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Mr. Dan Ruimy

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● (1100)

[*English*]

The Chair (Mr. Dan Ruimy (Pitt Meadows—Maple Ridge, Lib.)): I call the meeting to order. Welcome, everybody.

I'm informed that we might still get called out on votes.

Mr. David de Burgh Graham (Laurentides—Labelle, Lib.): We might not.

The Chair: We might and we might not.

I want to make sure that we maximize our time here, so we're going to get right into things.

Welcome to meeting 87 of the Standing Committee on Industry, Science and Technology. Pursuant to Standing Order 108(2), we will continue our study of broadband connectivity in rural Canada.

Today we have with us, from the Federation of Canadian Municipalities, Sara Brown, member, and Ray Orb, chair of the rural forum.

You are the only ones today. We were anticipating only having half an hour because of votes, but now we have more time to grill you.

Will you be sharing your time? I will leave it up to you.

Mr. Orb, you have 10 minutes. Go ahead.

Mr. Ray Orb (Chair, Rural Forum, Federation of Canadian Municipalities): Thank you.

Good morning.

I'd like to begin by thanking the standing committee for the invitation to participate in your study on broadband connectivity.

My name is Ray Orb, and I am the chair of the rural forum at the Federation of Canadian Municipalities and also president of the Saskatchewan Association of Rural Municipalities.

I will be joined today by Sara Brown, chief executive officer of the Northwest Territories Association of Communities.

The Federation of Canadian Municipalities is the national voice of municipal government in Canada. Our member municipalities, nearly 2,000 of them, come from every corner of Canada and represent 91% of Canadians. Our members include Canada's largest cities, as well as small, urban, and rural communities, and 20 provincial and territorial municipal associations.

FCM works on behalf of municipal governments to bring local solutions to national challenges and to empower communities of all sizes to build a more prosperous, livable, and sustainable Canada.

FCM has long advocated for increased federal involvement in developing the telecommunications infrastructure that is critical to the social, cultural, and economic vibrancy of Canada's rural, northern, and remote communities. We brought the municipal perspective to a number of federal consultations on telecommunications services, including spectrum allocation and the development of federal broadband funding programs such as Connecting Canadians and Connect to Innovate.

On behalf of our members, FCM worked closely with the Canadian Radio-television and Telecommunications Commission to shape their definition of basic telecommunications services, so we were pleased with the CRTC's announcement last year of a universal service objective which determined that all Canadians should have access to broadband Internet on fixed and mobile networks.

FCM also welcomed the federal government's announcement in 2016 that their new broadband program, Connect to Innovate, would invest up to $500 million to bring high-speed Internet service to rural and remote communities. Too many of our rural and remote communities lack basic access to the broadband services that so many Canadians take for granted, access that is vital for modern commerce and education. Mandating universal access as well as programs like Connect to Innovate will help change that.

However, in order to ensure the universal service objective of the CRTC is a success, funding programs from the federal government must be long term and predictable. Only through this sort of funding will project proponents be able to make long-term decisions about technology as well as the rollout of services and service packages.

The fact is that no two communities are the same, so different technologies will be required for accessing affordable and reliable broadband services. That's why FCM supports flexibility in defining eligible broadband infrastructure in federal funding programs. Both backbone and last-mile components of broadband infrastructure are necessary elements if we hope to reach the goal of universal access. If funding programs only allow last-mile projects, many rural communities without modern backbone infrastructure will simply be left behind.

FCM believes that each of these pieces is important to the development of successful broadband services. It's so important that any federal funding program for broadband infrastructure prioritizes the hardest-to-serve underserved areas. Simply put, broadband Internet access has become fundamental to modern life and has the power to transform rural and northern Canada.

Modern networks contribute to economic growth by improving productivity, providing new services, supporting innovation, and improving market access. They give Canadians the capacity to collaborate, work, share, and learn. Unfortunately, the broadband gap is a reality in underserved communities. Too many Canadians are without broadband coverage, while others remain underserved by insufficient bandwidth and insufficient network capacity to meet user demand.

● (1105)

Under Canada's current approach to broadband policy, there is a significant lag in bringing the broadband speeds and technologies that are widely available in urban areas to Canadians in rural and remote regions. Any federal plan to improve rural connectivity must take this into account.

FCM also believes that a lack of broadband adoption on the part of Canadians is due, to some degree, to the issue of cost. That is why any federal plan must make affordability a priority.

Now I'd like to turn it over to my colleague Sara Brown to tell you about the challenges that Canada's northern and remote communities face in accessing broadband services.

Ms. Sara Brown (Member, Federation of Canadian Municipalities): Thank you very much, Ray.

In Canada's north, many communities simply cannot participate in Canada's digital economy because they are unable to connect to reliable high-speed Internet. Northern and remote communities face frequent outages and technical problems without a backup connection to ensure continued service. The impact of inconsistent service is clear. When northern and remote communities can't take part in today's digital economy, out-migration becomes a serious challenge.

Securing northern and remote access to broadband will provide the same competitive advantage found in other parts of the country, contributing significantly to economic development, health, education, and safety.

As outlined in FCM's submission to the standing committee, we believe the federal government should develop investment strategies for northern and remote communities to bring their Internet services up to the standards of urban centres, including when it comes to speed and redundancy. In order to address the unique challenges remote communities face in connecting to Internet services, there is a strong need for a specific strategy for satellite-dependent communities.

FCM also believes that the federal government needs to utilize local knowledge in data collection to ensure that accurate and up-to-date information is used when funding decisions are made. Municipalities have front-line expertise about the challenges our communities face in accessing broadband. That makes us key partners in developing future federal funding programs.

The federal government plays a critical role in ensuring broadband Internet services are available to all Canadians, regardless of where in the country they reside. To realize this vision, we believe that all orders of government must work together and in full partnership.

On behalf of Canada's cities and communities, we thank the standing committee for the opportunity to take part in this proceeding, along with other parties' contributions and recommendations.

Thank you.

Merci. Mahsi cho.

The Chair: Thank you very much for your presentations.

We're going to go to Mr. Bossio. You have seven minutes.

Mr. Mike Bossio (Hastings—Lennox and Addington, Lib.): Thank you both for being here this morning. We appreciate your testimony.

I think it's fair to say that no one size fits all when it comes to delivering rural broadband. There are unique challenges that exist there, and really it's the municipal levels of government that are the feet on the ground and that understand the unique challenges that exist within their own communities.

Looking through that lens, what do municipalities think is the best way to deliver rural broadband to their particular communities?

Mr. Ray Orb: I can take the first crack at that, and if Sara has a comment, she can answer as well.

I think there needs to be some flexibility in how that's delivered. I know that in some provinces it may be delivered in other ways. Alberta has some unique ways. They're working in partnerships with some companies. In Saskatchewan, our approach has been a bit different, because we have a monopoly. We have SaskTel delivering most of the broadband services. There is some satellite delivered in the northern part, but we're really relying on our provincial organizations to work with our provinces and the industry in those provinces.

I would say flexibility, depending on the size of the communities, is a factor as well. We have a lot of diverse communities. Rural communities in Saskatchewan, as you know, Mr. Bossio, are somewhat different from those in Ontario, but we have the same challenges because we just don't have good coverage out in the rural areas.

As one further comment, in our province we're doing a really good survey of the shortfalls where there isn't good Internet coverage. Each municipality is being marked to determine where the lack is.

● (1110)

Mr. Mike Bossio: With the municipalities, to try to get more specific, there are a lot of utilities that are owned both municipally and provincially. Municipalities are of course responsible for the roads. Do you not feel that it would be a good idea to try, through those partnerships between private entities, utilities, and municipalities, to run conduit wherever it's possible when rebuilding a road? It's the cheapest time to lay conduit down. As far as working with utilities goes, you have the existing hydro lines that go past every single home. Right now the utilities companies are charging a fortune for companies to run fibre across their poles to deliver that type of service.

Is FCM putting pressure on its own municipalities, and provincially with its utilities, to try to bring about those circumstances in which we can work in that partnership?

Mr. Ray Orb: Our approach to FCM is that it's important to have a three-way partnership of the federal government, the provincial government, and the municipalities. Taking advice from members like you is where we want to be on this issue.

Mr. Mike Bossio: Are you seeing any examples of municipalities taking this approach? The federal government has partners, and you and I have had a lot of conversations about this, and we work exceptionally well together in trying to find solutions. However, part of that solution is to get the municipalities more involved. They shouldn't just be waiting for the solution to come to them; they should be helping to drive the solution forward. They should be doing this through laying conduit and by putting lobbying and political pressure on the provinces and utilities to be part of that partnership. Are you seeing any examples of this starting to occur?

Mr. Ray Orb: We're seeing this, and we know that in Alberta in some cases the municipalities are working on that. There are as many as 80 municipalities, I believe, in one area that have grouped together. We could get that information to you, Mr. Bossio. I think they're doing some partnering.

When I was in Edmonton, Alberta, last fall, we sat in on a workshop where the companies came and talked to the municipalities. They've established a basis for what we want delivered out in the rural areas, and I think it's working quite well.

I'd like to give Sara a chance to comment as well.

Ms. Sara Brown: Our challenges are a little distinct in that we have a significant backbone connectivity issue and it's not a matter of the last mile. As well, there are many fewer opportunities for municipal governments to participate. Our communities are so tiny that their capacity is very much a challenge. It's not a matter of the service being delivered in the community; it's getting the service to the community.

