, basically the inverse of what you see, you could have a 100 kilometer corridor, which would provide an incredible pressure release. The elephants could then move freely, other wildlife could move freely. That's a key corridor. It's probably the most important corridor to alter right now in the context of the vision of the KaZa TFCA. And it is feasible to do this if we can get the policy regime aligned.

So livestock, agriculture, and biodiversity conservation are clearly both vital for rural economic development. We are not an organization that ways one or the other. It's clearly going to be both. I also, as I pointed out, want to make it clear that nature-based tourism is more crucial than ever in terms of an engine for economic growth in SADC.

I think it's fair to say, based on the data that I've shared with you, that current attempts to control foot and mouth geographically with fences is actually limiting livelihood opportunities and compromising system resilience. This is not a sustainable situation right now. And using that example of elephants, which is not unique to that pocket under the Kwando Corridor, there is intensifying conflict between livestock interests and wildlife conservation, because of the current zoning situation.

So there are really four key issues that policy makers need to remain cognizant of, and we recently were able to share some of this with a special parliamentary select committee on beef in Botswana, because Botswana is actively looking at new ways to think about this, just as

an example, as is Zimbabwe and Angola. We're seeing a lot of new thinking emanating from the region.

It's important, and I think this was in the film, for all of my colleagues across the veterinary community, both those who focus on livestock and those who focus on wildlife, to recognize that this virus in this part of the world is not eradicable. The global veterinary community recently deserves great praise for finally eradicating the rinderpest virus, but rinderpest doesn't have a free-ranging wildlife host like foot and mouth has in buffalo. So unless you were to kill all the buffalo in a place like Southern Africa or East Africa, this virus is here to stay unless there's some unforeseen incredible development, where you can somehow vaccinate free-ranging buffalo, I think we just have to accept the fact that this virus is here to stay.

I also think that the current internationally accepted approaches to the management of the virus are conflicting with this vision that SADC has put forward for itself in terms of trans-frontier conservation, and as we've shown, the approaches that we're using are not working anyway. And the net-net is that rural development suffers. I think we'd all agree, particularly in the face of uncertainties like climate change and food insecurity, we need to cultivate a resilient development basket, a resilient basket of opportunities for livelihoods, and that's what we're trying to do.

So as this interface between livestock and wildlife and livelihoods intensifies, we obviously need new ways to do business. So the solutions that we need to promulgate have to do three basic things. They have to help Southern Africa's pastorals and farmers. Those are key stakeholders. They can't threaten free-ranging wildlife. Key economic driver.

And we haven't talked much about this, but we also have to make sure that we provide confidence to the countries importing beef from Southern Africa that the products they would be importing don't threaten their own livestock or their own agricultural sectors. Nobody wants foot and mouth in their countries.

Can we do all these three things? I think going back over the history of the AHEAD program more than ten years, I'm quite confident that we can do these three things.

How do we do it? Somewhat ironically for me personally, it comes down to meat science. Now I'm a veterinarian, and I don't know how many veterinarians we have in the audience, but I will confess, including online, on audio, that these were the classes I tended to fall

asleep at in veterinary school, and I regret that now. Little did I know how important it would be later in my career. I'm just kidding.

If we know that we can process high quality steaks by deboning, taking out the lymph nodes, and aging the beef, having that pH drop below 6, the science has told us for years that the virus, foot and mouth, it can't survive that. So there's a safe way to produce these commodities, to produce high quality products that will be acceptable in terms of risk mitigation. So that's not rocket science. It's not even new science. But why aren't we doing that? Why isn't this the standard?

I have to go into some of the nuances under the World Trade Organization's sanitary and phytosanitary rules. This is really a bit dry, but you need to know, and most people outside of our professional realm don't even know this stuff, but it's actually kind of interesting. There are historically, purely historical reasons, two separate bureaucracies, and okay? And I've got to tell you what they each are.

On this side – whoops. On this side of the diagram here, on the left hand side, we have the World Organization for Animal Health, the OIE, based in Paris, and I think they're up to 178 member countries. The OIE is older than the UN. It is responsible globally for the results that regulate the safe movement from an animal disease point of view of animal products and animals, whether you're talking about meat, milk, eggs. There is an aquatic component. The OIE makes those international rules that countries have to abide by if they want to participate in international trade. Okay? They're the ones whose code, the Terrestrial Animal Health Code, dictates largely a geographic or fence-based approach in Southern Africa.

Now on the right side here is the Codex Alimentarius. That's under the auspices of the UN, managed by FAO and WHO. They make sure when you eat a hamburger, you don't get sick. You don't get e. coli or salmonella.

So on this side of the diagram is the prevention of the spread of diseases of importance to animals and trade. On this side are diseases that are important for food safety.

