# 2021 National Biosecurity Forum

Session 2: Preparedness – is Australia prepared for the next national biosecurity threat?

(Duration 1 hour 14 mins 53 secs)

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## Introduction

This is the transcript of the National Biosecurity Forum, session 2, presented by the Department of Agriculture, Water and the Environment.

## Transcript

[Session begins]

Richard Morecroft: Now, we are going to move onto our next session very shortly. But we are going to, in the meantime, ask you a Mentimeter question. The question is where are you joining us from? Let us know where you are joining us from and we will start to get a really good sense of how from all over the country and indeed from New Zealand, as we can see there as well, there are people joining everywhere. We are just delighted that there is such a hugely varied uptake from all parts of Australia and beyond.

Let's move straight onto our second session for today, which is all about preparedness. How ready are we? Indeed, how ready can we be for the next national biosecurity threat? Now, there are some things, of course, that we know all too clearly. The biosecurity risks facing Australia are growing. And therefore, so too are the risks that will have a significant incursion or an outbreak. Being prepared is a critical measure to ensure that we can manage those risks. But is Australia actually ready for our next major national biosecurity threat?

Well, we have an outstanding panel of speakers to explore this topic. Dr Jo Coombe will talk about a One Health approach to antimicrobial stewardship. Jo Laduzko will speak to the position our emergency response is capable of as a result of our ever-changing risk profile in Australia. And to close the presentations, we'll have a joint presentation from Northern Australia, which of course has already been emphasised as so important in our discussions today. Desley Darby and Murray Korff will take us through some innovative approaches aimed at supporting the early detection of threats from our geographical neighbourhood.

First, it's a very warm welcome to Dr Jo Coombe, secretariat and chair Animal Industries' Antimicrobial Stewardship RD&E strategy, a One Health approach to antimicrobial stewardship. Welcome, Dr Coombe.

Dr Jo Coombe: Thank you very much. And thank you for inviting me to speak here today. What I'd like to discuss is the importance of biosecurity in antimicrobial stewardship programs and implementation, particularly in livestock enterprises. It's well known that antimicrobial resistance is a One Health issue. And this is this year's infographic from the World Health Organisation for World Antimicrobial Awareness Week, which actually starts in two weeks' time. And basically, obviously, it implies that we are all responsible for trying to reduce antimicrobial resistance. The Tripartite of the WHO, OIE and FAO, a few years ago included the United Nations and became the Tripartite Plus in a memorandum of understanding with respect to antimicrobial resistance. And in bringing in the United Nations Environment Program, there became a little bit more of an emphasis on the role that the environment plays in this One Health approach to antimicrobial resistance and stewardship.

And this is an infographic from the UNEP website, which as you can see is very busy, but anybody who understands biosecurity can immediately see how important biosecurity would be in trying to mitigate the risk of the movement of antimicrobial resistant bacteria and/or genes from one enterprise or type of environment to another. Some of the issues with these infographics can be that they are extremely human centric. And sometimes I would infer in fact One Health becomes public health. And really, One Health should mean the approach to antimicrobial resistance with an equal understanding of its part in all the different sectors. Usually, a lot of these diagrams, obviously the humans are the centre of them. And really, this has come out of the fact that antimicrobial resistance is a huge issue for human health. But most of these arrows you could argue could also go the other way.

When we are looking at livestock enterprises, which is the majority of the work that I do, you would start to question, well, what about what's coming into a farm as opposed to only what's going off the farm? Especially when we are looking at antimicrobial resistance and stewardship. And this diagram actually was produced by the European Food Safety Authority quite recently. And I think this is actually a lot more informative when we start to talk about biosecurity and a One Health approach to antimicrobial resistance. This actually outlines all the potential transmission routes of AMR on and off a typical livestock enterprise. And as you can see, it really does go both ways. This actually starts to give us a little bit more of an understanding of the important role that biosecurity is likely to play in mitigating risks of antimicrobial resistance spread and increase.

Sorry. I'll just go back to that. Some of these pathways are very, very poorly understood, especially, for example, the role that just air has to play in the movement of antimicrobial resistant genes and/or bacteria. But one of the important areas is obviously going to be the human to animal spread. We have workers coming in and off farms all the time. And, for example, wildlife, rodents, et cetera, what's the part that they have to play? All of these other aspects are really important. But in Australia so far, we do have some evidence of the movement of antimicrobial resistance from humans to livestock and from... Apologies. That's, yes, humans to birds. Obviously, indirectly then that could be birds to livestock, because they are obviously likely to come into enterprises.

A few of these examples are one case. And there has only been one case, that I know of, of MRSA, which is the nasty antimicrobial resistant staphylococcus in humans. And that was found in a dairy cow. Humans to pigs for the same organism. There has been fluoroquinolone resistant Campylobacter found in chickens. And it's assumed that this has been from humans because fluoroquinolone, which is a class of antibiotics that is critically important to humans, has never been used in chickens in Australia. It's not actually allowed to be used in food producing animals at all. It's been assumed that this may have been from humans and been brought into a chicken enterprise. And then there are multiple examples of human to bird transmission of antimicrobial resistance. And these are different types of birds from seagulls through to pigeons. There have been multiple different studies done that have shown that there is transmission from humans to birds of antimicrobial resistance. And going back to that EFSA diagram, obviously if those birds then come into enterprises, there is going to be a risk that they could bring antimicrobial resistance onto the enterprises.

Now, I haven't talked about the risk of movement of antimicrobial resistance off enterprises. And obviously, this is an important aspect as well of biosecurity. We are still looking into this. And, again, it's an area that's not well understood. But I would point out that there are a lot of restrictions around withholding periods of antibiotics, which mean that you can't necessarily allow those antimicrobials to travel out of the animals and obviously into, for example, the food chain. We do have a lot of processes in place to try to mitigate some of those risks. But we do still need to understand the importance of potential transmission of AMR off the farm as well.