Mr. Mike Bossio: We know there are a lot of underserved areas in northern and remote areas. Even in the northern part of my riding in southern Ontario, I couldn't get any companies to bid on a CTI project. They said there just wasn't enough density. Even with 75% of the capital costs paid, the cost to license a spectrum takes away from their efforts to create enough revenue to put forward a project.

Do you see satellite becoming the default for those communities? How can we improve on the satellite coverage? You're always going to have the latency issue, but are there any other avenues you're exploring that could help to solve part of that problem?

● (1115)

Ms. Sara Brown: Some solutions have been discussed, and I know that with adequate funding they would be feasible. As it stands right now, though, there will probably never be a business case for affordable Internet-type services in our communities. That's part of the challenge.

Mr. Mike Bossio: I know there was a funding announcement to run a backbone up into the northern part of the country. I know that's going to provide some of the backbone coverage. If there's enough of a backbone up there, is it still too remote to do a microwave POP, linking the microwave towers together in order to bring that to the backbone? If the distance is still far too great, are you going to have to rely on satellite coverage?

The Chair: Could you reply very briefly, please?

Ms. Sara Brown: The distances are great, and microwave wouldn't be feasible for most locations in the territories.

The Chair: Thank you very much.

We're going to move to Mr. Bernier.

[*Translation*]

Mr. Bernier, you have seven minutes.

Hon. Maxime Bernier (Beauce, CPC): Thank you very much.

[*English*]

I have one question for you concerning your members. Do they have a preference with the services that they want to be delivered to their community?

I will be a little bit more precise. When we have towers, sometimes there's a big discussion in a community that they don't want telecommunication towers in their municipalities. I know that the Minister of Innovation, Science and Economic Development has the power under the Telecommunications Act to be sure that we can have towers that will deliver to the community.

What is the thinking of your members? Do you think they're open for more towers in cities, or are they a little bit against them?

Mr. Ray Orb: If I can answer that, Mr. Bernier, I think that our members in the rural area would be open to towers. We're in areas where the population is quite sparse and we don't have too much infrastructure, so a tower is actually welcome. We have towers now, but they're really few and far between, and that's why there is a lack of coverage.

When companies put in new infrastructure, they put the hard wiring in with the services that go into the homes, so they need to be hooked up to the tower at some point. The idea of a tower being unsightly is not an issue for our rural members.

Hon. Maxime Bernier: That's good news, because in some municipalities in my own province, it can be an issue. That's a challenge for the minister, because everybody wants to have good services. Thank you very much.

I just want to say to my colleagues that I tabled a motion last Thursday, November 23, for a study on the Bankruptcy and Insolvency Act and the Companies' Creditors Arrangement Act. I don't know if you're ready to vote on that.

The Chair: Did you want to...?

Hon. Maxime Bernier: Could we just ask if they agree with the motion?

The Chair: Okay.

We'll start with Lloyd and then Terry.

Do we want to just read the motion? You have to tell us what motion you're reading.

[*Translation*]

Hon. Maxime Bernier: The motion reads as follows:

> That the Committee review the *Bankruptcy and Insolvency Act* (BIA), the *Companies' Creditors Arrangement Act* and the *Investment Canada Act* (ICA); and that the Committee invite relevant stakeholders to appear before the end of 2017 in order to provide the members with information about the impact on pensioners of companies involved in bankruptcy proceedings such as Sears Canada and U.S. Steel.

[*English*]

The Chair: I just want to be clear on which motion you're moving forward.

Mr. Lloyd Longfield (Guelph, Lib.): I think we should have a discussion on the motion. I'd like to continue with the discussion we have going on today with the witnesses we have. We have ministers coming in.

I think it's a motion worth discussing as opposed to voting on. I think we need more time to discuss it.

The Chair: Okay.

Go ahead, Terry.

Mr. Terry Sheehan (Sault Ste. Marie, Lib.): I move to adjourn debate right now.

The Chair: We have a motion to adjourn debate. That is non-debatable.

● (1120)

Mr. Matt Jeneroux (Edmonton Riverbend, CPC): Can we have that as a recorded vote?

The Chair: Absolutely.

(Motion agreed to: yeas 5; nays 3)

The Chair: We're going to go back to our questions.

Hon. Maxime Bernier: Do I still have time?

The Chair: You have two minutes.

Hon. Maxime Bernier: All right.

My question is in line with what I said before. When we're talking about Internet access, wireless, and all that, the CRTC has a new proposal for being sure that everybody will have a lot of data, more than they have, and the minimum Internet access. What do you think about their new proposal on that?

Mr. Ray Orb: You're referring to the download speed, the megabits per second?

Hon. Maxime Bernier: It's the download speed. Yes, you're right.

Mr. Ray Orb: We're in favour of that. We believe that all Canadians should have a minimum amount of download capacity as well as a minimum of upload capacity. We believe it's a step in the right direction. We believe they need to spread out that coverage throughout the rural and remote areas of the country first before it's enhanced any further. We need to have that basic coverage. The reason is that many people need this to operate their businesses. Whether they are farmers or other kinds of business people in the rural area, they need to have the basic capacity, so we're in favour of it.

We're pleased with the funding. Funding is never enough, obviously, but as time goes on, there's more funding being made available. We're happy with that direction.

[*Translation*]

Hon. Maxime Bernier: Thank you.

The Chair: Thank you very much.

[*English*]

Mr. Stewart, you have seven minutes.

Mr. Kennedy Stewart (Burnaby South, NDP): Great.

Thank you very much for your presentations today. This issue is important to me because I grew up in a remote area of Nova Scotia that still has very little access to broadband. It's often intermittent, so I understand the challenges faced by folks in rural and remote communities when it comes to Internet access.

To both of you, in terms of coverage, can you give us some examples of the extent of the problem we're facing here? Perhaps you can give us some examples of communities and the levels of access, which range probably from 0% coverage to 50%. Can you give us some sense of the range of the problem we're facing?

Mr. Ray Orb: Yes, we can. I would say that the problems with coverage are even more exaggerated in northern Canada, so I'll let Sara answer first, if you don't mind, and then I'll answer as well.

Ms. Sara Brown: Thanks very much.

It's not so much a percentage as it is.... We do have coverage in most communities. We don't have the same rural base in most communities, but the speeds are so slow that it makes it almost impossible to participate using Internet for health, education, and those sorts of things, but our remoteness makes it even more important to have it. You can't drive up the road to access the service that you don't have in your own community. It's absolutely critical to participating in and enjoying a lifestyle that most Canadians have.

Mr. Kennedy Stewart: Do you have any specific numbers you could give us on how slow things are, such as the worst and mid-range scenarios?

Ms. Sara Brown: Do you remember dial-up?

Mr. Kennedy Stewart: Yes.

Ms. Sara Brown: That's what we're looking at.

Mr. Kennedy Stewart: People are still using dial-up?

● (1125)

Ms. Sara Brown: No. There are some on dial-up, but even when you're not on dial-up, you're still looking at significantly slow speeds. You can't stream. Often video conferencing is a real challenge. The delays with the satellite links just complicate that.

Mr. Kennedy Stewart: In terms of people who are still operating on dial-up speeds, do you have any idea of how widespread that is, or what percentage of the population? I know it's a tough question.

Ms. Sara Brown: Ten of our 33 communities are still on satellite service. They would be the slowest. From a percentage perspective, it's not as high. Yellowknife, for example, is over half of the population of the NWT. Percentage-wise it doesn't speak to it as well.

Mr. Kennedy Stewart: But if it's a low percentage, it might be something we could fix quite easily if we invested in it.

Ms. Sara Brown: Absolutely. We'd like to think so.

Mr. Kennedy Stewart: Okay. Thank you.

Did you also have comments, sir?

Mr. Ray Orb: I think the CRTC has done a fairly good job of creating maps. If you go to their website, you can see the areas in every province where there's a lack of high-speed coverage. Those maps are, I would say, at a higher level than maybe what we'd like, because we know that in our own provinces there are places within those areas that are worse. They don't have any coverage at all, and that also applies to cellphone coverage. We have places in rural Canada where we don't have cellphone coverage. We actually have dead spots.

This is an issue, and I'll give you an example. You're familiar with agriculture, with farming. For modern machinery, you now need to have high-speed Internet. You need to have the app either on your cellphone or on a laptop to operate those machines to be able to calibrate them and operate them effectively. That capability isn't there.

More important, I think, is redundancy. You need to have some kind of a backup in case that system goes down, because those machines will not operate without good reliable connectivity.

Mr. Kennedy Stewart: I imagine this really affects your economy as well. I have somebody who does web work for me, web pages and things, who used to be located locally, but has since moved to Puerto Vallarta, and that's where he does his work from. I was thinking that if Puerto Vallarta has enough Internet speed for him to do e-commerce from there, wouldn't it be great if we had it in remote and rural communities? It would be a significant boost in employment if your location all of a sudden didn't matter.

Could you comment on how this is negatively impacting our rural and remote economies?

Mr. Ray Orb: It has a very negative affect on economic development. We know that there are a lot of businesses that would like to move out of some of the larger urban centres and get out to rural areas. It probably makes sense for some of them, because that's where their roots are and that's where their customers are. Because they don't have good connectivity, they're not able to do that. Some of them rely on satellite, but that is not a dependable mode of telecommunication. It has a real effect.

We probably could provide more information on that through FCM, but the impediment is there. We know there is an impediment.

Mr. Kennedy Stewart: Now, this is the million-dollar question, or perhaps billion-dollar question. How much do you think it would cost to get you where you need to get? Do you have any idea?