In the food safety side, we tend to rely on the processing, on value chain monitoring, on hazard analysis, on what we call critical control points. That's what the CCPS is. In other words, how the product is processed determines whether it's safe for people to eat.

On this side, we have a geographic-based system. But what I want to point out is we're really talking about a biological hazard, whether on this side of the diagram or this side of the diagram. If you want meat or any animal product to be safe from viruses or bacteria or parasites, it's how you process the product that matters, not where the cow came from. The reason we have these dueling standards, and this is particularly difficult for the developing world, because there's a lot of expense required to meet these standards, the reason we have them separate is purely historical.

If we were designing a system from scratch, I don't think we'd do it this way. So what are the implications of this? We are basically saying that we can adopt commodity-based approaches, okay? We call it commodity-based trade. It's all in the context of value chain risk management for beef that would solve the problems in terms of food safety, because we already use that for food safety, but also in terms of mitigating the risk of movement of foot and mouth.

Why? Because commodity-based trade, a value chain approach, focuses on the safety of the processing of the products, from farm to fork, as they like to say, rather than where a particular animal came from. And we, in the context of our policy work, have been working very closely with our colleagues in OIE and FAO to work through some potential tweaks to international standards. Now I can't predict the future, but we've been working very closely with the Southern African Development Community, SADC, with OIE and FAO, and I think a year from now, the new standards in what is called the Terrestrial Animal Health Code are coming out, basically next May.

And I'm cautiously optimistic that there will be provisions in the new code that will actually facilitate this value chain approach and potentially provide that win/win opportunity we've been looking for in Southern Africa. At least, that's our hope.

Just to be clear, commodity-based trade is all about insuring quality along the value chain in terms of production and processing, so that we identify food safety risks and animal disease risks and mitigate them in that process.

As I think Mike was kind of enough to say, WCS and the AHEAD program are science-based program. Science-based activities drive what we do. And just in the past year, I put these two papers out on the table, and they're also online for the viewer's online, downloadable. These are two papers that came out in the journal *Transboundary and Emergency Diseases*. This is a journal that chief veterinary officers actually read around the world. Those are people

who are responsible in their countries for the issues we've been talking about.

The top paper is "Balancing Livestock Production and Wildlife Conservation In and Around Southern Africa's TFCAs." This is a summary of what we're talking about here today. The second paper is much more detailed, and it really is explaining how these two standards, those two sides of the diagram, the OIE and the Codex Alimentarius, can actually harmonize. And we've laid it out I hope I in intelligible language, and have recommended to our colleagues in these international multilateral organizations that they consider this change. But it has to be grounded in the science, and we think that's very, very important.

I also want to be clear. As I said at the very beginning, the AHEAD program is about creating an enabling environment. The drivers for both the trans-frontier conservation area initiatives, as well as these policy changes, are our regional stakeholders themselves, the countries themselves. SADC, the Southern African Development Community. We are helping to create platforms. We are helping to put together the science and partnership with regional experts. But it is the region that is driving this change. It is the region that has recognized that their development trajectory is compromised by the current policy conflicts.

We helped SADC hold a joint meeting with all of the partners in 2012 in Botswana. It was called – it was held in Phakalane, Botswana. And out of that meeting came the Phakalane Declaration, which is available online, and it was a resolution by SADC calling for adoption of commodity-based trade and other non-geographic approaches for the management of foot and mouth disease as a standard.

So the region came together, looked at the available science, looked at the economic opportunities that this land use space offered under the right policy paradigm, and put forward a resolution that the international community is now taking serious heed of. And I'm very proud to have been able to work with our colleagues to help them get this word out.

I also want to make it clear that although I focused on Southern Africa, the policy paradigm that I'm describing has relevance well beyond Southern Africa. I'll give you a few examples.

Tanzania is a very important country in terms of wildlife conservation, and they also have a big livestock sector. Periodically over the years, livestock officials from Tanzania have visited places

like Botswana and looked at what Botswana was doing successfully 10 or 15 years ago in terms of this fence-based approach and market access to Europe.

And we've alluded to, a lot of those fences and a lot of the subsidies that supported them have melted away, particularly from Europe. And so the model that Tanzania has been looking at really isn't functioning very well. But if we can get this new policy paradigm in place, we can help countries like Tanzania skip a painful learning step and potentially not explore fencing. Tanzania, if you know the famous migrations in places like the Serengeti and the Northern Park Circuit, from a conservation's point of view, the last thing we want are fences in that part of East Africa.

But if we can get the value chain approach, commodity-based trade, more widely accepted by the international community, a country like Tanzania could also benefit in terms of a multi-sectoral benefit.