What is antimicrobial stewardship? And how does this relate to biosecurity with respect to AMR? There are many different definitions, but one of the definitions of AMS being the acronym for antimicrobial stewardship is any activity or intervention that reduces the incidence of bacterial disease and ensures the appropriate use of antimicrobials if they are required so that they remain effective now and in the future. That key phrase there, reducing the incidence of bacterial disease, will give you a very big clue as to why biosecurity is very, very important in any antimicrobial stewardship program. And in the animal industries, the production animal industries in Australia, we've adopted the five Rs of antimicrobial stewardship. The first is reduce. Sorry. Responsibility. I've got my slide thing at the top. Responsibility for antimicrobial stewardship. Obviously, that's shared by everyone that's involved in food animal production.

The next are... Apologies. I'm having some technical issues here with changing slides. Sorry. The next is reduce. And we do want to try to reduce the use of antimicrobials. But this needs to be done in a sensible way. As a vet myself and an animal welfare advocate, what we certainly don't want to do is actually put animal welfare in compromise. We want to maintain animal welfare and still use antimicrobials when they are needed. But you reduce the need for them by reducing disease. And obviously, the key area to reduce disease incidence is through improved biosecurity, along with, of course, improved hygiene, good nutrition, good management and environment. What we are aiming for is as little as possible, as much as necessary in terms of antimicrobial use.

We also look to replace antimicrobial usage with, for example, vaccinations, along with other mitigation methods to reduce the need to actually use antimicrobials. And then we look to refine usage. We are looking to use the correct antibiotic. Obviously, therefore, correct diagnosis come into play. This can obviously be difficult at an enterprise level sometimes. But we're looking to, as much as possible, select the correct antimicrobial, use it at the right time, the right amount and for the right duration. And we want to continually review our practices in order to identify areas for improvement. And again, this is where continually reviewing our biosecurity practices on farm will obviously have a big part to play.

In terms of antimicrobial stewardship and Australia, this is a very good timeline that actually indicates what's been done in Australia. And this is actually available on the strategy website, if anyone would like to go and have a look. And I just wanted to put this up because a lot of the things that are listed on here are actually guidelines or there is one actually for biosecurity. Biosecurity actually features a lot in here. And a lot of the efforts that have been made to improve antimicrobial stewardship have been guidelines or plans that have been put in place by the animal production industries or even by the Veterinary Association. And they all heavily emphasise improved biosecurity.

These are some of the examples. The five main food producing industries that actually are part of the strategy that I'm involved in are dairy, the two poultries, eggs and chicken meat, pork and red meat through MLA. And all of these industries have guidelines for their vets or stewardship plans for their producers. And first and foremost, in most of these plans is biosecurity. Here are a couple of examples. This one is the antimicrobial stewardship guidelines for the Australian cattle feedlot industry. And as you can see there, there is an entire section dedicated to biosecurity. Similarly, the antimicrobial stewardship framework for the egg industry has an entire section there on biosecurity.

The key point here is that by minimising the spread of disease, both onto the farm and within the farm environment itself, we can actually reduce the need for antimicrobials in many cases. Obviously, the key message here is that biosecurity and antimicrobial stewardship go hand in hand. And I would even say that biosecurity is one of the key pillars of antimicrobial stewardship. Our strategy was formed fairly recently, in 2020 actually, as a way to look for opportunities for those animal industries that I've just discussed to collaborate on potential projects relating to antimicrobial stewardship. And it just so happens that the first real collaborative project that we've come to actually is about biosecurity. And it's involving biosecurity to reduce the risks of antimicrobial resistance on farm.

This is all actually being put together as we speak in terms of contracts. But those five industries have committed to funding at least the first two parts of this project. And that's basically to take that EFSA document essentially and look at these transmission pathways into, within and out of an enterprise, work out what kind of hazards there are and what do we know about their hazards in an Australian setting and for each of the different enterprises and to come up with a hazard analysis tool that farmers can then use to actually identify those gaps and improve essentially biosecurity. There will be other aspects to this tool, but mostly the biosecurity aspects in order to mitigate the risks of AMR on farm. And hopefully, we will then be able to move onto the piloting of that tool using real data, which hasn't essentially been done anywhere in terms of looking at those hazards, the ins and outs of movement of bacteria and antimicrobial resistant genes on the farm and actually be able to work out how large are these risks.

Richard Morecroft: Well, thank you very much indeed, Dr Coombe. We will in fact have questions later in the panel discussion. And I know you are going to stay and join us for that panel discussion. We are very much looking forward to that. But thank you for the presentation. And very instructive, of course, to hear the imperative for coordination and pre-emptive care when it comes to microbial protection. And, of course, the vital importance of dealing with AMR. And you gave some very particular examples also of disease transfer and transmission. Thank you for the presentation. We look forward to your contribution to the discussion panel in a little while. But speaking of the discussion panel, don't forget, of course, to send your questions in for our discussion at the end of this session. Let us know to whom you would like the question directed and we will certainly try to do that.

And before we move onto our next presentation, in fact, I think we are going to have a further look at the Mentimeter results from our last question, which was tell us where you are or where you are joining us from. And as you can see, once again, we've had a huge range of responses. And people are joining us from everywhere in Australasia and beyond. But now, it's time to welcome Jo Laduzko, Assistant Secretary of Biosecurity Response and Reform at the department. Who will be introducing us to the new normal for biosecurity, particularly when it comes to the emergency responses, which may be needed to meet the changing risk profile. Now, Jo has extensive experience in national biosecurity management, including emergency preparedness response activities. But now, it's a very warm welcome to Jo Laduzko.

Jo Laduzko: Thank you, Richard. Thank you for the introduction. And good morning everyone. And thank you very much for joining us here today on these sessions. I really appreciate the opportunity to talk to you about what is an emerging issue for us. As Richard said, firstly, yes, I will pause for a few Mentimeter questions at points in the presentation. And we'll make sure you have sufficient time to participate in that. Secondly, yes, the topic for today's discussion was positioning our emergency response capability to meet the changing risk profile. I know you've had a really, really good session so far with Andrew Tongue and Malcolm Letts and other speakers around the national and Commonwealth biosecurity strategies.