Mr. Ray Orb: I know that in Saskatchewan, SaskTel would like to take all the money from Connecting Canadians. They said they could use it all in rural Saskatchewan. That gives you an idea of the complexity of this issue.

Mr. Kennedy Stewart: Would that fix the problem there?

Mr. Ray Orb: They think it will. They're doing a better job now, but there's a big part of this country that needs the same kind of coverage.

Mr. Kennedy Stewart: That's right.

Mr. Ray Orb: As I stated, these programs are really helping rural Canadians, but it's a work in progress because we have to partner with our provinces, our municipal organizations, and the industry as well. The industry, I think, is starting to pay attention. They see that this is heading in the right direction.

Mr. Kennedy Stewart: Great. Thank you very much for your time. I think my time is up, so I hope we deliver for you. Thank you.

The Chair: Thank you very much.

We're going to move to Mr. Graham. You have seven minutes.

Mr. David de Burgh Graham: Thank you, Mr. Orb and Ms. Brown, for being here virtually. That's an ironic technical note for this file that I think should be on the record.

Some hon. members: Oh, oh!

Mr. David de Burgh Graham: In the poorest county or MRC in Quebec province in my riding, fewer than one in three households has access to broadband Internet. By broadband, we have a fairly loose definition of that even to get there.

We call our access “innovating to connect”. Dial-up and satellite are still common and obviously hopelessly ineffective. Cellphone service is also rare in large areas of my region. It applies to large chunks of that 200 kilometres on the Trans-Canada that we have, but this will change over the next four years because of the large community-led co-operative that is supported by Connect to Innovate, but we're, of course, the exception.

I want to get to the guts of this.

In the opinion of FCM, is Internet access a right?

● (1130)

Mr. Ray Orb: Sorry. I missed the last part.

Mr. David de Burgh Graham: Is Internet access, in your opinion, a right?

Mr. Ray Orb: A right? I think FCM believes it's probably a privilege for all Canadians to be able to be able to be connected. We're asking for basic high-speed Internet coverage, so if it's a right, that would mean that we would have to be able to have access to it.

In a sense, I think people in rural and northern communities think it is a right because people in the cities, the urban centres, already have it. We know there is a cost associated with it, but at the same time, we need it. We require this for our businesses in our rural communities to be able to survive.

Mr. David de Burgh Graham: That's fair.

Sara, do you have any comments to add?

Ms. Sara Brown: Certainly with northern and remote communities being so isolated, you would be relying on it so much more and would be able to participate so much more if you had it. It is bordering on a right, for sure.

Mr. David de Burgh Graham: Would you consider it an infrastructure or a service?

Ms. Sara Brown: I'm not sure.

Mr. David de Burgh Graham: I'll leave that question hanging.

You talked a little earlier in your opening remarks and in replying to the questions from Mike about the role of telecom companies in getting them in place. How receptive are you finding companies when you ask if they can come up to these communities and build infrastructure so that you have Internet access? Where's the threshold? Where do they say it is or is not worth it for them? What are you hearing?

Ms. Sara Brown: We have one service provider for most of the territories, with another smaller group as well in Nunavut and part of the N.W.T. I'm not sure exactly where the threshold is, but it does require significant subsidies to even deliver a land line type of phone service. This is not a place where the business case will ever work without a subsidy.

Mr. David de Burgh Graham: That's fair.

Out of curiosity—I don't know the answer to this—in the far north in the territories, how do the electricity grids work up there? Is it through generators in each town? I assume that's how it works.

Ms. Sara Brown: Yes, that's correct. We are almost exclusively diesel, and there is some hydro in the southern part of the territories.

Mr. David de Burgh Graham: All right.

I consider Internet access to be extraordinarily urgent, the biggest priority for rural Canada. Would you agree with that?

Mr. Ray Orb: We think it's part of infrastructure. Some of the programs the federal government is offering will provide some of the municipalities with some funding for the expansion of broadband services.

It's very urgent. The point has to be made that for the money being spent, I think it's really effective. Every dollar that's spent on infrastructure will bring rural business. It will add to the economy of the country, because it will not only attract new businesses to rural Canada but will also enhance the ones there and make them more effective. I think it's money well spent, and it's very wise for the federal government to take on this issue.

It's not as if they haven't heard from FCM on this issue. We've been pushing for some time, through some of the members like you. You realize this is very important, and we're glad the committee is talking to us today about this issue.

Mr. David de Burgh Graham: One thing I find in rural Quebec, where I am, is that a lot of communities have a backbone into their communities, and I get constant calls to my office from people seeing a fibre optic line going by their house but not being able to connect to it. Do you run into that a lot, the perception that we have the backbone in a huge amount of the country but the last mile is seriously missing?

● (1135)

Mr. Ray Orb: I think Sara would agree—she probably wants to comment on that too—that the last mile is really important. You have to have both, as you realize. You can't have one without the other. It is very frustrating.

I know we have that in our communities too. The companies are putting in new fibre optic lines, but they're connecting to the towns and the cities, and the rural areas are not able to use it. We think that's why we need to have more towers put up in our areas. They can use those towers for other things besides just broadband; they can use them for cellphone coverage as well, and that will help our rural areas.

Mr. David de Burgh Graham: Internet in my area is principally on relay tower signals, but we're in a very mountainous area, so that's also not very effective. A good tower will connect to eight clients, so the economics tends to not be there for that as well.

Mr. Ray Orb: Yes, that's an issue as well.

Maybe Sara wants to comment.

The Chair: You have one minute left.

Ms. Sara Brown: Our emphasis is definitely on backbone. We don't even have the speeds coming into the community, let alone being able to participate. Until that backbone is addressed, the last mile is irrelevant.

Mr. David de Burgh Graham: That's fair enough.

I have 30 seconds left. I'll hand them over to Mr. Longfield, who has a quick question for you as well.

Mr. Lloyd Longfield: Thank you. I have a quick follow-up for Mr. Orb around the smaller service providers.

You mentioned SaskTel. I'm wondering about the opportunities for FCM to partner with some of the smaller providers to also create jobs within your communities.

Mr. Ray Orb: The position of FCM is a good question. I think FCM itself is not willing to partner. Of course, the municipalities will partner. As for the provincial organizations, I can just give you an example from Saskatchewan. SaskTel, our provider, has offered to do some pilot projects in communities where they don't have any cell coverage at all or have very limited Internet. We're looking at doing some pilot projects to see how that can affect us a year along.

It varies so much across the country. I think every province has a different idea. Basically, we all want the same thing: we want basic.

Mr. Lloyd Longfield: Thanks, Mr. Orb.

The Chair: Thank you very much.

We're going to move to Mr. Jeneroux. You have five minutes.

Mr. Matt Jeneroux: Thank you, Mr. Chair.

Thank you both for attending today's meeting.

Would you mind quickly commenting on the standards put in place for the minimum speeds that were recently announced? We hear some providers say that it's very low. Some are saying that it's quite high. I'm curious as to your opinion.

Mr. Ray Orb: You'll have to remind me. Are you referring to the five megabits per second?

Mr. Matt Jeneroux: Yes.

Mr. Ray Orb: I think we can say that we believe that's a good place to start. It's a minimum. I think the issue is that as time goes on, if they're delivering by towers, those towers do get overloaded. However, I think it basically provides some high-speed Internet, and we need that basic service. We'll be able to build on that in the future. We think it's a step in the right direction.

Mr. Matt Jeneroux: Is it too high, too low? Would you rather see it higher, or are you happy with where it is? Do you have any comments on that?

Mr. Ray Orb: I probably would like 50 megabits per second. We know what the issue is. As technology changes, the apps that we use on our computers and phones increase, so we need more data. We're constantly relying on data to operate our businesses and to communicate, and more and more is used.

Basically, we have to have a threshold where we can start. The idea is to deliver this minimum across the country to all the rural communities and northern communities as well. It's a good starting point.

Mr. Matt Jeneroux: Recently I saw some announcements out in the eastern Canada with regard to some of the connectivity. We have yet to see any in western Canada. We were told by the minister to expect something when he was here before us.

Is this a concern of your members? Are they eagerly anticipating these announcements? Have they been in communication with the minister recently?

Mr. Ray Orb: In all honesty, I can't answer that. I guess we could look into it. I don't know if Sara can allude to that any more than I can, but I'm really not able to comment on it right now.

● (1140)

Mr. Matt Jeneroux: My colleague asked some good questions with regard to the placement of towers. In my community—I represent Edmonton—we recently had some towers go up, and they have been concerns to the local community.

Are you finding in rural municipalities that we're seeing a lot more acceptance of these towers or a lot more encouragement of them by both the municipality and community groups as they relate to the final mile?

Mr. Ray Orb: Sara, would you like to answer that?

Ms. Sara Brown: It's really not an issue for our communities, so I'll leave that to you.

Mr. Ray Orb: Sorry, Sara.

As I stated earlier, it's not an issue for the rural communities. That, I believe, is more of an issue that affects the urban centres. They of course don't like them because they're unsightly. Basically, we have them, especially on the prairies, and I don't think that in rural Ontario it is very different either. In the Maritimes, it would be the same. We have lots of areas. We have farmland. For us, if that tower would basically cover a good part of our municipality, we'd be happy. We'd be able to put another cellphone tower up in conjunction. We could use the same tower. We would be very happy about that. Our members, our farmers, would be really happy about it.

Mr. Matt Jeneroux: Great. I'm finished.

The Chair: Thank you very much.

I just want to throw something in here.