I want to take you quickly to Asia. We also work on Mongolia's Eastern Steppe. In Mongolia, we have the largest migratory herd of antelopes in Asia. We have the Mongolian gazelles. There are about a million animals left, down from probably 20 million 40 years ago. But this is another transboundary area. Mongolia, Russia, China share this landscape, and they're also plagued by foot and mouth disease, but there's no species like the buffalo.

Mongolian gazelles we've been able to demonstrate don't carry this virus the way buffalo do, but they do get it, and they die from it. And they can spread it temporarily. But in this landscape, the Mongolian gazelle is a victim, not a vector. But it took our scientists to work with the Mongolian government to prove that, because the reflective action in many countries when there's an outbreak of a disease is to look to wildlife as the source.

We were able to prove that in fact wildlife is a passive victim, and the real problem is vaccine mismatch. The vaccines that are available right now in that part of Mongolia are not matching the circulating viruses, and there's unfortunately a lot of illegal movements of livestock between Russia, China, and Mongolia, that's constantly bringing in new sources of virus in that part of Asia.

But again, while Mongolia even in the past year has been talking about putting up fences, if we can get this policy change in partnership with OIE, a land of livestock, which Mongolia clearly is, would benefit, again, multi-sectorally. They might be able to access markets they can't access right now, and there'd be a threat to the gazelles, fencing,

that would be alleviated. And again, if they put up fences on the Eastern Steppe, the Mongolian gazelle population will crash.

Again, I want to thank all of the organizations that have supported this work, USAID, the Rockefeller Foundation, the US Fish and Wildlife Service. And I want to make sure that all of you do what I do every night. You go to the WCS AHEAD website. We have ten years of materials. It's a very – it's not the most fun website, but all of our policy documents, all of our published literature, all of our recommendations are available. It's very deep.

I also have a quarterly newsletter that some of you get. If you go to the website and you go to the upper right hand corner, you can click – type in your email. You can get our quarterly newsletter.

And for those of you who weren't able to join us this morning, *Beauty and the Beef*, the 20 minute film, which again is a true story in the heart of the Kavango Zambezi Trans-Frontier Conservation Area, is freely viewable online. You can click on this icon on our homepage and watch the film at your leisure.

I hope I've been able to very quickly compress sort of really what's been more than ten years of work on a fairly complex and nuanced set of sectoral issues, but I hope we have some adequate time for questions and discussions. So thank you very much for your time.

QUESTIONS AND ANSWERS

Julie MacCartee: Thank you very much, Steve, and we are ready to open it up for discussion. I hope there are some questions both in the room and online, and I'll pass it over to Laura to start. And please state your name and organization when asking a question.

Laura Schreeg: Thank you so much. That was really, really interesting. My name's Laura Schrag, and I'm with USAID Bureau for Food Security as an AAAS Fellow. So my question is, you made the – very compelling made the case that the geographical reasons for the – that you don't need – we don't need geographical policies, but we – that we can counter the foot and mouth disease based on science, but then you listed a long list of diseases other than foot and mouth disease. So I was wondering, what is the science there? Are those still based on geographical policies, or is there more science that needs to be developed before we – before those also fall into the same sort of story that you're telling for foot and mouth?

Steve Osofsky: Yeah. That's a good question. It really is disease specific, and we're focusing on foot and mouth because it is the driver in terms of trade policy. Some of these other diseases are transboundary, but some of them are manageable in other ways. Some of them have adequate vaccines available in the region. Some of them can be managed at the local level with community-based animal health or other veterinary services. It does depend on what part of the region you're looking at. But if we can crack the foot and mouth disease nut, we can certainly open up trade.

I want to be clear. This whole value chain depends on good veterinary services. We don't put sick animals into this process. If an animal, like you saw in the film, is brought to an abattoir and is detected to be ill for any reason, just like here, it's excluded from the food chain.

So this is not a way to sanitize dirty meat. We still vaccinate animals. We give them good animal health care, and we make sure that they are healthy before they enter the food chain.

The other I think want to make clear, if it wasn't, is we're not saying get rid of all the fences. Fences are just tools. There are places where we're going to continue to need fences. In fact, in parts of the Okavango delta, fences actually keep livestock out of important wildlife areas. But what we are talking about is strategic realignment of certain fences so that we can have the key corridors opened up, but still protect both sectors. So I just want to be clear, it's not get rid of all the fences. It's be more strategic on how we deploy that tool.

Julie MacCartee: I think we'll pass it over to our online audience for a question.

Marisol Pierce-Quinonez: Yes. This question comes from Dilip Bondari from Hyper International in Little Rock Arkansas. Steve, could you say a bit more about how community-based animal health care systems are helping in the management of transboundary diseases?