I'll just very quickly move to my first slide. I won't delay with this because I know we had a really good discussion this morning around this with other discussions. But our biosecurity system collectively is facing new threats. I'm sure you heard this morning part of that is globally driven. We have increasing volumes of people and product moving around the globe. Not only the volume is growing, the complexity of the pathways are increasing for us. COVID-19 has put a lot of disruption into the system. In addition to that, we have more systemic shifts around climate change, land use patterns, where people like to travel, where they like to source their goods and how they want them. All of that has just got a situation where biosecurity threats approaching Australia are probably more complex for us than they've ever been. And that includes not only at our regulated pathways where we have ships arriving and people arriving and cargo unpacking, but also on extensive natural pathways.

And I know we've got a session on Northern Australian biosecurity after mine and that will talk at length about that. But it's not just the North. Recently in Victoria, we dealt with a number of emergency responses to avian influenza. And they came in on migratory birds. The issue about natural transmission, as well as people and product moving risks into Australia is very real. When we talk about emergency response capability and preparedness, we need to think about both those constructs.

And the other issue, of course, is it's not just at the border, it is for us as the Commonwealth. And that's a big focus for us. But some of those risks and the spread patterns through climate, land use, movement of goods and services is also, within Australia, issue for states and territories for, as Andrew said, different areas with different characteristics. Thinking about what does the new norm mean actually is an interesting question, because I'm not sure there is a new norm. The new norm is the fact that there is going to be perhaps more issues to deal with. And we don't have as much confidence yet as to what those patterns and pathways look. We need to think to our adaptability and our responsiveness in these kind of areas.

I know Andrew gave a good presentation on Commonwealth Biosecurity 2030. I'll just draw attention to the circled red. One of our strategic actions is to lift our national preparedness response and resilience to pest and disease incursions. As with all matters, we are not an island in a national biosecurity system. There are things that Commonwealth will focus on. But a lot of it is about how we join up together with other participants in the system to strengthen our ability to deal with the unexpected. I think one of the key issues in this agenda is preparedness means different things to different people in different parts of the system. We prepare to make sure we can prevent things arriving in the country.

But the reality is there is always a risk that things will get through. We are preparing to say how do we respond in an emergency situation? And critically and unfortunately, realistically, sometimes we can't respond in a way that eradicates. We are then thinking about how do we adapt and have resilience in our systems for the fact that some of these pests and diseases will be here to stay? And we've had some recent experiences of that, which I know many of you will have also been aware of or in fact impacted by.

Just moving on. Before I talk to this slide though, I might pause and ask if people would mind responding to the first Mentimeter question. What we'd like to know is do you or any of the members you represent online consider preparedness to exotic pest or disease to be a BAU consideration in your risk planning? Okay. Thank you. I'll leave people to continue responding as they see fit while I talk. And the reason we ask this question is, firstly, biosecurity doesn't always mean the same thing to some people. And the language we use in discussing it and what people think it's about can vary.

Secondly, for those of you who are aware of some of the issues we've had with khapra beetle recently, there was quite a number of people in the supply chain that are deeply embedded in our responses on khapra beetle, but wouldn't naturally think of themselves as having to worry about biosecurity. And I think if you reached out to the Baby Bunting company and a whole bunch of retail stores, a biosecurity incursion had significant impact on their businesses, but they wouldn't necessarily innately consider themselves part of the system because they haven't had to think about it before. This sense of do we really have this in our frontal minds when we are thinking about how we prepare for risks on our businesses or our livelihoods or our activities is an interesting one for us.

Okay. And I think we'll just roll straight through to the next question too, which is following on from that one, the question would be do you think there is sufficient information available on the risks you or your members are facing that would help you prepare for a biosecurity incursion?

Richard Morecroft: Well, we can certainly see that there seems to be a preponderance of a sense that there isn't quite enough information available. Although, interestingly, quite a large proportion also thinks that there is a lot of information out there.

Jo Laduzko: And I think which is a really interesting observation, because it might depend where you are in the system already or how you think about biosecurity. It is certainly an issue we are a little bit concerned about, how you get the right level and amount of information. To that end, we have a follow up question, because we all love a good cloud picture. How do you think this information would be best provided? Your best one word answer deeply appreciated. We know that different ways of receiving information work better for different people. Some of our assumptions about how people like to secure information turn out to be actually not what people think. Very interesting to hear.

Richard Morecroft: There is a huge diversity of possibilities there, but also a very strong emphasis on online or virtual learning.

Jo Laduzko: It's certainly something that we've been considering from a Commonwealth perspective around how do we share best with people that are impacted by biosecurity outcomes? Some of the strategic intelligence we see about what's happening overseas and what would be the best way to share that information. At the same time, we have to be careful how we use that information, given it's very much a trade issue sometimes, what we think is the impact for Australia. But it's very hard to prepare if you don't know what you are preparing for.

Richard Morecroft: But it will be very useful to mine some of those considerable range of very practical suggestions about training and information transmission.

Jo Laduzko: This slide is really, the picture you've got in front of you is kind of the focus that Commonwealth has on this. As you know, the Commonwealth has a preponderant role pre and at the border. But that doesn't mean that's where our role in a national system ends. And we are increasingly focused on what our own emergency capabilities are. From our point of view, there is a couple of things there. And reflecting on what we've all been through, through drought and bushfire and fire and the COVID-19 issues, has left the Commonwealth broadly and us specifically about biosecurity just reflecting on what does it mean to be a national or the Commonwealth in these kind of environments? And that goes from national leadership through to national support, through to when do we need to actually act and how do we best engender that.

The Commonwealth itself has reinvigorated a whole bunch of its emergency arrangements, their crisis arrangements. We've got new agencies like the National Disaster Relief and Recovery Agency. But from our point of view, our issue is do we have the right skills, capability and focus to deal with on ground responses where we need to? Are we sufficiently joined up with states and territories and industry and other participants to work together in a national response? If we had a really severe outbreak or more importantly with the risks we are facing, we are all likely to be in a situation where we have multiple issues that we have to deal with. That's going to be a drain on everyone's resources. We actually work very well with states and territories at present and we share resources. But there will become a point where sharing resources may not be enough. We have some particular focuses in our case, which are relating to operational capacity, having teams of people that can actually respond.