Mr. Orb, you mentioned you are currently working on a pilot project. If you have anything that you would like to submit to the committee on any of those pilot projects, that might be helpful to us.

We're going to move to Mr. Sheehan.

Mr. Terry Sheehan: Thank you very much for the presentation.

As a former city councillor and a school board trustee, I know the great work that FCM does in thinking about that. We're talking with municipalities now, but in the past and recent history there have been some combined efforts in the MUSH sector—municipalities, universities, schools, hospitals. On the Huron-Superior board that I was on, we created a bit of a network and there was a bit of partnering. Is that still going on, and could you give us examples of where that is happening in Canada?

Mr. Ray Orb: We could give you specific examples, but I can't give them today. I know there are places where that is happening. That is used, I think, in Saskatchewan. Some of the school boards are doing that for distance education. They're partnering with SaskTel to be able to do that. I know that in northern Saskatchewan they're delivering some health care services that way too.

If you need specific examples, we could get them. Our FCM staff will have to look into it and provide them to you.

Mr. Terry Sheehan: That would be very helpful. I know that in my riding of Sault Ste Marie the school board has put an application in to Connect to Innovate. They are working with the Innovation Centre not-for-profit and the city, because up in Goulais River there's a school that has one-fifth the speed of all the other schools in the system. It becomes an issue of fairness and equity when some kids are at a one-fifth disadvantage and there are certain things they can't do. I'm wondering if there are other examples of that out there right now. That would help us in our study.

It leads to my next question. I'm thinking about the private sector now, because we've covered off the non-private. There are so many different poles out there that are held privately by hydro companies and others that are already established in rural and remote Canada. How can we get those private companies to work with municipalities through FCM and through the federal government? Do you have any comments on that?

Mr. Ray Orb: It's not only the role of the provinces. It's also the role of municipal organizations like ours and like Sara's. I think we need to be in contact.

As I mentioned, in our province we have been. I know that in Alberta they have some different models of communities that are working with service providers. Their organization, the AAMDC, has been very vocal about getting those people together. It is something that all of our provincial organizations understand. I think we have to do more work on that and we have to get a little better at it.

● (1145)

Mr. Terry Sheehan: It's perplexing. It raises the question of why that private corporation would be hesitant to partner. Can you shed any light on that?

Mr. Ray Orb: I think in the past they would be hesitant because there wouldn't be much money in it for them. Obviously the money is in the larger urban centres and that's where the low-hanging fruit is, but with these federal programs that we mentioned earlier on, there's some incentive now to do that. I think we're going to see some better Internet service provided into the rural and remote areas.

Mr. Terry Sheehan: We were in Washington a few months ago. We were there to talk about a number of things, including rural broadband. The United States is grappling with the same issue. It's just not Alaska; it's in the Midwest of the United States and all over the place. We sat in on some congressional hearings, and one question that was posed is something that we're grappling with, I think, in our ridings and across this country: should we increase the speeds for people who already have broadband, or should access to broadband for all Canadians be a priority?

What would your preference be?

Mr. Ray Orb: Obviously ours is access for all Canadians, absolutely.

Mr. Terry Sheehan: I agree. That kind of gets into the question of speed, because as we get into it, people are saying they want to get higher and higher. However, access for all, I think, is very important.

Thank you.

The Chair: Thank you very much.

We're going to move to Mr. Eglinski. You have five minutes.

Mr. Jim Eglinski (Yellowhead, CPC): Thank you.

I apologize for being a little late, but I got involved in something.

Thank you for being here, sir. I don't know your name, but I'll ask you a few questions.

Some hon. members: Oh, oh!

Mr. Mike Bossio: It's Ray, in Saskatchewan.

Mr. Jim Eglinski: Welcome, Ray.

Mr. Ray Orb: Thank you.

Mr. Jim Eglinski: You're a neighbour of mine.

Ray, my area is a pretty well rural area with a number of communities in the 5,000 to 7,000 range, and then a whole bunch of small ones, with lots of farm air.

We're seeing a number of small companies start up and bring in the Internet system, usually through a tower, and then make promises to the clients that they're going to get so many megabytes of service. They keep selling subscriptions to their system to the point where people cannot use their computers, especially in the evening, because the system is so loaded down. Do you find that quite common across Canada where there are these small Internet providers?

● (1150)

Mr. Ray Orb: Yes, it does happen. We have some clients who don't have access to hardwire to be able to get onto high-speed Internet. They have problems with the satellite delivery because satellites can't provide enough capacity to provide good download speeds. At peak times of the day, which probably would be the early morning or evening when most people are either going to work or coming home from work, the system is not able to keep up. That is a big problem for a business that relies on consistent communication. We know that's an issue all across Canada.

We believe there has to be some kind of regulation on that through the CRTC. They need to be able to regulate some of that. If people are selling subscriptions, they need to be able to deliver what they're selling.

Mr. Jim Eglinski: One of our local counties, Clearwater County, has formed what they call the Clearwater Broadband Foundation. They have a pretty unique idea. They want to run cable through old pipelines that are crisscrossing the whole region. In your opinion, is this feasible?

Mr. Ray Orb: Is Clearwater close to Fort McMurray?

Mr. Jim Eglinski: No, Clearwater is between Edmonton and Calgary, just up against the slopes of the Rockies. It's by Rocky Mountain House, west of Red Deer by 60 miles or so.

Mr. Ray Orb: It's an interesting concept for sure. I'm not able to answer that, because it's a pretty technical question, but the idea is kind of appealing. I think any way service could be delivered has to be looked at. Obviously there are pipelines. I know there are pipelines across the country that are not being used. Some of them have been set aside. If the companies think that using them could be feasible, I don't see why not.

Mr. Jim Eglinski: I have a lot of counties asking about broadband. In your travels and movements around the country and with your knowledge of these systems, do you have any innovative solutions that you've seen other organizations use?

Mr. Ray Orb: Whenever I go to Ottawa, I meet with some of the Ontario municipalities. I think AMO has really been active on this file. They have some really good examples of companies that have come together with the municipalities. We can provide you some of that information. I know that in Alberta they're really active as well. When I was at the AAMDC conference last fall, there was quite a discussion about the different ways of delivering services there. Alberta has some unique ways of doing that. You may know some of them, but I think they do vary across the country.

Mr. Jim Eglinski: How much time do I have?

The Chair: You have 30 seconds.

Mr. Jim Eglinski: Are we realistic in saying that we could provide broadband to everyone in Canada?

Mr. Ray Orb: I can answer it, and I'll let Sara answer as well.

I think we can do it, but it will take more money and some more time.

Mr. Jim Eglinski: Thank you.

The Chair: Thank you very much. That's the question, isn't it?

Now we're going to move to Mr. Longfield. You have five minutes.

Mr. Lloyd Longfield: Thank you for this discussion this morning.

Mr. Orb, you mentioned the role of co-ops. This morning, I met with Co-operatives and Mutuals Canada and we talked about the CCIF fund. Looking at partnering with the federal government, working with FCM, could you expand on the role that co-ops have played in your area or through FCM? As we put our report together, we're going to be looking at the possible partnerships that the federal government might consider.

Mr. Ray Orb: FCM could provide some stats on that. I'm not able to tell you specifically the ones that have been involved, but I know they have been. I know some of that's being taken up in Alberta. That's what I made reference to. There are some counties that have done that. We could provide some of that information. It might take us a bit of time to get the information from the Alberta association, but we certainly could provide that to you.

That is a really good way to effectively spend some of the money that's available through the federal programs.

Mr. Lloyd Longfield: We're always looking for matching partners. There may be a similar question around Community Futures. I'm not sure. I know they've been across Canada and they work in small communities. They deliver a lot of different types of programs. Is Community Futures another possible avenue that we could be exploring?

Mr. Ray Orb: Yes, I don't see why not. We should work with anybody who's available to enhance economic development. That's definitely the direction we want to go in.

Sara, if you want to comment, go ahead.

Ms. Sara Brown: Certainly Community Futures has been very active in the north and is very well received. It has the opportunity to bring a lot of different types of partners together.

Mr. Lloyd Longfield: The thing about co-ops and Community Futures is that they bring people from the community who have experience in the community. They know the community at the grassroots level in a way that would be very beneficial, I think, if we're trying to get to the last mile.

Mr. Ray Orb: That's a very good statement.

Mr. Lloyd Longfield: Great. Thank you.

I'm going to share my remaining time with Mr. Bossio. He has lots of questions.

Mr. Mike Bossio: We have all seen the graphs and maps that show that we have 99% coverage of one to five megabits across the country. Would you say that's realistic?

Mr. Ray Orb: That is a loaded question, Mr. Bossio—not that I'm surprised, because I know you know the detail a lot more than we do.

I'm not saying we disagree with that statistic, but we're looking at doing some more research on it. Just in Saskatchewan, we're looking, as I mentioned, at doing each municipality. We're looking at each rural municipality to see if that's correct.

That number might not be quite correct because of the fact that there are dead spots that CRTC may not exactly know about. They got some of that information from SaskTel, but when we provide the information to SaskTel now, they're saying, “We didn't know that was a dead spot.” We need to do some more research on that. Sara may be able to answer the question—

● (1155)

Mr. Mike Bossio: If I could take it in a different direction.... I apologize, but I don't have a lot of time.

Have you heard of CIRA, the Canadian Internet Registration Authority?

Mr. Ray Orb: No, I'm sorry.