Steve Osofsky: Right. So it depends on the country, but we tend to think here, we think about animal health providers being veterinarians. In many countries, and it's often in the private sector, although there are regulatory veterinarians in our government under USDA auspices and under various state auspices. In many countries, veterinarians are few and far between, and they are unable to say – have an adequate livelihood servicing poor pastoralists.

But community-based animal health care workers are a way to provide almost a second tier of care, basic care. You can teach non-veterinarians to do some of the most basic things, dealing with parasites, dealing with ticks, providing basic vaccinations, advising on nutrition, so that communities have access to basic animal health care without requiring necessarily a doctorate of veterinary medicine to be available all the time. It's a way of dealing with the shortage and the economic realities of the veterinary profession in some of these countries.

And it's been very successful. In fact, from a conservation point of view, we think a lot about human-wildlife conflict in conservation. We think about predators. We think about lions taking livestock, and then people take revenge. They go and poison the lions. This is a real problem.

But some of our collaborators did a study in Kenya where they began a community-based animal health care approach, and basically improved the productivity of people's livestock by orders of magnitude. Milk production went up, meat production went up, to the point where the occasional losses by predators were relatively trivial.

Now that connection wasn't automatic. There was an education component to this. But basically, by providing community-based animal health care, improving people's livelihoods, you could actually increase their threshold of tolerance for living with wildlife. That's really important, and it comes down to, again, recognizing that local people are the stewards of the natural resources that we're all concerned about, and if you can improve their livelihoods through

tools like community – through processes like community-based animal health care, it can be a win/win, both for the livestock sector and for the natural resources sector.

Audience Member 1: My question is around competition. Have you – do you foresee challenges or have experiences challenges already from major livestock commodities in countries that are FMD free that don't want the competition from this area of the world?

Steve Osofsky: Very important question. I think there – you could argue in some cases there is a protectionist aspect to the fact that certain countries have sort of not been interested in exploring these alternatives, but the reality is Southern Africa contributes less than one percent to the global stream of beef. I think historically all those subsidies, all those fences, that colonial history I told you, was targeting a subsidized European market. That market's essentially drying up. The Europeans are – those subsidies have melted away.

The reality for Southern Africa, and at the Phakalane meeting I described, SADC themselves articulated the fact that their best market opportunities are within Africa itself, as there's a growing middle class. Countries like Nigeria are net importers of beef. This policy right now is constraining trade within Africa, never mind outside of it. If they can get this value chain approach even adopted within Africa, that will free up and open up market opportunities from Southern Africa say to West Africa, etcetera.

And so because the overall productivity of Southern Africa and East Africa is relatively small, I don't think that's going to be a problem. I think the demand is going to be there. And the other thing is if we pivot away from a focus on Europe because of the historical relationship, there are going to be markets in Asia as well that are – the global demand for protein, for beef, is only going to continue to increase, and I think if we can get this policy paradigm right, the Southern Africans, and the East Africans, for that matter, will have more access.

Julie MacCartee: We'll pass it back to our online audience.

Marisol Pierce-Quinonez: Yes. This question comes from Caroline Legenuse, a veterinarian from Washington State. Has WCS formalized inclusion of conflict analysis at the program level, or for communities, conflict transformation and communications or simple ethical decision making models to support WCS's work?

Steve Osofsky: I don't know if we would use that language to describe what we do, but in terms of some of the analysis that we've done, and Mike Colby spoke a little bit about this, we really are trying to look at these problems holistically, and a lot of our work depends on basic communications and identification of threats from the perspective of local communities. In other words, the community that you saw featured in the film, Nmashi, those are real people that we work with in collaboration with WWF and other partners.

And so their perspective on local problems is first and foremost in our minds. We don't at all impose solutions. And I've tried to, you know, really take advantage of our – of the trust I think we've built in the region to work at that level, as well as with leadership in SADC, the livestock technical committee of SADC, which speaks for the livestock community, to translate the threats that they see socially and economically into tangible actions.

I'm not sure if that gets to the heart of the question, but I think as Mike articulated, our approach is grounded in science, but not just ecological science. It's grounded in the social sciences as well, because that's the only chance we have for sustainability.

[Background voices]

Audience Member 2: Thanks, Steve, for your long-term championship and linkage of these issues into one holistic story. I'm wondering about even if OIE were to adopt ____ seems a bit ____ imminent, to what extent will the trade industry stakeholders that have a sort of vested interest perhaps in an exclusion message, or the exporters in South Africa and Namibia and Botswana themselves, how much buy-in do we have in the region, as well as will there be any resistance on the side of – even if OIE makes this change, will the trade industry accept this?