We absolutely want to strengthen our interrelationships with other players. Hence, we are going to do a national exercise program to talk about how do we operate together? Where are the weaknesses of our system? And then move to some functional exercises that say let's test this. Let's just not hope we are right, let's test and explore. And I know when we had the question just at the end of the last session from Mr Bowen around African swine fever and destruction of pigs in a disease situation. They are some of the things we have to say if this happened, how would we cope? We also need to make sure we can speak to states, speak to industries. How do we do incident management together? There are also different arrangements that just need to be can we step up to the plate and deal with this immediately?

We are going through quite a range of activity to try and make sure we are well positioned in this space. We will be coming out to talk to you and other people and invite other participants, because this is not just about us. We need to do it in a very collaborative way. Very happy when we get to the panel session or any questions you might have that unpick some of that from a Commonwealth perspective. But otherwise, I think just reiterate the point. And it's no different to the discussion we've already had. Really, this is a bit of a national call to action. There are some concepts around biosecurity that say really preparing for biosecurity has specific features, but it's part of a concept of an all hazards approach. Protecting yourself from biosecurity risk can be embedded into other emergencies. And do you think about it that way? And what are the nuances of an all hazards approach to biosecurity?

Also, there is always a lot of focus on the short term emergency response, how you respond. One of the big questions and the increasing issue is how do we and how do other players support market and enterprise resilience? We sometimes are just going to have to adapt to the inevitability and support people through that transition. The other area of particular interest for us is how do we modernise how we react to these kind of responses and help people transition to where we need to be, if we can't in fact stop the outbreak? I might pause there, because I know we have a number of very interesting speakers. Thank you for your time. I'm happy to deal with any questions in the panel session.

Richard Morecroft: Well, thank you very much indeed, Jo. And I think, certainly from that, we do have a much clearer perspective of some of those emergency response requirements. And as that risk profile evolves in the way in which Jo has described, a sense of perhaps what that new normal may be. Certainly, as we just heard towards the end of your presentation there, that national call for action is such an important part of the process. And also some very interesting Mentimeter responses. I'm sure or I hope that some of those have been captured in terms of, particularly the communication and education that can productively be initiated moving into the future.

Now, questions are coming in from many of you. Again, thank you indeed for those. We look forward to involving your perspectives in the discussion panel, which will get underway shortly. But first, of course, and very importantly, our final presentations in this session. And we are going to hear from Desley Darby and Murray Korff from the Northern Australia Quarantine Strategy team, who will take us through some of the work which they are doing around data collection, part of the early detection activities undertaken by the Northern Australia Indigenous Ranger Biosecurity Program and the department's biosecurity officers in Torres Strait.

Can we perhaps just begin a little bit of a discussion with our two Jo's who have just presented while we wait for Desley and Murray to join us. And first of all, we have a question that's come in from Alan Sheridan. And the question is in relation to external sources of risk and the development of AMS compliant planning, what is the relative likelihood of entry into Australia of organisms that carry AMR risk via people, workers, travellers and so on, versus animals and/or products derived from animals? A similar question could be asked concerning the prevalence of organisms carrying AMR risk in animals or animal derived goods exported from Australia. A very important, but a very specific question. And Jo Laduzko, do you want to kick off with it?

Jo Laduzko: Thank you, Richard. I actually might pass to Jo on the technical aspects of what is the most prevalent sources of AMR risk? Because I think they are quite diverse. And then I can talk about some of the system settings we might have in place for that. But, I mean, Jo was right in her earlier presentation, antimicrobial resistance and our ability to address these kind of issues is intrinsically tied to animal health, which is often very tied to biosecurity risk mitigation efforts. Jo, I might pass to you first on that pathway discussion.

Dr Jo Coombe: Sure.

Richard Morecroft: Dr Coombe, thank you.

Dr Jo Coombe: Thanks. It's a great question. And sadly, I can't give a brilliant answer, because we can't quantify that risk to date. What we do know is that there are increasing numbers of travellers, particularly from the lower income countries that have much higher prevalence of antimicrobial resistance, who are coming back into Australia with, for example, multi-drug resistance Salmonella, the fluoroquinolone resistant Campylobacter that I spoke about earlier. And to date, we haven't found that Salmonella in animals in Australia, thankfully. But the fact that we know that it's coming in with humans means that it is an inherent risk. And I suppose strategies should be put in place or can be put in place to try to mitigate that risk of return travellers bringing those kind of bugs back onto the farm.

Jo Laduzko: And it is true that we have a number of pathway risks and particularly travellers and what they bring with them. It is also true though that sometimes they are not as close to the livestock or plant supply chain, because they are going into urban areas, noting we had an early discussion about peri-urban risk. It's not unthinkable that that would be possible, as I'm sure Jo knows. But some of our natural pathways bringing in were birds fly in or people come directly into country and make contact with the production supply chains. Or in fact, even environmental. Our normal non-farm animals and plants is probably also something that would need to be contemplated. Obviously, in regulated pathways, we have controls around managing risk and what we think is the appropriate controls before anything is allowed into the country. Natural pathways, that's a little harder to manage.

Richard Morecroft: All right. Thank you, Jo. And thank you, Dr Coombe, for responding to that specific question. But we are now delighted that we do have Desley and Murray on board. Desley Darby and Murray Korff from Northern Australia. Let me throw to you, Desley. And could you start us off please?

Desley Darby: Hello. And thank you. And hello, everyone. And look, we just apologise for the technical difficulty. Working with animals, children and apparently Murray and Desley, you never know what you are going to get. Apologies. Look, just before we begin, Richard. Both Murray and I are presenting from Cairns. And we just like to acknowledge the traditional owners of Cairns and all of the areas where people are listening from today, and the elders past and present. Thank you. As I said, Murray and I are from the Northern Australia Quarantine Strategy. We are going to be discussing two data collection tools that we use in the North to help maintain Australia's excellent biosecurity status. You've heard a lot about the Northern Australia situation prior to our talk today. We don't have too much time. And even less now that we've had technical issues. But we'll consider this a teaser. And we really hope you do look up the website at the Department of Agriculture, Water and the Environment to find out more.

