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Chair

The Honourable Maxime Bernier

Standing Committee on National Defence

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● (1535)

[*Translation*]

The Chair (Hon. Maxime Bernier (Beauce, CPC)): Good afternoon to you all. Today, we are beginning our study on Arctic sovereignty.

[*English*]

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Monday, February 23, 2009,

[*Translation*]

this is meeting number 18 of the Standing Committee on National Defence.

I would like to welcome our witnesses today: John Keating, Chief Executive Officer, COM DEV International; Chester Reimer, Senior Policy Analyst with the Inuit Circumpolar Council of Canada and Kenneth Coates, professor of history and dean of arts at the University of Waterloo.

Welcome to all of you.

[*English*]

Gentlemen, you will have five to seven minutes. I will start with Mr. Keating.

Mr. John Keating (Chief Executive Officer, COM DEV International): Mr. Chairman and honourable members, thank you for the opportunity to speak with you today on the topic of Arctic sovereignty.

My name is John Keating. I'm the CEO of COM DEV International, a Canadian-owned space company. I think the issue facing us as Canadians is well understood by this Parliament and this committee, so I will not belabour it here.

To summarize, climate change and a receding ice cap have already had a profound impact on opening up the north to activities of all kinds, both by Canadians and foreigners. And while there is heightened activity there now, it will continue to grow exponentially over the coming years. This provides huge opportunities for Canada, but it also brings significant sovereignty threats and stewardship responsibilities. In the words of the Prime Minister, “To develop the North, we must know the North. To protect the North, we must control the North.”

We agree with the previous witnesses who have explained that what is needed is a whole of government, system of systems solution to support the development, the sovereignty, and the stewardship of the north. The Department of National Defence is already contributing to this comprehensive solution with projects like the Arctic offshore patrol ship and the northern training centre.

These systems, including those being provided by DND, will all depend on an information infrastructure that provides the sorts of basic services and data we take for granted in the south, things like communications, search and rescue, weather forecasting, and navigation. This information infrastructure is still largely non-existent in the north. The north is simply too big, too isolated, and too remote to cost-effectively build a traditional ground-based information grid.

Whilst it is impracticable to provide traditional ground-based infrastructure to support Arctic sovereignty, it is possible to implement the necessary services from space using satellites. Depending on the payloads carried, these satellites can conduct a number of critical functions in the north, including tracking ships, providing secure communications, providing the data to support accurate weather forecasting, monitoring climate change, and enabling search and rescue services.

Northern sovereignty is a Canadian issue that requires a Canadian-controlled situation. There is a uniquely Canadian solution that is able to provide cost-effective, reliable, and rapidly deployed northern information infrastructure using modern, low-cost, small, and microsatellites.

Traditionally, satellites were effective but usually very expensive, weighing several tonnes and costing more than $100 million each. Few companies had the ability to deliver these satellites and few customers could afford to buy them. But recent advances in technology have dramatically cut their size and costs, so that today, microsatellites can weigh less than 100 kilograms and cost less than $10 million.

Canada, including Canadian-owned and operated COM DEV, is a world leader in this field, and both the CSA and DND have laid out plans to meet Canada's national needs using microsatellite-based infrastructure.

By way of example, I'd like to illustrate the ability of one such satellite mission to track ship traffic worldwide, including the most remote areas of the Arctic.

[*Video Presentation*]

Mr. John Keating: This very short video is about the fact that we have a satellite-based system that does all of these things: vessel detection, securing our borders, search and rescue, environmental monitoring—all the things I just described to you gentlemen and ladies earlier.

The solution is a Canadian solution developed by a Canadian company, a very advanced technology to detect existing communications from ships. It comprises six satellites flying in a polar orbit, as you see here; several ground stations; a data centre; and an operations centre. It provides a global picture of ship traffic all over the world. This is something that simply doesn't exist today. This information you're seeing in front of you is a simulation of where the satellites actually travel in their journey. This particular picture shows real data from a real satellite that COM DEV has actually produced and launched into space.

As an example of the traffic that we detected, that's the *Louis S. St-Laurent* right up in the north there. This system is real information, as I described.

That's the *Terry Fox* up in the high Arctic waters. And we can see each ship and lots of information about each individual ship, where it's from and where it's going.