Steve Osofsky: Yeah. I think there's a real market opportunity that's already been recognized, and we're working closely with a range of private sector partners. And so that abattoir that we showed you in the film, that's real, and meat goes to part of it. There's both public and private sector partners in Namibia. I know that the Botswana Meat Commission is looking for new solutions to some of the constraints they face. And again, I think it will depend on market flows.

So there may be countries in Asia, for example, that have foot and mouth endemic in livestock, are unable to deal with it, and for them, as an example, the level of concern is a little bit less, although they don't want a foot and mouth strain from Southern Africa. But the private sector is critical to get this right. So it's a partnership between

state veterinary services, the private sector, and communities, under the auspices of a regulatory regime that works.

So I actually see sort of an anticipation. We give these presentations – we've shown this film a lot in the region, and we often have a big portion of the audience is the private sector. So I think they're recognizing that finally there might be a new opportunity, including some of the bigger companies.

Julie MacCartee: So back to our online.

Marisol Pierce-Quinonez: This next question comes from Christiana Rosignoli in Italy at the University of Pisa in the Department of Veterinary Science. They've got a number of questions about the foot and mouth disease vaccine, including which stereotypes of foot and mouth disease are there, and how specific is the vaccine? What about sheep and other livestock? Do we have to vaccinate all of them? And lastly, is the vaccine available at a good price?

Steve Osofsky: Okay. The vaccine question is an important one, and that graph I showed you of since 1980 of the failure of this current policy, it's a combination of the fencing system not working, but as I mentioned, the current vaccinology situation is a real challenge. There are basically three main types of foot and mouth in the region, South African Territories, SAT 1, 2, and 3. Under those three, there are a whole range of topotypes. There's many variants, if you will, of this virus.

The problem is if you make a vaccine, it has to cover all the circulating topotypes to be effective. It's a tricky virus to vaccinate against. And there's been a bit of a race. It's an arms race, if you will, between keeping vaccines current with strains that are actually moving around. As people move livestock around, or potentially if wildlife moves around, the strain distribution can change.

And so if you go on our website, there is a button to what's called the foot and mouth disease bulletin that we produce in partnership with the University of Pretoria, and we've been reviewing the vaccinology periodically, and pointing out that we have what's called vaccine strain mismatch, just like we have in Mongolia, where if the vaccine is not widely available that matches the circulating viruses, it doesn't work.

Generally, in answer to the cost question, because it's in the national interest to deal with this virus, generally, in many countries, the

vaccine is subsidized. So the poor pastoralists don't have to pay for it. It's in the interest of the state veterinary services to pay for it.

But it's an ongoing challenge, and again, vaccines are an important component. Whether we're relying on the old system, the fence-based system, or whether we transition to a mix that includes the value chain system, getting better vaccines is important. As I said, this isn't about bringing sick cows into the food chain. It's still about providing quality veterinary services, including good vaccines. And that's an area that the OIE and FAO have both agreed needs ongoing investment to get that right. There are experts in Botswana, in South Africa, constantly working on new vaccines, but it's a challenge that's ever-evolving.

Julie MacCartee: Any other questions or comments from our in person audience? Yes, Andy?

Andrew Tobiason: So rather than call you later with this question, so Steve, Botswana has said – declared a moratorium on hunting of elephants starting this year. They already have probably a third of all the elephants. Does – and so the pressure is just going to increase that you described for elephants getting stuck in that pocket and needing to move through. Is that government any more motivated to bring the fences down, or are they really just subject to the trade constraints, still?

Steve Osofsky: I think the macroeconomic picture I painted is something that governments in the regions are very cognizant of, and I think the reason that – you know, the five nation KaZa TFCA was signed at the head of state level. This was an international treaty. So President Khama is well aware of the ramifications of that TFCA, and I think there is a recognition that if this realignment is possible, that pressure valve will potentially be very important for alleviating some of that conflict.

Most of the elephants in the region are south of the Zambezi, partly because of natural barriers like rivers, but partly because of fences. If we can get some of these strategic corridors set up, and as you probably know, in Angola, there's been an ongoing de-mining exercise, because one of the key elephant corridors is also loaded with mines, and that's something the elephants are actually pretty savvy about.

But I think the governments who signed on to this recognize that there is a sectorial win/win. And we – I think it's been very encouraging to see the dialogue that's happening within Botswana. I used to be in the Ministry of Environment in the Wildlife Department,

and now we see vet services and animal health talking to the veterinarians in the wildlife department, the two ministries talking about these issues. This is really about enlightened land use planning. That's what this whole project is about.

So I think the elephant issue is a driver, because human-elephant conflict is, as I said, constantly getting worse and worse, as elephant populations grow, and they can't expand. So it's a really important justification for looking at connectivity. I think that's well-recognized.