Mr. Mike Bossio: They're an organization that has been measuring.... They register a lot of the Internet addresses and they also take a look at devising detailed data on Internet speeds and capacity. One of the major complaints that CIRA has had is with regard to a lot of these studies that are done on congestion. Even when you go to www.speedtest.net, they don't look at congestion, complex traffic routes, other network dynamics, latency, or any of these things when they're looking to deliver one to five megabits of speed. Any of us who have broadband Internet recognize that, for one, broadband isn't defined by five megabits, and two, most of the time, they don't deliver on what they're saying.

CIRA has been going to a number of municipalities to help them fund these tests so that each municipality can determine within their own community exactly where they have and don't have Internet, and the exact speeds that people are experiencing, because they test it on an ongoing basis. It's not just one click, it does the test, and then it's done.

Would you agree that this would be a great avenue for all municipalities to take? They would be able to provide the data themselves and say they've done this and understand totally what the coverage is within their communities.

Mr. Ray Orb: Yes, absolutely. I'll let Sara answer this one as well.

Ms. Sara Brown: Yes, absolutely. You have that understanding, but certainly one of our great challenges here is not just speed but actual bandwidth, so even if you're in a community that has better speed that's served by fibre, it's the bandwidth that ends up bringing you to a grinding halt.

Mr. Mike Bossio: Am I done?

The Chair: You're done.

I'm going to jump in again.

That's a common theme we keep hearing, si if you have any maps that represent speed, bandwidth, or connectivity in your communities, could you please forward them to the clerk? That would be helpful. Thank you.

Mr. Stewart, you have the final two minutes.

Mr. Kennedy Stewart: Thank you very much.

It's been an interesting conversation. Thanks for your advocacy. That's really important.

Since we are getting near the end now, and I just have two minutes, I am wondering if there is anything you would like to add that perhaps you haven't been able to say over this course of interviews.

Mr. Ray Orb: I'll make a quick comment and I'll ask Sara to make a comment as well.

I think we need to do a lot more work. I know Mr. Bossio has been very active on this file. We have been working through Rural Forum with the Liberal rural caucus on this issue, and we need to talk not only to the Liberal government but to the Conservative and NDP members of Parliament to get better feedback on what's happening in their ridings across Canada.

We need to work through FCM to do a lot more on this file. We see these Canadian programs, such as Connect to Innovate. The programs have been very effective, but we need to do more work. It's a step in the right direction, as I think we stated before, so we're pleased with it.

Mr. Kennedy Stewart: Thank you.

Mr. Ray Orb: Perhaps Sara could comment.

Ms. Sara Brown: Thank you very much for the opportunity to speak.

I really can't stress enough that the gaps we see in the north are limiting our ability to grow and participate in the global economy and to move our challenges ahead with respect to education, health, and all those sorts of things. It's critically important to moving forward as territories.

Mr. Kennedy Stewart: Thank you very much.

The Chair: That will wrap it up for today.

Thank you very much to our witnesses for appearing today. There's been lots of good information.

Again, I'm going to reiterate that whatever you can submit to us, be it the maps or any pilot projects, the sooner the better would be extremely helpful.

Mr. Ray Orb: Thank you.

● (1200)

The Chair: We're going to break for a very quick minute while we get the minister in. We're running on a short clock, so we're going to suspend.

Mr. Mike Bossio: It was great to see you, Ray and Sara. Take care.

Mr. Ray Orb: Thank you.

● (1200)

(Pause)

● (1205)

The Chair: I want to inform the committee that we are short on time and we need to leave a bit of time towards the end to adopt our motion, or, rather, the supplementary—

Mr. Maxime Bernier: My motion?

The Chair: No, not yours. Yours has already passed—

Some hon. members: Oh, oh!

The Chair: I will be cutting down some of the time as we go through, just so everybody has an opportunity to speak.

Having said that, we welcome today the Honourable Kirsty Duncan, Minister of Science, with her officials David McGovern and Nipun Vats.

We are glad to have you here today and we look forward to your presentation. You have up to 10 minutes.

Hon. Kirsty Duncan (Minister of Science): Thank you, Mr. Chair. Good morning, everyone.

[*Translation*]

I am happy to be here with you today.

[*English*]

Mr. Chair, thank you for the opportunity to be here on the occasion of the tabling of the supplementary estimates (B) for 2017-18.

As you will remember, I last appeared before this committee in May. I am honoured today to provide you with an update on what I have been doing since then to champion science in this country. I will preface my remarks by emphasizing that all the actions I have taken have been in pursuit of our government's long-term vision for the future of science in Canada.

I recently shared that vision at the Canadian Science Policy Conference. It can be summed up in three points: we want to strengthen research, strengthen evidence-based decision-making, and strengthen our culture of curiosity.

At the heart of our vision are the people who power science, the researchers, lab technicians, academic staff, and students, whose collective contributions improve Canada's science community every day. Ours is a vision that sees Canadian science and our many outstanding scientists re-energized in a forward-looking and bold global pursuit of new knowledge.

Right now, Canada is seen around the world as a progressive country empowering its scientists to make breakthroughs that could change the way we understand ourselves and the world around us. When I was at the G7 in Italy last month, I was proud to hear that Canada is viewed as a beacon for science around the world.

[*Translation*]

This is the right time to follow through on this momentum, and I am happy to tell you that the government is working hard on this.

[*English*]

For example, I recently fulfilled my top mandate commitment by joining the Prime Minister in naming Dr. Mona Nemer as Canada's new chief science advisor. Dr. Nemer is a highly accomplished medical researcher, a former university executive, and an award-winning scholar who is recognized internationally for her contributions to academia. Her job is to provide our government with independent, non-partisan scientific advice. Dr. Nemer will gather the most cutting-edge science and present her advice to me, the Prime Minister, and cabinet.

It is then my job as Minister of Science to incorporate her findings at the cabinet table so that we can make decisions about the things Canadians care about most: their health and safety, the security of their families and communities, their jobs and prosperity, the environment, climate, and the economy.

Prime Minister Trudeau announced Dr. Nemer's appointment the same day that the first-ever Prime Minister's science fair was held here in Ottawa. Why? Our government wanted to connect the big news of the day with the big things that young Canadians are doing to advance science. We want young people to know that their scientific achievements are recognized and have a home on Parliament Hill. This is one of many steps we have taken to encourage young people to be curious and to pursue their ambitions.

We also launched the second phase of our highly successful #ChooseScience campaign this fall. So far, the ads have aired over 2.2 million times and have reached over 520,000 Canadians, with 108,000 Canadians reacting to, commenting on, and sharing the social media ads. It also attracted more than 25,000 visits to our #ChooseScience web page, and more than 55,000 schools now have our campaign posters in their halls.

I'm a strong supporter of programs like these that embolden young people to choose science.

● (1210)

[*Translation*]

That is the culture of curiosity I was telling you about.

[*English*]

Our challenge today continues to be shaping that culture so it welcomes all people. That's why I've made it my personal mission to right the gender equity and diversity scales in academia. I believe we must improve access to opportunities so that everyone has a shot at contributing to the future of our country. That's why I instituted new equity requirements in the Canada excellence research chairs competition, one of the most prestigious research programs in Canada. We also strengthened our efforts to address the under-representation of four designated groups in the Canada research chairs program: women, indigenous peoples, persons with disabilities, and visible minorities.

I am so proud to be able to say to you today that my message seems to be getting through. We have a record-setting number of women nominated for both the Canada research chairs and the Canada 150 research chairs competition. Specifically, in this latest round of Canada research chairs nominations, 42% are women, the highest it has ever been. Budget 2017 put forward $117 million for the Canada 150 research chairs, a one-time fund that allows universities to recruit internationally based scholars, including Canadian expat researchers who wish to return home.

The preliminary numbers are in, and they show that the applicants are 62% women and 39% expat Canadians who see the future of their research careers here in Canada. I believe these results wouldn't have come about if it were not for the bold action I have taken to right the gender equity and diversity scales in academia.

Perhaps as further evidence of our international reputation for modern, liberalized science policy, Montreal was chosen this year as the first-ever Canadian host of the international Gender Summit. Earlier this month, Montreal welcomed more than 600 advocates of gender equality from science, innovation, and development around the world. It was a great honour to participate in such a historic event, and I'm awed, humbled, and inspired by the many stories that were shared about women who are making a difference in the sciences around the world.

As you know, as part of my mandate to champion science in this country, I also commissioned a review of federal funding for science, the first of its kind in more than 40 years.

● (1215)

[*Translation*]

I thank the distinguished members of the committee for their work.

[*English*]

The panel gave me more than 200 pages and 35 recommendations to consider. I agree with the majority of the recommendations and have already taken action to implement many of them. These include capping the renewals of Tier 1 Canada research chairs and announcing the creation of the Canada research coordinating committee.

I also launched a network of centres of excellence competition this summer that puts a premium on multidisciplinary, multinational, and bold research initiatives.

I expressed my support for replacing the Science, Technology and Innovation Council with a more nimble, public-facing advisory body. In the coming months I will move forward with a new, more open and transparent science and innovation council so that government can benefit from independent experts working in these fields.

There will be more action to come on the implementation of the panel's recommendations, and I look forward to your support of my efforts.

As well as my work in Ottawa, I have the privilege of visiting Canadian campuses and communities from coast to coast to coast. Meeting with researchers on the ground is such an important way for me to get a sense of the state of play in science at the moment.

[*Translation*]

Quite recently, I had the opportunity of visiting the Montreal Institute for Learning Algorithms.

[*English*]

MILA, as it is called, is world renowned for breakthroughs in machine learning. It has more than 150 researchers in deep learning, the largest academic concentration in this field in the world.