Like Jo, we are going to be using two Mentimeter slides. I just want to give you a heads up of what they are. First up, what is the closest international border to Australia? And secondly, what types of weeds and pests do you think NAQS keeps a top watch for?

What is NAQS about? NAQS is a, or Australia is a big sparsely populated country and very close to our Northern neighbours. It is very vulnerable, as you've already heard, to a range of exotic pests, weeds and diseases. And they can get here, not only through the traditional areas that Jo talked about like seaports and airports, but also through unregulated pathways such as tides, winds, animal movements and weather events. The risk to Australia of an incursion of exotic pest, weed and disease is very real. And again, you've already heard that. Again, as Jo reiterated, it is increasing. And that's increasing due to a range of factors, including more exotic pests and diseases establishing in our Northern neighbours, increasing movements of people and businesses and more extreme weather events facilitating the spread of pests and diseases. The Northern Australia Quarantine Strategy was set up to help manage these risks. And essentially, in a nutshell, it's proactive surveillance program.

Indigenous rangers are a critical part of the strategy. We engage ranger groups on a fee for service basis to undertake biosecurity activities. And this is a huge win for NAQS and the government and Australia, as the groups we work with are located across the North and including in areas that are really remote and very hard to get to. Partnering with ranger groups vastly increases our surveillance reach. And it is really a key element in early detection. The map you can see here on your screen is the groups that we partner with. And you can see just the spread across Northern Australia. The activities by rangers varies, but it's usually related to animal, plant and aquatic surveillance. And again, on the screen, you can see a list of some of the activities that they do.

The data collected by rangers is a key element for early detection across the North. Consequently, to collect, record and retrieve that information, we need something that could provide consistency, be user friendly, able to operate in very remote locations. And I am talking very remote. And agile to take into account changing data needs. The solution for us was the biosecurity reporting tool, or as we know it locally, the Ranger App. This is what the Ranger App look like. And it's also available in Apple and Android devices. On the screen, you also see what a data collection page looks like. In this instance, it's for planned host mapping.

The key elements include the ability to automatically record GPS coordinates, take pictures and videos and smart technology that can take you to the next appropriate question based on the information you have provided. We are also fortunate that it also contains user manuals. Even if your first language is not English, you are able to get in and have a look around what information we are after through pictures. For example, if we are looking for the signs of citrus canker, you can click on an icon and it will bring up a picture that shows you citrus canker. Once entered, the data will be saved automatically. If there is cellular or Wi-Fi access available, which is not often in some areas, it can be submitted immediately. But if not, it can be submitted on return to the ranger base.

Once submitted by a ranger group, the information is reviewed back at the department and sent to a subject matter expert, such as a scientist or a vet, for consideration. What you are seeing on the screen now is what the department sees. It's the backend of the system. If there is something of interest that is found, the scientist or the vet can seek more information. Or alternatively, as they did with the recent Asian green mussel detection up here in Cairns, they can start reporting protocols as appropriate. And what you are seeing, again, here is a whole range of data points that the rangers have collected.

The data can be visualised in different ways and downloaded to other systems. It's really handy app. The key is being able to retrieve the data so that it can be used to make effective decisions. Here, for example, is planned host mapping data shown visually. And this is beneficial in the advent of an incursion and particularly for allocating resources, if we are looking to seek out potential hosts. Another feature is the ability to record track files. Here is an example of a ranger group's coastal surveillance track file. With track files, we have two options. You can show on the map as we did with the planned host mapping or we can download it to Google Earth.

Look, once again, for early detection and for it to work effectively, not only do you need the people on the ground, obviously that's essential, but you also need to have a usable, reliable, efficient data collection system that allows decision-making to occur. The Ranger App does this. And we are constantly looking at ways to improve the data as we move forward. That's it from me. I'm now going to throw to my colleague, Murray Korff, who will talk about Torres Strait.

Murray Korff: Thanks, Desley. And thanks everybody for the chance to talk a little bit about some of the prevailing risk profiles in Torres Strait and some of the improvements that are in place associated with data management for decision-making as part of our preparedness and risk mitigation work. As you are probably aware, Torres Strait is critical to Australia's biosecurity, noting its close proximity to Papua New Guinea and other countries to our immediate north. It's vulnerable to pest, weed and disease arrivals through the natural pathways that Jo and Desley were speaking about, but also a number of human movement pathways that are unique to this region. They include traditional visitors coming in from PNG, who are allowed to come into Torres Strait for traditional purposes and trading. Domestic movements of cargo, vessels, aircraft and mail can also facilitate the movement of threat species, which may be present in Torres Strait, but are not present in other areas of the mainland or particularly in our agricultural production areas.

Commonwealth legislation defines biosecurity zones. And that helps to regulate movements of high risk items. Things like fresh fruits, vegetables, live animals and the like. And some movements are also subject to Queensland government regulations under their own Biosecurity Act. Our department maintains a network of mainly Aboriginal and Torres Strait Islander biosecurity officers throughout Torres Strait. And that helps us to regulate the southward movements into the biosecurity zones in the region and from the biosecurity zones to other parts of Australia. And that's consistent with the requirements of the Commonwealth legislation and also the department's risk-based intervention policies.

Now, Torres Strait is a pretty poor environment from a data perspective, basically due to an inherent lack of electronic profiling information that provides a key component in our risk mitigation measures for other parts of the international border. PNG visitors, for example, are not required to lodge a electronic pre-arrival report before they arrive into Torres Strait. And they have no current capacity to do that in any case. And similarly, residents who are moving within Torres Strait and even from Torres Strait are not doing anything wrong under legislation if they jump in a tinnie, for example and come out of the zone. But if they are moving items of biosecurity concern, that's obviously of interest to the department. The more information that we can obtain and use for our profiling purposes, the better to help us regulate risks. In effect, the data environment that the department has to undertake its risk mitigation measures in this part of the world is very reliant on data that we collect and we obtain and we utilise as an inspectorate.