Julie MacCartee: Back to our online audience. We're asking a lot of questions today. It's great.

Marisol Pierce-Quinonez Yes. This question comes from Kevin Fasa, soon to be PMF with the Bureau for Food Security. Once hurdles for export are cleared, is there still an issue of negative consumer perception about the quality and safety of the beef? If so, what are some private sector engagement approaches that may improve the perception and demand for this meat?

Steve Osofsky: That's an important question. I mean, historically, because of the lack of market access in Botswana, for example, or in many parts – many of these countries, cattle are kept for a long time. You know, as – they're valuable for other reasons. And so they don't get sent to the abattoir at the best age, and so you don't get necessarily the highest quality meat. That's another reason the European markets are unlikely to be the long term destination.

But in terms of consumer demand, one of the things that I know the private sector is recognizing – think about this – this is wildlife friendly beef we're talking about here. And if you're talking about educated consumers, we're all familiar with what's happened with good wood, with the Forest Stewardship Council, with the whole movement in terms of seafood, and looking at environmental impacts. And when you go to Whole Foods or wherever you go to shop, and you can tell whether your seafood was sustainably harvested.

If you could market wildlife-friendly beef, I think you could have a competitive advantage. And there is I think an untapped demand for that type of marketing approach, because I don't think the average consumer – going back to the late fifties and ___, I don't think the average consumers in Europe who were buying this beef really had any idea that the government policies that set that market up were having these environmental impacts. A little bit of awareness can go a long way, and I think we've seen that in other sectors.

Julie MacCartee: Mike, I didn't know if you had a response to that specifically.

Mike Colby: Well, Steve can elaborate on what wildlife-friendly enterprise – the certification process that was started under Translinks with WCS and Enterprise Works.

Steve Osofsky: Well, I can speak more to the thinking on the beef sector, where I know that, for example, the Cheetah Conservation Fund in Namibia has explored this idea. Right now, there is no Southern African certification process. It's something that's been talked about if this policy change shifts. But I would welcome you saying a little bit about the lessons learned from the other sectors under Translinks. Can we give Mike a second on that? Because it's an important issue. We should learn lessons from these other experiences.

Mike Colby: Well, another initiative under the Translinks project was the creation of a new label and certification process called wildlife-friendly enterprise. It was started by WCS and the other NGOs, and Enterprise Works had a big role in it. And several of our projects under Translinks had wildlife-friendly businesses under them, not just meat and stuff like that, but also tourism, also clothes, and all kinds of things around the world.

And so it's a market-based approach, an economic approach to showing that you can conserve wildlife well, having good economic development.

Julie MacCartee: All right. Becky, I saw you had a question.

Becky Manning: Becky Manning, veterinarian from Bureau of Food Security. Thank you, Steve. This was a really great presentation. So moving to activist view, so May is coming around soon. Anything left we can do to support the vote or the outcome for the Terrestrial Code, Animal Code? I mean, clock's ticking down. Anything –

Steve Osofsky: Yeah. Well, it's a – it's not a system that's experienced a lot of advocacy from the grassroots. I would say we are – I have found that, for example, the AHEAD update, which we circulate quarterly, is now read by almost at least 3,000 primary subscribers, and then gets forwarded on. And we've been trying to, again, use science-based information to help our colleagues around the world recognize what we're talking about.

I mean, this stuff, is – it's pretty complex, if you're trying to study the Codex Alimentarius and the Terrestrial Animal Health Code. But if you

can make it digestible, we're finding more and more governments' chief veterinary offices are understanding it.

Now in the case of the US, okay, we have really pretty good support within USDA APHIS for this concept, I have to say. That doesn't mean that the US is ever going to import Southern African beef. I mean, that's not – that's out of my decision realm. But I don't think that matters. I don't think the market stream to the US would be that significant anyway. It would probably be more symbolic. And I think there are other interests commercially in the US, livestock-based industries that would oppose that.

But that's okay. As I said, if we get enlightened governments, if our own government supports this ongoing tweaking of the code, and the code's almost there. It's been tweaked periodically. We don't have to necessarily be a buyer to support a logical change. And like I said, we've – you know, we've had dialogue with our colleagues in USDA, and they – I would say that they've been very effective in recognizing that the proposed standard that we are supporting is what they describe as equivalent. That's really what it comes down to. If you can prove that your risk mitigation strategy is equivalent to the existing strategy, then it's the responsibility of the regulatory authority, in this case OIE, to consider it.