To support Canada's world-class work in artificial intelligence, this year's budget invests $125 million to create a pan-Canadian artificial intelligence strategy.

I want to underscore the important lesson this investment offers. Canada's current strength in artificial intelligence is a direct result of investments and investigator-led fundamental research made some 30 years ago.

At the time, many thought machine learning was the stuff of science fiction. That skepticism did not deter scientists like Geoffrey Hinton from applying for funding to pursue their interests in artificial intelligence. That we are now realizing the returns of those early investments shows the wisdom of investing in discovery research across the board.

We know that when it comes to science in this country, a culture change will not happen overnight. Still, look how far we've come in the last six months and in the last two years.

With that, I look forward to answering the committee's questions.

The Chair: Thank you very much.

We're going to jump right into questions.

Go ahead, Mr. Sheehan.

Mr. Terry Sheehan: Thank you very much, and Minister, thank you for the presentation.

You're talking about some of the changes that are happening. In my own home, my daughter, who is 16, has just switched from humanities to science and math. My daughter is also a Métis. My question is going to be specific because I'm also chair of the northern Ontario caucus, and I have a number of first nations in my riding and across the north.

What can we do to work with Canada's indigenous people to elevate science in this great country? In my riding, in Garden River, areas that are now campgrounds were once places where native peoples went and got traditional medicines and recognized a whole bunch of things, all before the western world arrived. What can we do to elevate that?

Hon. Kirsty Duncan: I'll tell you what we've been doing and what more we can be doing. We have this #ChooseScience campaign. The reason we have it is that we have to build the pipeline.

All children are born curious. They want to discover. They want to explore. They pull apart the nearest pen and they'll dismantle the microphone or whatever's nearby. It is our job to foster that natural curiosity through elementary school, high school, and beyond.

We want to attract our young people to the STEM careers—science, technology, engineering, and mathematics, and I'll add art and design, but it's not enough to attract them; we want to retain them. I'm very much focused on building that pipeline. I make it part of my mandate, when I travel to meet with young people, to hear their experiences and to hopefully encourage them to think about the STEM disciplines.

This past weekend, I was at the University of Toronto Scarborough, back where I used to teach, and I met with 100 girls in grade 9. They are interested in STEM. Every one of those students, when they asked questions, asked about the challenges of being a woman in science. These are kids who want to go into STEM fields.

This summer I had the privilege of being in the Arctic, where I had done research. I was able to meet with indigenous students, and I think there's a lot of work we can be doing there. I also think Canada needs to listen to indigenous peoples—first nations, Métis, Inuit. You can't live on the land for thousands of years if you cannot read the sky, the land, and the water. We have much to learn from indigenous peoples when it comes to the environment, when it comes to thinking about our relationship with the world. We have to recognize who owns that knowledge, and I think there's a lot of work to be done in bringing traditional knowledge and western science together and sharing information both ways.

● (1220)

Mr. Terry Sheehan: We recently did an IP study. We heard of a lot of the research that's going on in universities, which is great.

In the Sault, we have a university. We have Sault College and the Heritage Discovery Centre. What can the ministry do to promote more research, more science, more of that kind of work at our colleges and our polytechnical institutes?

Hon. Kirsty Duncan: I'm very clear. All our post-secondary institutions have a role within the post-secondary ecosystem. That means our universities, our colleges, and our polytechnics. We have to fund all of them.

The colleges do tremendous work. The applied research that's done.... I have Humber College in my community. I'm so proud to be able to serve that college. I'm told from the college sector that I have visited the most technology access centres, the TAC programs, of any science minister ever.

This summer we were at Niagara College. At lunch we sat down with members of the community. They explained how the college helps them with producing their food and wine products, overcoming challenges they have, and how the college is a source of regional economic development.

Lunch was with the food and wine industry. Later in the day we met with advanced manufacturing, and they gave us the same message. They come to the college with a challenge; the college can turn it around in three or four months and really help their business.

We have the college and community innovation program and our technology access centres, and I hope you all take the time to visit them.

The Chair: Thank you very much.

Mr. Terry Sheehan: Thank you very much.

The Chair: I'm going to remind everybody that we're very tight on time, so I'm going to stick to the five minutes.

Mr. Jeneroux, you have five minutes.

Mr. Matt Jeneroux: Thank you.

Thank you, Minister, for being here today, and thank you for bringing your plethora of staff with you in tow. You have always been very generous to me, and I certainly appreciate that.

I have some questions for you. Particularly, let's start with the Naylor report. It has been 234 days now. We're still waiting on the 35 recommendations and your position on a number of them. You have highlighted some, but there are still some outstanding.

When can we expect those ones to be delivered?

● (1225)

Hon. Kirsty Duncan: I will begin by saying that many people joining us today are interns who are here with ISED, and I know this committee would be really pleased to welcome them. I know our focus is a big part on young people.

Thank you for asking about the fundamental science review. I commissioned it. It's the first time this has been done in 40 years. I can't imagine any other system that has gone without a comprehensive review in 40 years. I undertook this review to get the evidence to be able to act.

There was concern out in the community that this report would be buried. I insisted that it be released at the public policy forum so we could begin something that has never happened in this country, which is a discussion on research and research funding. That discussion is happening.

I was very clear in the spring that I agree with the majority of the recommendations, and I plan to act on them in the short, medium, and long term.

Mr. Matt Jeneroux: Do you mind if I ask then, Minister, what the holdup is? What can we help you with in terms of helping to speed this along a little bit?

Hon. Kirsty Duncan: I really appreciate your offer. It takes time. There are 35 recommendations. You can't change a complex ecosystem quickly overnight.

Let me tell you, on the networks of centres of excellence program, that we changed the rules for it, the term limits, so that former networks of centres of excellence could apply for funding.

On the Canada research coordinating committee, this is really important. As I go across the country, what I hear from the researchers is, “I might be able to fund my lab or my tool, but I can't get the money to operate it, so it's of no use.” By creating that coordinating committee—it's going to have the deputy minister of ISED, the deputy minister of health, the heads of our three granting agencies, and CFI—we're going to be able to better coordinate and harmonize these research programs.

I'll talk also about the Tier 1s—

Mr. Matt Jeneroux: You've been on record as saying that part of the problem with the report is you don't think that putting an unelected body over the funding model as being a hurdle for the report. If that's the hurdle, I would hope you'd just say that and let us know so that we can continue to advocate for and work with the science community on that.

Do you want to shift gears quickly to PEARL funding?

Hon. Kirsty Duncan: Can I—

Mr. Matt Jeneroux: Let me go there first.

On the PEARL funding, the CCAR initiative that our government put in place reached its end of cycle. There was a lot of concern within the science community regarding the funding for PEARL. You swooped in at the 11th hour with the Minister of the Environment to find $1.6 million of transition funding, but it doesn't seem as if there's a transition to anything. There is no commitment past those 18 months.

Can you provide your solution to that?

Hon. Kirsty Duncan: Our government understands that Arctic research matters more than ever because of climate change. That's why we signed the Paris Agreement. That's why we've put a price on carbon, and that's why we've invested billions of dollars in climate change research and adaptation and mitigation and in clean technology—and I mean billions of dollars.

I sat on the Intergovernmental Panel on Climate Change. I was asked by my government to serve on it. In 1995 the IPCC said that humans are having a discernible impact on climate. The former environment minister under the previous government recognized that climate change was real in 2012, so while we've invested—

Mr. Matt Jeneroux: I'm sorry, Minister, I have about five seconds. Do you have a plan for after the 18 months?

Hon. Kirsty Duncan: —billions, the previous government used PEARL as a one-off solution to solve a political problem.

We understand that the Arctic is far too important and we will be coming forward with a comprehensive, thoughtful program, but since you've asked about PEARL, it is unique in Canada. It is our most northern facility. It looks at the atmosphere, climate change, ozone, and the interaction among the atmosphere, ice, and ocean, so we are maintaining the operations and research of PEARL.

● (1230)

Mr. Matt Jeneroux: I'll take that as a hard no.

The Chair: Thank you very much.

We're going to move on to Mr. Stewart. You have five minutes.

Mr. Kennedy Stewart: Welcome, Minister.

I have hardly any time, so I'll whip through.

In a letter I sent you dated September 29, I asked, among other things, about the extent to which you are prepared to implement Naylor report recommendations. Your office has promised a response, but I haven't yet received one. I'm still hoping I might get a letter, but also, would you answer the three questions I have here?

The first two concern the Naylor report, so I'm going to group two questions here. There are 35 recommendations. I recognize that you have gone some way to implement some of them, but I would suggest those are the more minor recommendations. Two doozies in the report have not yet been addressed. The first recommendation in the Naylor report is to have a new act of Parliament to create a national advisory council on research and innovation. I am wondering whether you will draft and table such legislation.

The second question about the Naylor report concerns the really big one, which is the request to increase annual funding from $3.5 billion to $4.8 billion over a four-year phase-in period. Will you assure the scientific community that this increase will occur?

Thank you.

Hon. Kirsty Duncan: I'll begin with the letter. Thank you for your letter. The reason it has been delayed is that a big change came in, which was that we appointed Canada's first chief science advisor, and we wanted the letter to reflect that. I'd be happy to talk with you about the chief science advisor.

Just so you are aware, my office offered to have a meeting with your office twice, and you know I have come over and personally offered the same—

Mr. Kennedy Stewart: Yes, but everything in writing is more important in this case.