The other thing to remember about Torres Strait is up until very recently, it's been a very high cost operating environment subject to a lot of challenges associated with IT connectivity in general. Despite the challenges of working in a data poor environment, obviously data is a critical element to tracking movement volumes, guiding inspection effort and officer deployments and managing instances where people don't actually comply with the regulations. Historically, the systems that have been available to utilise for decision-making have been very rudimentary. Things like spreadsheet applications, paper-based reports and the like, which have served their purposes, but have fallen very short in terms of the level of sophistication that a modern regulatory agency needs to be effective in this space. The historic result was we had an intervention system that was very heavily reliant on officer experience rather than data and defensible data. And there has generally been a problem in terms of tracking effectiveness in how effective we are in mitigating risks.

Now, thankfully, through a number of government investments, particularly in relation to measures under the Agricultural Competitiveness White Paper over recent years, have allowed the development of a significant improvement in IT capability in Torres Strait. And the main deliverable in this space has been an entity called the Torres Strait Information System, or TSIS. It's not the most inventive acronym around, but it's a very powerful system that was developed using some modern agile development technologies. And that involved developing a pilot system with our IT developers, trialling that system and then tailoring the system over time according to user needs. It was very cost effective to build. And it's been integrated with the department's analytical capability, particularly using integrated Power BI tools to actually allow us to have the data management capability that we need. The system was operationalized in 2018, which is a relatively short time in the scheme of things. But we are seeing the dividends in terms of utilising that system from a biosecurity perspective.

As the datasets that are feeding into the system mature, it's allowing us to dial up or dial down our intervention efforts based on reliable data. And it's increasing our confidence that the intervention approaches we have are in fact risk based and based on defensible evidence. From a community and client perspective, the system has a number of electronic reporting facilities that allows people to seek a permit for goods that are subject to regulation. And the turnaround times associated with that are really speeded up. That reduces the regulatory impact on people that are subject to the regulations. And now, the general benefits from a community perspective is that the system is allowing us to move out of areas that don't require a heavy regulation approach. What that means is it allows us to redirect our efforts to higher risk pathways and also reduce the impost on people who are moving lower risk goods or they have a proven track record of compliance with the regulations.

Where we are heading to in terms of this space is it's a continuous journey of improvement. We are actually finding that the quality of the data that our inspectorate are lodging into the system is improving significantly as they become familiar with the systems and its reporting capability. And we are moving to a model where officers on the ground are increasingly taking responsibility for the data that goes into the system and using that on the ground for decisions about where to place their effort.

The next steps for us is to progressively integrate more biosecurity intelligence information into the system, particularly around the movement of small vessels, which we know are an area of high risk for movement of unwanted materials. And to actually utilise the analytical tools so that we are lessening our reliance on individuals to analyse the data. And have some of that machine learning to cluster data, help set in place electronic profiles and direct our efforts. In terms of where we've got to from 2018, we've come from a scenario where there was very little use of computer-based systems and data to a fairly sophisticated system that's growing in its sophistication. It's been quite gratifying to see the leaps ahead that our inspectorate in Torres Strait are having.

Remembering, yes, it was only since pretty much the early 2000s that computer facilities were in abundance in Torres Strait. We are very happy to see that this part of our regulation spectrum has improved immensely over recent years. I'll take a pause there, Richard. I'm happy to take questions as part of the panel discussion along with Desley. And we hope that provided some insights into some of the work that's happening in this fairly remote and challenging area.

Richard Morecroft: Yes. Look, absolutely. Thank you, Murray and of course Desley before you, for those presentations. Great to hear about the really truly innovative responses and activities that have been taking place in our Northern borders or around our Northern borders and the responses to the geographical proximity challenges, which you mentioned. And in fact, just before we go to the discussion panel, I think the first of your Mentimeter questions really talked about that geographical challenge. The question was how far is our closest international border? And here are some of the answers that came in. But of course, I think as it has been mentioned today on a couple of previous occasions, it's a mere four kilometers, I believe. Very, very close indeed. And as we can see here, there are some responses which actually think it's a lot further away than that. But it's much closer than many of us imagine.

Once again, thank you Desley and Murray for those presentations. Time now for a more inclusive discussion with all of our presenters from this session. Plus also we have a guest panelist, Susan Finnegan. Now, Susan is from Kia Ora Merino. And Kia Ora won the Farm Biosecurity Award at the Australian Biosecurity Awards in 2020 for their leadership in on-farm biosecurity, in addition to their sustainable land management and animal welfare practices. It will be great to have Susan's additional perspective in our panel as well. But I'm going to respond to one of the questions which has come in and is specifically directed to Dr Jo Coombe. And Dr Coombe, I'll just turn and read the question. And it is local authorities run waste disposal with birds present. Do you think they are sufficiently aware of the connection between their waste disposal operations and AMR? Is there enough knowledge there?

Dr Jo Coombe: That's a great question. I suspect and I would have to actually go and look at what kind of information is out there, but from what I'm aware of, all the publications that have gone out on the bird issue and AMR have all just been in journals. And I don't think there has been a lot of widespread publication other than that. I would say that some more information dissemination would be good. I'd assume that they are aware of the risk of spread of bacteria in general by birds and other wildlife. And I suppose AMR does fall in with that. I would hope that they are aware of some of those risks already, but potentially not how wide ranging it could be.

Richard Morecroft: Thank you, Jo. Susan Finnegan, may I welcome you into the panel discussion. And thank you so much for joining us today. In a slightly broader sense, what advice from your perspective would you give to other producers in perhaps developing their own particular plans and perspectives for biosecurity?

Susan Finnegan: Hi, Richard. I'd be really careful giving advice to other people. But I think-

Richard Morecroft: If likely.

Susan Finnegan: But I think it's having good tools. We were very lucky. We had Dr David Beggs as our local vet. And we used BioChek and the LPA advice to try and link to make sure we covered everything. I think also we looked at biosecurity as a profit driver rather than something that we just have to pass for audit. We were very keen to be acutely aware of the consequences of any fault or any incursion. And it was a bit like having a fire truck or insurance. We didn't want to use it. We just wanted to have it in place so that we didn't need it. Good biosecurity for us has saved us so much money, at least $1 per 30. A pair of moccasins for a shearer is $50. Lice treatment is 10,000. It's just a no-brainer for us. And that's what I would tell other farmers.