And OIE has also been very open to dialogue. I have to say that that's what gives me some sense of cautious optimism. I don't – I wouldn't go as far as to say that the final change is inevitable. I think that would be premature. But I'm encouraged by the fact that we're in a time where because wildlife has clearly become so important to places like Southern Africa, that the animal health community has had to recognize that they can't work just in one sectoral channel.

Becky Manning: So you see the route to influence on OIE, either previously in time or now, is through the USDA?

Steve Osofsky: Well, if you're an American. If – yeah. The chief veterinary officer who will be voting on these types of things, will be evaluating the Terrestrial Animal Health Code, each country of the members countries of OIE essentially has a say. Yeah.

Julie MacCartee: We have time for a couple more questions. We've got one online and in here. So I'll get you next, but we'll start with our online audience.

Marisol Pierce-Quinonez: Thanks, Julie. This question comes from Catherine Stevens, a graduate student in environmental engineering at University of Illinois at

Urbana-Champaign. Steve, you spoke about how collaboration between agencies in different countries is necessary for new policies. Do you have any insight as to Africa's specific challenges to making those political interactions successful?

Steve Osofsky: I mean, I hope it goes without saying, but I probably should say it. I mean, all of this work – we described this work as part of our One World, One Health approach. You know, WCS really, going back to 2003, 2004, the AHEAD program was the first implementation of the One Health concept, really. We sort of revitalized I think a sense that we had to work cross-sectorally.

I don't think Africa's challenges are unique. I think that the obvious challenge in any developing country, and even in the developed world, are resources. You know, there are some great ideas emanating from the region. Our partners in SADC are very savvy in thinking about these issues. But resources available to do research, to look at the vaccine issues, to pilot some of these land use changes, are limited.

And so USAID support for this type of work has been critical. The work in the film in Namibia, looking at using that abattoir to look at a commodity-based approach, was funded by the MCC. Again, you know, from the US government.

And so I think the donor community could continue to assist Africa by recognizing that these real world problems, as I said at the very beginning, require multi-sectorial solutions. And so if in the case of the US government, if the Bureau for Food Security and the biodiversity team can think programmatically together, I think we'll be much more successful than if we continue to have programs that are defined in one sector.

The story of my career, in all honesty, is I will go to a donor, whether it's a government donor or a foundation or – doesn't really matter. And I will describe a project, and there is an instinctive need by all of us to sort of categorize it. Well, that's an environment project. You should be talking to an environment donor. If I'm talking to an environment donor, I almost inevitably get, well, that's a health project. You should be talking to a health donor.

I think it's clear, if you've lived and worked in this part of the world or on these types of issues, there's no such thing as a problem that nicely fits into one sector. And so the African governments are also, just like our government, structured sectorally, and it takes some effort, some transaction costs, to break down disciplinary barriers. And I think, as I said, that's really what AHEAD was about. We literally used to hold

meetings going back ten years in a capital city, introducing colleagues from different ministries who had had no incentive or reason to work together.

But this vision for trans-frontier conservation, because it's the same land base that the livestock sector uses, it's kind of forced the issue in a healthy way.

Julie MacCartee: I know we have a question back here, unless this is in response to this particular question. All right. We'll pass it back here first.

Sally Lumm: Sally Lumm, wildlife ecologist. Steve, do you think if this new system is accepted, do you have any concerns to the fact that new markets could be opened, and this could encourage the communities to increase their cattle numbers a great deal, to the point where it could threaten the viability of these conservancies to support the cattle and the wildlife?

Steve Osofsky: Right. Now that was the primary question we asked before we even got started. Are we potentially taking the genie out of the bottle? And if you look at Northern Botswana right now, there are hundreds of thousands of cattle overusing that ecosystem, and what they need is a pressure release. They need market access to even get to the point where grazing levels are sustainable.

And so there's got to be a balance between the two sectors. There's got to be a partnership between the natural resources, the wildlife sector, and the livestock sector. There is definitely a healthy tension there over land use planning, and it's not going to happen automatically. It's going to have to be negotiated. You have to plan. You have to have, you know, targets for your stocking rates, based on the ecosystem and the market realities.

So if left completely without any forethought, there's always a risk that one sector or another is going to dominate land use. But as we know, the current approach is leading to this overpopulation of livestock in places Ngamiland, and this negative impact on free-ranging wildlife.

Business as usual isn't working, so by trying this new system, and being very cognizant of what you're describing, potentially tipping the scales too far in the other direction, as long as I think we're thinking about that proactively, we can find sort of that middle ground. But it's important to always be thinking about that. That's a good question.

Marisol Pierce-Quinonez: Julie, I've got one more from online, if you don't mind.

Julie MacCartee: Oh, ___ ___.

Marisol Pierce-Quinonez: Okay.

Bob Smith: Hi. Bob Smith, USDA National Institute of Food and Agriculture.