Hon. Kirsty Duncan: We did offer while that's being drafted, and it is on my desk today, but two offers were made by my office as well as my personal offer on two occasions.

Mr. Kennedy Stewart: Thank you very much.

Hon. Kirsty Duncan: When it comes to the fundamental science review, I think it's important to remember that I commissioned this report because I wanted the evidence, and it gives us a good path forward. I've talked about the action taken, the networks of centres of excellence, the Canada research coordinating committee. I haven't talked about the Tier 1s, and I'd like to—

Mr. Kennedy Stewart: I have my specific question, so—

Hon. Kirsty Duncan: —but I'm going to talk about the money, if you'll allow me to finish.

Understand that in the previous government, in 10 years we fell from third to eighth position and from 18th to 26th for higher education R and D and business R and D respectively, and now Canada is out of the top 30 in business R and D for the first time. A big hole has been dug and there is no quick fix, but we are in a budget process and we are working hard. We are building the awareness and education of how important discovery research is, and science has no greater champion than myself.

Mr. Kennedy Stewart: Okay. Thank you.

How about NACRI, then?

Hon. Kirsty Duncan: Thank you.

On the question about NACRI, what the committee suggested is that we should have an advisory committee on science and innovation. We absolutely agree.

With our new appointments process—which, as you know, is open, transparent, and merit-based—it takes time, but you will see coming forward in the next few months our launch of that new process. It's really important that this be outward-facing and open and transparent and that the committee knows what's being discussed.

I will also build on the Canada research coordinating committee. You're a former researcher and you understand some of the challenges that our researchers face—

Mr. Kennedy Stewart: I understand the challenges in talking to ministers, too, so my question is—

Hon. Kirsty Duncan: Well, I'll just finish by saying—

Mr. Kennedy Stewart: —will there be an new act of Parliament? That's the question.

● (1235)

Hon. Kirsty Duncan: For...?

Mr. Kennedy Stewart: For NACRI.

Hon. Kirsty Duncan: What we are hoping—

Mr. Kennedy Stewart: As requested by the Naylor report.

Hon. Kirsty Duncan: —on the chief science advisor....

Mr. Kennedy Stewart: That is not a new Parliament act either. That's my point.

Hon. Kirsty Duncan: Well, we need to build permanence into that. We want permanence within this, and I think it's really important that we build an advisory system within Parliament.

Mr. Kennedy Stewart: Okay. I realize my time's short, but that's a “no” on the act. Thank you—

The Chair: Your time's up. Sorry.

Mr. Longfield, you have five minutes.

Mr. Lloyd Longfield: Thanks, Mr. Chair.

Thank you, Minister, for being here, and for bringing all the interns.

My question reflects some of that, the difference between science and innovation, and maybe builds on Mr. Stewart's comments. Also, Mr. Jeneroux's comments around PEARL were, I think, very to the point as well.

We need to look at continuing to fund research. The innovation funding that we've put in place is one thing, but innovation doesn't start on its own. Before we have innovation, it needs science. I met with D-Wave yesterday. They're looking at quantum machine learning, machine learning like we've never seen, and they frankly don't know what it is and need to have some scientists play with quantum computers to figure out what the applications could be for quantum machine learning.

Last week we announced $1 million of innovation funding to Mirexus Biotechnologies in Guelph. They're looking for new uses of corn nanoparticles, which are new in themselves. I asked how many staff he has, and he said they have 30 staff there, but they have 15 researchers in various universities across North America who have been funded by our government. When we look at developing solutions that we don't even know where we're going with, we need scientists working and being curious in the background.

On the importance of science funding, as in the Naylor report, and the importance of long-term funding, as in the PEARL funding that we've been talking about, could you speak to the advocacy that you're doing with our government to maintain the focus on science funding separately from innovation funding?

Hon. Kirsty Duncan: Thank you for the question.

In the very first budget we made a $2-billion investment in research and innovation infrastructure. That's an important investment, because much of the infrastructure was 25 years and older, but I've always been clear that buildings don't do research; people do. We have to invest in our researchers.

I've talked about the cuts that happened under the previous government—third to eighth, 18th to 26th—so we made the largest investment in our three federal granting councils in a decade in that first budget. Unlike the previous government, that was unfettered money, meaning it was not tied money.

I can talk about other large investments: the $950 million for the superclusters, the $900 million for the Canada first research excellence fund, $221 million.... You seem to have a question. I'll let you ask your question.

Mr. Lloyd Longfield: Thank you. I nod faster as I get closer to my questions.

The role of the chief science advisor is something new to Canada. She's going to be playing a role in tying innovation and the interns you've brought with you who are working in innovation to the scientists who are in the labs right now. How is that role governed? What's the governance structure under the chief science advisor for us to make those very important ties between science and innovation?

Hon. Kirsty Duncan: Thank you for the question.

I'm really delighted. We have a new chief science advisor. I'll let you know a bit of the process we took to get here.

It was the first major science consultation in 10 years. We wrote to the research community, we wrote to stakeholders, and we wrote to all parliamentarians so that people could feed in on what this position should look like. It came back very clearly that this should be a chief science adviser. Then we contacted the chief science advisers in Australia, Israel, New Zealand, the United Kingdom, and the United States, and we built a made-in-Canada position. Remember, this was a position that was cut by the previous government. We launched the search for the chief science advisor in December 2016.

Through our new, open, merit-based, transparent process, we have a new chief science advisor, and she's terrific. She is a prominent heart researcher. She's a former vice-president of research at the University of Ottawa. She has provided advice nationally and internationally. She's a member of the Order of Canada.

Her job is to provide the Prime Minister, me, and cabinet with scientific advice—to collate the best known information of the time, to bring it together, and provide that advice. It's our job to consider the science, evidence, and facts along with the other evidence we need to make decisions—regional development, economy, diversity, equity, and so on. It's an advisory role.

● (1240)

Mr. Lloyd Longfield: Thank you.

The Chair: Thank you very much.

We're going to hit our lightning round.

Mr. Jeneroux, you have three minutes.

Mr. Matt Jeneroux: I have a generous three minutes, I assume, Mr. Chair.

Quickly, Minister, you talk about the funding for the granting councils; however, there was no new funding in the 2017 budget. The Naylor report calls for increased funding for those. You've criticized our past government for boutique funding; however, you've invested in stem cells, space exploration, and quantum computing. I'm hoping that we'll see some more funding for these granting councils when it comes to the next budget.

I want to continue my question on PEARL and CHARS. In an interview with CBC you referred to the CCAR, the climate change and atmospheric research initiative, as a one-off to climate research. Can you elaborate on what was meant when you say “one-off”, as you also said it again here today?

Hon. Kirsty Duncan: Thank you for the question.

Before you launched into that, you talked about space, stem cells, and quantum research. In space, yes, we invested $379 million because it's for the future. It's science, technology—

Mr. Matt Jeneroux: Minister, I have the numbers. I only have three minutes, if you don't mind—

Hon. Kirsty Duncan: For genomics it's $237 million, and this is because these are things that we're going to lead on in the future. If we want to transform medicine, it's regenerative medicine, precision medicine, quantum materials, quantum computing, and artificial intelligence. Those really matter.

You asked about CCAR. Programs have a start date and programs sunset, so CCAR is coming to an end. I've asked my officials to work—

Mr. Matt Jeneroux: You've said it's coming to an end—

Hon. Kirsty Duncan: It's because it sunsets. There was an end date that was provided by your government.

Mr. Matt Jeneroux: Back up a minute. CFCAS was something that we replaced with CCAR. That's where PEARL funding comes from. You've now said that CCAR is no longer going to be funded. You have provided no alternative to that. PEARL was about to sunset because of that, and again, until the eleventh hour you came in and left a bunch of these scientists curious as to what the alternative to this is. I've given you two opportunities now, Minister, to answer this question and you have yet to answer it.

Hon. Kirsty Duncan: If I could jump in and answer instead of listening to a lot of banter—

The Chair: You have about 30 seconds.

Hon. Kirsty Duncan: Thank you, Mr. Chair.

CCAR is sunsetting. That was done under the previous government. We did save PEARL, because it's a unique facility in this country.

The previous government did not believe in climate change—

Mr. Matt Jeneroux: You just said we did, Minister. You just said we did—

Hon. Kirsty Duncan: It did not invest in climate change—

Mr. Matt Jeneroux: You said earlier that we did believe in climate change.

Hon. Kirsty Duncan: The intergovernmental panel was set up in 1995. It finally came to climate change being real in 2012.

We have invested billions. There are numerous opportunities for funding, and our officials are working with the researchers to see if there are other opportunities.

The Chair: Thank you very much.

We are going to move to Mr. Jowhari. You have three minutes.

Mr. Majid Jowhari (Richmond Hill, Lib.): Thank you.

Welcome, Minister.

In your opening remarks, you specifically talked about the Canada 150 research chairs. You also touched on the under-representation of four designated groups.

Within the three minutes I have, can you expand on what you are hoping to accomplish with the Canada research chairs program and how you would see that bringing equity and diversity into those four designated groups that are under-represented?

Thank you.

Hon. Kirsty Duncan: Research excellence and diversity go hand in hand. In a competitive global economy, we cannot afford to leave any of our talent on the sidelines.

We know when people come from different backgrounds that they bring different experiences, ideas, and perspectives. This may allow them to ask different research questions and use different methodologies that are going to get results that benefit everyone.

I'll give you an example. I think of the first voice recognition software, which was calibrated to only male voices, or the first artificial heart valves, which were created by researchers who happened to be largely men. They created artificial heart valves that fitted only the male-sized heart.