There's a Russian cruise vessel that we detected using our demonstrator satellite in space. We can track where it has come from, where it's going, how fast it's going, and what cargo it has on board.

We can see all of the information from the Arctic, from the North Atlantic, and from the western coasts of Canada. There's Vancouver Island and all of the ship traffic around Vancouver Island.

Up until today, you would never have seen these pictures because they simply didn't exist.

There's Juneau, Alaska.

This is a tremendously accurate system. That's the Port of Juneau, Alaska. We can detect the accuracy of those ships down to 20 metres. So if somebody has been in our Canadian waters, polluting Canadian waters, we can track them right to the dock of where they are today.

If you're interested in fishing and in people encroaching on our fishing waters, that's a fishing fleet there.

This information is put into detailed maps and information for the users. We can use traffic management to keep ships where they're supposed to be fishing or moving them into the right areas.

If people are polluting or there's a natural disaster, we can monitor what's going on.

We can send people to the last place where somebody was to do effective search and rescue. And of course, all of our authorities, navies, and security people can see what's happening there.

So this is a system that enables us to know the north and control the north. This small microsatellite-based infrastructure will provide an essential and cost-effective support layer to the suite of systems providing Arctic sovereignty, including those currently being developed by the Department of National Defence.

The services they provide, such as weather forecasting, communications, and search and rescue, would also provide much-needed infrastructure development in the north, contributing to the well-being and quality of life of those living in the north today and those planning to further develop it. In short, we are talking about nation building.

The satellite infrastructure would be developed right here in Canada by world-leading Canadian companies. These high-technology, high-value jobs created at COM DEV, its partner, and supplier companies span Canada.

Canadians are rightly proud of our accomplishments in space, and I believe this made-in-Canada space-based solution approach to our Arctic sovereignty issue would be embraced by Canadians coast to coast to coast.

The Department of National Defence has embraced the use of small satellites and microsatellites for operational space missions such as the applications I have described to you here today. Meanwhile, the Canadian Space Agency, in consultation with a number of government departments and other stakeholders, is developing a long-term space plan for Canada. These groups all recognize that the use of space continues to be essential for Canada and in particular for its vast and remote Arctic territories.

It's imperative that both of these departments continue to promote and invest in microsatellite solutions as an urgent and vital component of Canada's integrated northern strategy.

Thank you, ladies and gentlemen.

● (1540)

The Chair: Thank you very much, Mr. Keating.

You're right on time.

[*Translation*]

I will now give the floor to Mr. Chester Reimer for seven minutes.

Mr. Chester Reimer (Senior Policy Analyst, Inuit Circumpolar Council (Canada)): Thank you, Mr. Chair.

Thank you for this opportunity to discuss Arctic sovereignty with all committee members in attendance.

[*English*]

Thank you, Mr. Chair, for the invitation to present the views of Inuit on the subject of Arctic sovereignty.

The Inuit Circumpolar Council (Canada) President, Duane Smith, who will be here later this week, is in his home in Inuvik at the moment. He has asked me to express his regrets that he is unable to appear before this committee. He has requested that I speak on his behalf. I'm sure he'd be open to any questions later on by mail, e-mail, or otherwise.

I'm going to present to you a little bit of a different twist on what some members here believe sovereignty is. I want to talk about more of an international dimension of sovereignty and how the Government of Canada, especially this committee, should be aware of how the Inuit—who don't only live in Canada—can be a good partner, building relationships with Canada and furthering its political goals.

As you may know, the Inuit Circumpolar Council was founded back in the late 1970s when Inuit from four countries came together to talk about issues very much related to sovereignty, at least to what Inuit perceived the notion of sovereignty to be. It was in part because of oil companies in Alaska, at that time, moving in without regard for any kind of Inuit sovereignty in the northern part of Alaska. As you know, later on, in the Mackenzie Valley and other parts of Canada, similar things happened. A lot has changed in the last 30 or 35 years, and for the better, as you know, Mr. Chair.

Your invitation to speak here today could not have been more timely, as the Inuit Circumpolar Council issued a circumpolar Inuit declaration on sovereignty in the Arctic only two weeks ago in northern Norway. I have it here. If the clerk could tell me if it was translated into French, perhaps I could even distribute it as well. You can also find it on the ICC website.