Steve Osofsky: I knew you looked familiar.

Bob Smith: National program leader for Veterinary Clinical Medicine. Also, program leader for the Small Business Innovative Research for Animal Production and Protection, which is – I just got into within the last year. And that leads to my question. You're talking about research support, and I wonder if SADC could talk to their – reach out to their small businesses to ask them about looking into new vaccines, new diagnostic technologies.

And this is something that we're making headways in the US, great strides, new vaccines across all agricultural species, rapid diagnostic tests. I mean, I'm sort of looking into my little crystal ball, and I can see into the five to ten years out exactly what's going to be happening, because we're investing in these small businesses.

These small businesses partner with our land grants, okay, which is where they get their scientists, oftentimes where they get their initial ideas, okay? And I encourage the people in South Africa or any part of Africa to set up a mechanism to support business development, and they can start with phase ones, like we do, $100,000.00 to develop a concept. And if they are successful with that, then they go into phase two, which for us is about $450,000.00, two year program.

But they're all competitive. We all have very strong peer review programs, which they could easily develop down there, because there are universities in South Africa as good as any place else. But this is something that if they can look at a mechanism to fund it, I don't think you need a lot of money, but you need the incentive out there to get people to start applying. And I just think it's something that you might want to look into ___.

Steve Osofsky: Yeah. I mean, just to be clear, I didn't have time to talk about it, but we actually have been working very closely with USDA in Pretoria, and we've had a number of meetings in partnership with ARS in the region on vaccinology. There's a whole network of vaccinologists,

vaccine developers, epidemiologists, who are actively engaged, not just with USDA, but with other governments as well. And it's a fantastic opportunity to access those resources. And I think there is a lag time between sort of the old model, which was governments are responsible for vaccination, and the transition, where there's more of the right alignment of incentives for the private sector. Like any vaccine, if there's no market demand, it's not going to happen. And so as the private sector has more incentive and state subsidies melt away, the types of programs you're talking about become more appealing to those interests.

So that's – USDA's been, as I said, not just APHIS, but other parts of the USDA, have actually been very prominent in the region.

Bob Smith: But I would hope that maybe USAID, I know that they've supported small business, and medium sized businesses, and perhaps they would be able to have funds to support that type of program in partnership with SADC. I mean, again, I'm just pitching it out there. That's all.

Steve Osofsky: No, we should definitely talk more about that. It's very much of interesting.

Julie MacCartee: And I think we'll pass it over to our online audience for the last question.

Marisol Pierce-Quinonez: Thanks, Julie. This question comes from Adam Keeps-Vintrack in the US Virgin Islands. Steve, coexistence of protected areas and terrestrial agriculture often involves a shift from extensive production systems to intensive production systems. With regard to pastoralists' livelihoods in Southern Africa, certainly there are socioeconomic considerations, but is there any validity in discussing the importance of the transformation of pastoralism to intensive livestock raising systems to limit livestock-wildlife conflict?

Steve Osofsky: One of the trends that we'll see – I didn't talk about sort of an intermediate way to do this, which is through what's called compartmentalization, where you essentially fence in livestock instead of fencing out wildlife. And on the table and on our website, I put out a study that we did on Namibia, where we actually compared business as usual versus this new approach based on value chains, as well as intermediate model where there was compartmentalization, looking at economic and financial flows.

And at least in the heart of KaZa, in the Zambezi region, the value chain approach where there's minimal fencing was the most economically viable alternative. The reality is in many of these semi-arid systems, intensification so far has not been cost effective, because the availability of fodder that often requires importation of animal feeds doesn't generate a sensible economic outcome. There's intensification particularly in places like South Africa, but I think, particularly if the trans-frontier conservation area vision is realized, I think there is a likelihood that we'll continue to see extensive pastoral systems remaining, with pockets of intensification. But it's going to be dictated by the economic realities of what it takes to product intensified – an intensified approach. And the investment in that is not clearly on the horizon in most cases, but not all cases.

Julie MacCartee: All right. Well, on behalf of the Bureau for Food Security, I'd like to thank you, Steve, very much for presenting. Excellent presentation today. And we hope that you'll join us for future Agrilinks events. If you have a chance to fill out the survey on your chairs or that you'll find online, those always help us improve our events for the future. And if you want to say a final word –

Steve Osofsky: No, I would just encourage, if you want to keep up with us, please go to the home page of WCS-AHEAD.org, sign up for our newsletter, and if you can't find a piece of technical information on our website that you need, my email is on the webpage. Just shoot me a note, and I'm happy to provide you with what we've been putting together. Thank you very much for this opportunity.

Julie MacCartee: Thank you. Thank you.