We have excellent researchers in this country. I want them to have a shot. I have spent 25 years fighting for more diversity in research and I'm going to continue to do so.

● (1245)

Mr. Majid Jowhari: I have access to a large base of international scholars, researchers both within Canada and outside of Canada. How can the Canada 150 research chairs program facilitate getting them to either stay in Canada or come to Canada?

Hon. Kirsty Duncan: Canada 150 research chairs were announced in budget 2017. The idea was to attract international top talent from around the world, as well as expat Canadians.

When people come here, they will build research teams. The average size of these teams is about 34 or 35 people. They will train the next generation of researchers. They will make new discoveries that could lead to innovations, products, and services.

There was an overwhelming response from around the world. Researchers applied directly to the universities, and one university told us they had 500 applications. We've had the intake. There have now been those nominations for review. The results are tremendous, with 62% being women. That's a real change. Also, 42% are expat Canadians who want to come home. They see their future in research here in Canada.

That's what we heard at the G7. I was at the G7 12 hours after we had launched our new chief science advisor, Dr. Nemer. That was the news of the summit. They wanted to know. They were excited about our commitment to science and to evidence-based decision-making.

Mr. Majid Jowhari: I'm done, but I'm going to lobby for a repeat of that next year.

The Chair: You're done. Thank you very much.

Thank you for playing. We're now moving to our super-duper lightning-speed round.

Mr. Jeneroux, you have two minutes.

Mr. Matt Jeneroux: Thank you, Mr. Chair.

There are six other programs that are supported under CCAR. What is your plan for those programs?

Hon. Kirsty Duncan: As I've explained, CCAR is sunsetting. Our officials are looking at ways to work with the researchers.

We are taking a thoughtful, comprehensive approach to the Arctic. Our Prime Minister has announced a new Arctic policy framework, which means working with the territories, working with northern communities, and working with indigenous peoples. It will be a framework for the north by the north.

Mr. Matt Jeneroux: Minister, do you think groups like the network on climate and aerosols, the Canadian Arctic GEOTRACES program, VITALS—Ventilation, Interactions and Transports Across the Labrador Sea—the Canadian network for regional climate and weather processes, and the changing cold regions network will take comfort in the fact that you're answering questions like this today, as opposed to answering what your plan is or what the future is?

Saying that you continue to have these discussions is doing nothing for these programs that are at risk in the same way the PEARL program was.

Hon. Kirsty Duncan: As I said, it was your government that gave the sunset date for this program. We are working with the researchers to see if there are other areas that they can apply to. We have invested on the order of two and a half billion dollars in climate change, and that's in straight research, adaptation, and mitigation. It was your government that cut the adaptation impacts research group at Environment Canada.

● (1250)

Mr. Matt Jeneroux: For those listening at home, Minister, you're usually not this partisan. It's a bit of a surprise, to be honest with you.

However, universities are looking for funding for the next.... They want a plan. They want consistent funding. Can you give comfort right now that what we saw in the last budget was an anomaly and that we'll continue to see funding for universities?

Hon. Kirsty Duncan: Let me be very clear. Science has no greater champion than myself.

The Chair: Thank you very much.

We're going to move to Mr. Bossio. You have two minutes.

Wait, it's Mr. Baylis. You just showed up there.

[*Translation*]

Mr. Frank Baylis (Pierrefonds—Dollard, Lib.): Madam Minister, thank you for having come to meet with us today.

It is very important to invest in pure science. As we know, it is the basis of a scientific society. Currently, Canada—and particularly Quebec—has a significant head start in the area of artificial intelligence. I would not like to see us lose this advantage.

Can you tell us what the government is doing to maintain our lead in this area?

[*English*]

Hon. Kirsty Duncan: Thank you for the question.

We were in Montreal two weeks ago to look at the work around artificial intelligence. In budget 2017, our government invested $125 million in artificial intelligence. Why? It seems to be at this tipping point. We have been funding discovery research linked to AI since 1982. Even by the late 1990s, people really weren't sure what it was. There were those continued investments in fundamental research.

It is now at the tipping point, and Canada really has an advantage because we had the leaders in this field. We built the talent base here. When this investment was made...we're attracting companies and we're attracting talent to our companies and institutions. It was amazing. One place told us that they are attracting 10 to 12 people internationally every two weeks.

I hope you all take a look at an article in *The Economist* from about a month ago. That article talks about “Maple Valley”. People want to know how Canada has been so successful in artificial intelligence. As a government, we've invested $125 million in the pan-Canadian artificial intelligence strategy. It's focused in Toronto, Montreal—

The Chair: I'm going to have to—

Hon. Kirsty Duncan: —and Edmonton and it's also going to look at the legal—

The Chair: I'm going to have to cut you off.

Hon. Kirsty Duncan: —and ethical and societal issues.

The Chair: Thank you very much.

Finally, for the last two minutes, we have Mr. Stewart.

Mr. Kennedy Stewart: Thank you very much.

According to CANSIM table 358-0146, in the darkest days of the Harper administration—that was in 2012, and you remember the marches on Parliament Hill—36,822 federal personnel were engaged in science and tech activities for the government. There were 35,496 researchers on the federal payroll when you formed government. Now there are 34,594 researchers that are employed by the federal government. That's 2,000 fewer than Harper employed in 2012 and 1,000 fewer than when you formed government in 2015.

How do you account for this decline?

Hon. Kirsty Duncan: Thank you for the question. I will speak specifically and then go out from there.

I was a part of hiring. I worked with my colleague, the Minister of Fisheries, Oceans, and the Canadian Coast Guard, and hired 135 scientists, the largest number of scientists ever hired at one time. I have brought together the deputy ministers of science-based departments, but for the first time we're meeting for eight-hour meetings. We did that for the first time in June 2016 and we did it this year in June. It focuses on HR and how to build the talent pipeline. The average age of a civil servant is 37, and it's higher for scientists, so how do we build that pipeline?

Another area—

● (1255)

Mr. Kennedy Stewart: Why are we still losing scientists? We've lost 1,000 researchers since you came to office. We've had all the platitudes about science and I really like your work and I respect you as a person, but these are the hard numbers provided by StatsCan. I say that it's tied to funding. If you're not funding your research institutes, you're not going to be able to hire people.

The Chair: Answer very briefly, please.

Hon. Kirsty Duncan: Part of it is retirements, but I just want to finish what I was saying.

We are doing this differently, bringing together the deputy ministers of the science-based departments to look at HR, the talent pipeline, science infrastructure, and IT management systems. That is some of the work we're doing. That's why in budget 2017 you saw that I'm to come forward with a science infrastructure strategy. It takes time, but we are working very hard to dig out of this hole.

The Chair: Thank you very much. Unfortunately, we are out of time.

Thank you very much, Minister.

Nobody leave yet—

Hon. Kirsty Duncan: Chair, may I thank the committee, if you don't mind?

The Chair: Yes, you may.

Hon. Kirsty Duncan: Thank you, Mr. Chair.

Thank you to the committee for allowing me to come this morning. Thank you for your questions, and most importantly, thank you for the work you've been doing on that intellectual property study. Thank you, everyone, for your tremendous work.

The Chair: Thank you very much, Minister.

Pursuant to Standing Order 81(5), the committee will now dispose of the supplementary estimates (B) for the fiscal year ending March 31, 2018.

Do I have unanimous consent to deal with all votes in one motion?

Some hon. members: Agreed.

The Chair: Okay.

ATLANTIC CANADA OPPORTUNITIES AGENCY

Vote 5b—Grants and contributions.....$40,584,308

(Vote 5b agreed to on division)

CANADIAN NORTHERN ECONOMIC DEVELOPMENT AGENCY

Vote 1b—Operating expenditures.....$313,028

Vote 5b—Contributions.....$4,537,297

(Votes 1b and 5b agreed to on division)

CANADIAN SPACE AGENCY

Vote 1b—Operating expenditures.....$8,612,533

Vote 5b—Capital expenditures.....$4,200,532

(Votes 1b and 5b agreed to on division)

DEPARTMENT OF INDUSTRY

Vote 1b—Operating expenditures.....$23,903,710

Vote 10b—Grants and contributions.....$163,305,969

(Votes 1b and 10b agreed to on division)

DEPARTMENT OF WESTERN ECONOMIC DIVERSIFICATION

Vote 5b—Grants and contributions.....$11,531,673

(Vote 5b agreed to on division)

ECONOMIC DEVELOPMENT AGENCY OF CANADA FOR THE REGIONS OF QUEBEC

Vote 5b—Grants and contributions.....$5,000,000

(Vote 5b agreed to on division)

NATIONAL RESEARCH COUNCIL OF CANADA

Vote 10b—Grants and contributions.....$1

(Vote 10b agreed to on division)

NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL

Vote 1b—Operating expenditures.....$141,000

Vote 5b—Grants.....$3,332,270

(Votes 1b and 5b agreed to on division)

SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL

Vote 1b—Operating expenditures.....$1,099,655

(Vote 1b agreed to on division)

STANDARDS COUNCIL OF CANADA

Vote 1b—Payments to the Council.....$1

(Vote 1b agreed to on division)

STATISTICS CANADA

Vote 1b—Program expenditures.....$14,348,243

(Vote 1b agreed to on division)

The Chair: Shall I report the votes to the House?

Some hon. members: Agreed.

The Chair: Excellent. Thank you all very much for collaborating and co-operating to make sure that we got out of here on time.

The meeting is adjourned.