Richard Morecroft: Yes, a very practical response. And indeed also one which has a strong, as you say, economical foundation. Thank you for that. We have another question here. And this is for you, Jo, which says a number of speakers have referred to the Commonwealth being responsible for pre-border and border activities in the main, with some post border responsibilities. And others have mentioned prevention and preparedness for responding to pest or disease incursions being important. But I, that's the person who has sent the question, didn't hear anyone discuss the importance of surveillance post border in order to find incursions as early as possible. What are Jo's thoughts about how important surveillance is? And who is responsible for it?

Jo Laduzko: A really good question. Surveillance is actually a key element of the suite of tools, for one of a better word we have, to look... They are exactly the same points. It's a safety check. Everything is not necessarily going to be found through a regulated pathway, through our intervention or inspection rates. We know this for a truth. And add the natural pathways. The surveillance arrangements are very critical to that. It is a complex space though. And I know Desley and Murray have their particular Northern surveillance strategies in place between general surveillance through to targeted surveillance programs, where you are saying, "Specifically, we are looking for a particular thing." But they are a critical part of the system. But they are a maturing part of the system. And one of the long discussions we have between us doing it as an adjunct to a border protection. Our state and territory colleagues, they do a lot of how does industry become part of that conversation?

Now, I know there are a number of industries that are part of that conversation. They participate in surveillance systems. Actually, Susan made the critical point. Biosecurity seems like an impost, but it's a business decision. We talk about invasion curves at a very high level going prevention is better than cure. But even at the business level, prevention is better than cure or actually not being able to cure and having to live with it. Yes, it didn't come up categorically, but surveillance is a key part of that. And there are many things that have been found through surveillance. The question then is data and who saw what, when, what they are looking for and how we all know about it and how fast we can react to it. The normal system issues. But I don't know, Desley, if there is anything you would like to add to that from a specific Northern focus.

Richard Morecroft: Desley, I'm not sure whether you heard that, but Jo was just wondering whether you had any particular Northern focus perspective that you wanted to add to her comments.

Desley Darby: Look, just that, absolutely, surveillance. NAQS was set it up for that specific purpose, for surveillance. And that does happen both pre and post border. The rangers that Murray and I talked about, the primary purpose of those rangers is to conduct biosecurity surveillance and monitoring activities. And that does happen post border. We work very closely with our state and territory colleagues across Northern Australia so that if in the event that something is found, that the appropriate protocols are put in place and response activities occur. But our whole program is pretty well much directed to surveillance. There is other things as well like diagnostics, but surveillance underpins what we do and the science of surveillance. Thanks, Richard.

Richard Morecroft: Sorry to interrupt. But I'm going to bring Murray in here, because there is a specific question. There has obviously been a lot of interest about the Ranger App. And has asked Murray, I'll just read this, is the Ranger App standalone software or does it use a third-party program that could be tailored to different uses? In other words, could other jurisdictions use the same software to collect different data? Could it be a broader tool?

Murray Korff: I can have a crack in answering that one, Richard, but I'll bring my colleague Desley into this group, who was integrally involved in the design and the rollout of the app. In a nutshell, though, the Ranger App was actually built based on some fairly simple technology. And it was done deliberately that way so that it has agile use and can be used by a broad cross section of rangers across Northern Australia. From that perspective, it is able to be tailored. And the actual way that the system was developed is the technology behind the Ranger App is quite easy to add in additional data fields. Desley spoke about some of the capabilities already in terms of video and imagery and all geo-locating capacities that it has. It's quite a powerful tool. It's a question of sitting down with the people who require access to the data and to work out how that can be provided through the tool.

Desley Darby: And just to add to that. Absolutely. For example, in addition to our biosecurity activities, we are working closely with our partners in relation to ghost nets. We also do lots of surveys. We are able to do surveys on the app. For example, when the threat of Asian, sorry, African swine fever was at its hype, we were able to go out to ranger groups through the Ranger App and ask about their feral pig populations and gather that data. And we were able to use that data to target our surveillance efforts. Yes, it's definitely something that was produced by a third party on our behalf, but it is in the department. It is very agile. We are very happy to share with anyone who is interested in having a look at the app. We've had lots of questions. Please, get in contact if you are interested.

Richard Morecroft: Thank you very much. And this, again, is a very specific area, but one which has clearly created quite a deal of interest. But just moving back to a slightly broader perspective for a moment and bringing you back in, Susan, if we may. Since you won the Producer of the Year Award last year, how has this actually changed your work in biosecurity? Has it made a difference?

Susan Finnegan: Richard, we are always pretty good. No, there wasn't much to change. Actually, what it did do is it gave us a lot more confidence. And we used to have people that were a little annoyed with some of our procedures and they now go along with it. We also noticed the ripple effect. Australian Wool Exchange has a tracking for wool bales. And that is wonderful for biosecurity. We did it for providence of our product. But we've noticed that people have contacted us and they are very keen to use that service now. The conversations and the spotlight really did help. It also gave our customers a lot more confidence that what we were providing was clean and green. Yes, the spotlight really helped. And the ripple effect was excellent.

Richard Morecroft: Well, very good to hear both about the spotlight and the ripple effect. They both clearly did very positive things. And we are delighted that they had that effect. Jo, I have another question here that's come in. Formal surveillance is one thing, but reporting something unusual is a difficult expectation for many primary producers. How can we change this apprehension about reporting?

Jo Laduzko: Thanks Richard. And thanks to the person who asked the question. This is a long standing issue that we've all grappled with. And Susan, with her experience on the grassroots and talking about norming so that people see these procedures. The same thing is a bit with reporting. People are concerned to report because they are concerned about the consequences. And some of those consequences, not only business related, but there can be a lot of emotional distress associated with responses. For a producer, it's always that slight hesitancy about what's going to happen when I say something? And I think that's an issue that only continued conversation that says actually there is a lot of arrangements in place to help and support. But the consequences of not reporting are so high for you and the rest of the industry.