This circumpolar declaration on sovereignty in the Arctic, Mr. Chair, came about for several reasons. One, as the previous witness just said, there's an increasing focus on the Arctic by Canadians and also by people abroad, and by states, by academics, by industry, and, as we heard today, by the space industry. As you also know, Mr. Chair, there was a very important meeting, which the—

[*Translation*]

Mr. Claude Bachand (Saint-Jean, BQ): I have a point of order, Mr. Chair. Will a French version of the document be circulated or is it available only in English?

● (1545)

The Clerk of the Committee (Mr. Paul Cardegna): I think it has already been circulated.

The Chair: All committee members have received it.

You may go on, Mr. Reimer.

[*English*]

Mr. Chester Reimer: As I was saying, this declaration states in essence that Inuit have the right to self-determination in their Arctic homeland, which stretches from Chukotka, at the eastern tip of Russia, across Alaska, the Canadian Arctic, and all the way to Greenland. The right of self-determination is enshrined in various international human rights instruments and conventions.

I wish to emphasize, however, that this declaration is not intended to be confrontational. The closing of the declaration, if I could point out the last paragraph to everybody, says:

> We, the Inuit of Inuit Nunaat

—and Inuit Nunaat, by the way, is this vast territory in which Inuit live—

> are committed to this Declaration and to working with Arctic states and others to build partnerships in which the rights, roles and responsibilities of Inuit are fully recognized and accommodated.

Inuit intend to be strong partners in the future of the Arctic. This declaration lets the world know the foundation upon which Inuit are standing.

The Circumpolar Inuit Declaration on Sovereignty in the Arctic applies to all of the activities going on in the Inuit homeland. First of all, it means that Inuit need to be at the table when things such as military action involving the Arctic are discussed. ICC's position is that disputes should be settled using cooperation and diplomacy rather than military action, if possible, and I think everybody here would agree.

Second, Inuit need to be at the table when economic development of the Arctic is discussed. As you know, it is exceedingly important that economic development be done in a sustainable manner. The needs of Inuit communities must be front and centre. On the one hand, Inuit are eager to train for the new jobs that are coming to the area and are looking forward to the growth this could bring to Inuit communities. On the other hand, Inuit are very concerned about the risks to the fragile environment, because their way of life and indeed their physical, emotional, and spiritual health depends on their connection to a healthy Arctic ecosystem.

Third, Inuit want to be involved in the scientific research that is happening in the Arctic. Inuit are detailed students of their environment and can contribute a wealth of traditional knowledge. In many cases, Inuit also have concerns about research methods that need to be addressed.

You will notice in the declaration a provision that notes sovereignty begins at home, and that economic and social issues, including language matters, need to be addressed to build a strong, sovereign people. The declaration, you will see, reiterates the rights that Inuit have as one people under international law. Yet it also speaks to the issue of rights gained within states and within territories in those states. But mostly it insists that Inuit be at the table.

As many of you know, Inuit were not at the negotiating table when sovereignty was discussed among the five—or so-called "oceans five"—ministers of foreign affairs in Greenland in May 2008. Canada, as you know, Mr. Chair, sent the Minister of Natural Resources. There were the ministers of foreign affairs from Russia, Norway, the U.S., and also from Denmark. I would strongly recommend that the Department of National Defence take ICC and all Inuit leaders up on their invitation in this declaration to talk, to build relationships.

We heard something earlier about threats to the Arctic. I would say, from my experience of the Arctic Council, that this is one area in which there's a lot of cooperation and a lot of goodwill, even among those who are dropping flags at the North Pole.

Hans Island is often cited as either a joke or as something very serious to look at, and we've had our ministers land there. Inuit from Greenland have often said, as Inuit in Canada have said, leave those disputes to us and there wouldn't be a lot of discussion.

There's a lot of harmony in the Arctic; let's build upon that. We see it in the Arctic Council. Unfortunately, they didn't use the Arctic Council, or at least did not invite the Inuit to participate, in the sovereignty talks in Greenland in the same manner that they do and have done at the Arctic Council. But if we continue to involve the Inuit, whether it be through development in space technology, through academia, through tourism, or, most importantly, through state policies, take the Inuit up—all the Inuit of the four countries, including the Canadian Inuit—on what they're asking for in this declaration.

Thank you, Mr. Chair.

The Chair: Thank you very much, Mr. Reimer.

Now we will hear Professor Coates.