But I think it's that norming socialisation. There is always going to be a slight degree of hesitancy. The other issue, of course, is people who aren't like Susan with a biosecurity focus on property, but are in other parts. How do they know what to report? Because the reality is some things that come in have to go through quite a supply chain before they get to the producer sector anyway. That intermediate set of supply, wholesale, retail distribution where people just might observe things, do they know where to report? And how do we incentivize that as well? We have hotlines, but I think it's consequence concern.

Richard Morecroft: Great. Thank you very much. Can I come to or back to rather, Desley and Murray, because a question has just come in for you. And the question is do the indigenous rangers undertake any soil testing for biosecurity purposes?

Desley Darby: At this particular point in time, no. But it's a great opportunity, we think. In terms of the Indigenous Ranger Biosecurity Program, the idea is that as we move forward, we want to see more indigenous rangers on country doing more biosecurity activities and less Australian government employee, scientists and the like, going out and having to do that work. I think that would be a great opportunity. I'll take that one and put it into our thinking cap if I can, Richard, but not at this stage. But it's a great idea.

Richard Morecroft: Thank you very much indeed. Now, actually, just while we are with you, I've got another question that's come in for you that perhaps you could answer briefly. And that is in many cases, relationships in Northern Australia or PNG/Timor/Indonesia go back many generations. There are significant trade, cultural and other relationships operating. How can we maximise our Northern engagement into our region building and collective capability for biosecurity? It's a very broad question, of course. But would you like to just briefly try to address that?

Desley Darby: I might go to my colleague Murray.

Murray Korff: Thanks, Desley. Richard, to some degree, those relationships are in place. One of the interesting issues, particularly in Torres Strait in terms of the cultural connections between people in Southern PNG and Torres Strait is that as the questioner has raised is the relationships go back generations, millennials. And the whole reason behind the treaty that Australia has with PNG to allow traditional visitors to come into Torres Strait is actually to maintain those connections. And from a biosecurity perspective, it's been a challenge in the sense that some of the traditional activities that people would do like trading goods, animals, plants, those things, are actually the very matters that we have a concern in from a biosecurity perspective. And one of the shining achievements of the treaty is that the level of understanding and awareness of Australia's biosecurity rules by traditional visitors coming in from PNG is very, very high.

We are quite gratified to see that despite the traditional imperatives, people are doing the right thing by and large in moving. That's really provided a good platform to raise awareness and a good model that it actually flows through into Australia's government to government relationships with PNG about these matters. Also, the general experience that we have in terms of dealing with emerging pest and diseases in places like PNG and East Timor and other areas is a real driver for the department's offshore relationships and part of that projection across the biosecurity spectrum into the overseas areas. It's certainly a front of mind matter. And it's certainly issues that are taken into account in the way that Australia engages with its partners in this region.

Richard Morecroft: Thank you, Murray. And Jo Coombe, can I bring you back in at this point? How have you actually managed to achieve buy-in from farmers, from vets, from feed manufacturers and processors for AMS?

Dr Jo Coombe: In terms of the strategy, we have a very large steering committee that actually covers all those stakeholders. We have members of the Australian Veterinary Association and their special interest groups. We have industry stakeholders. And we do have the stock feed manufacturers on board as well. From a strategy perspective, we certainly are discussing things with all of those stakeholders. In terms of on the ground buy-in, that's, I guess, more the domain of the individual industries themselves who are enrolling out their stewardship plans. And I think, obviously, that comes back to the extension and adoption aspect of research development corporations. They have their own strategies in place to roll things out.

Richard Morecroft: Thank you, Jo. And we will probably wrap up our questions in just a moment. But Jo Laduzko, you mentioned in conversation a little earlier, you would love to talk about traceability systems and areas of priority there. We only have a minute or two to do that. But would you like to touch on some of the things you think are important in that direction?

Jo Laduzko: Thanks, Richard. I think it was just an interesting adjunct to being prepared and able to respond is I'm sure Susan is aware and others are, we spend a lot of time talking about effective tracing of product. And Susan touched on the fact that increasingly providence and commercial attributes are a key part of the return that a lot of producers are looking for. There is a synergy between tracing to validate that. And the fact that we really need strong systems to trace for pest and disease outbreaks, for food safety issues, cutting over to some of Dr Coombe's areas of interest. And it is another one of those areas where until you are caught up in the situation where you can't trace the product, you don't truly appreciate the value of the system.

There is a lot of work underway, but a lot of that is about how do we build systems that we can all use for the lowest cost possible? If you want a really strong emergency response system, just like we found with COVID, we've really got to be able to go fast and hard to find and locate where those areas are. I'm just going to leave that on the table, because it's actually a really, really cool component to how we strengthen that system going forward.

Richard Morecroft: Well, that is a strong and superb place to leave this discussion panel. Thank you indeed to all of our panelists and presenters for this session. And, of course, to all of you for the questions that you've sent in. It really has been very productive to explore some of those issues of just how ready we are to respond to those anticipated risks and challenges. Not to mention the threat of factors that actually might be very hard to predict, but which you still have to be able to strategize for one way or another. We are coming to the conclusion of this morning's session. It has been a very full morning, packed with expertise and information. The range of presentations has been wonderful. And we thank very warmly our presenters for making those presentations. And, of course, their wonderful participation in the panels for which you provided so many questions. Thank you.

Do, of course, join us again tomorrow where we look forward to further presentations, where we will be exploring a range of areas, but in particular, focusing on shared responsibility and partnerships. And we will then follow that up by looking at the importance and indeed the opportunities of science and innovation in this space. Of course, we hope you will join us tomorrow morning for those sessions. But we very much hope that you will join us tomorrow afternoon, I'm sorry, this afternoon, a little bit later, as we present the 2021 Australian Biosecurity Awards. Do please join us for that very important and celebratory occasion. It's been wonderful to share your company this morning. I look forward to seeing you again this afternoon. But for now, thank you and good afternoon.

[Session ends]