● (1550)

Dr. Kenneth Coates (Professor of History and Dean of Arts, University of Waterloo): Mr. Chair and honourable members, I'm honoured to have the opportunity to speak to you today.

The Standing Committee on National Defence is charged with responsibility for guiding Canada's defence and strategic planning—a daunting task, given the fast-changing nature of global and continental affairs.

I was asked specifically to speak to you about matters of Arctic sovereignty and Canada's role in defending the far north. The historian in me is compelled to tell you that Canada has been reluctant to determine its long-range strategy in this region, from Confederation to the present. This country has generally responded to external threats and challenges to Canadian sovereignty, rather than preparing its own plans for incorporating the region. From the Klondike gold rush to the militarization of the north during World War II and the Cold War, Canadian policy has been largely reactive. Threats from outsiders, rather than national or regional priorities, have pushed this country into action. As the current situation once again suggests, the north and indeed Canada have not been well served by this episodic interest and the absence of sustained commitment.

As this standing committee knows very well, the Arctic situation has changed dramatically. There is uncertainty about Arctic boundaries, and there is the prospect of major resource discoveries in the region. Arctic navigation has opened up through the melting of Arctic ice. There is growing international interest in the region, with Japan, China, and the European Union expressing new interest or renewed interest in Arctic affairs. The re-empowerment of indigenous peoples, particularly the Inuit, has emerged as a major factor in northern politics.

At the same time, the increasingly urban and southern orientation of the Canadian population, which has left very few Canadians with a personal stake in the far north, has weakened the national bonds with the Arctic. It is not clear to me that the decades-old and often romantic notions of Canada as a northern nation still resonate with the people of this country.

I understand you wish to determine whether the Canadian Forces are properly equipped and trained for the challenge of protecting and asserting Canadian national sovereignty in the region. Permit me to offer my thoughts on this very critical question.

The Canadian Forces do an admirable job, as they do in other theatres, with limited resources and without the full range of equipment and new technologies that are required. As I'm sure this committee agrees, the country cannot ask the men and women of the Canadian Forces to tackle major assignments without the proper equipment and preparation.

At present, Canada does not have the scientific capacity in the north that is required to back up a sustained military presence in the region and that is needed to understand the regional impact of anticipated environmental change. Scientific understanding is a critical underpinning of regional defence.

There is a particular need for proper communications and surveillance capacity in the Arctic, whether in the form of electronic networks, as we saw a few minutes ago, regional bases, underwater capabilities, icebreakers run by the navy or the coast guard, and/or an expanded Canadian Rangers operation. Put simply, Canada needs to know what is going on in the north.

The Inuit and first nations of the Canadian north have critical roles to play in asserting Canadian sovereignty in the area. The implementation of land claims is crucial to defending Canadian interest in the region. Indigenous Canadians are vital partners in the north, and their circumpolar connections have been important in presenting Canada to the world as an Arctic nation.

It's vital that investments in defence and the protection of sovereignty not be viewed in isolation from other national commitments in the region. Coordinating the development of military facilities with the provision of infrastructure required for community and northern development can help address pressing social, economic, and related problems while strengthening the long-term foundations for national defence.

Canada also tends to approach issues of Arctic sovereignty based on current threats and issues. This is a very risky time to take that kind of approach. The pace of change in the Arctic is unprecedented. Preparations for the defence of Canadian interests have to look not to the north today, but to the north of 10, 20, and 30 years ahead, to a time of potential conflicts over oil and gas reserves, intense concern about the environment, increasing prospects for conflict along Arctic boundaries, and issues and threats that are not yet fully understood.

Canadians' understanding of northern challenges also tends to focus on the Arctic islands, the location of many of the current conflicts. It's important in my mind that the country adopt a broader definition of the north, one that reaches from Labrador to the Yukon and that recognizes the commonality of interests across this vast expanse of Canada. We need a northern defence plan with a substantial Arctic component, and not simply an Arctic sovereignty strategy.

Finally, and perhaps most importantly, it's time to break Canada's historic pattern of treating Arctic sovereignty and northern defence as a short-term issue. Canada includes vast northern and Arctic territories. Canada is responsible for the protection of these lands and the peoples within them and for the assertion of Canadian sovereignty over the whole region. There are aspects of the current uncertainties that are truly disturbing. There would be significant national benefit from this uncertainty, if Canada rises to the challenge of the sovereignty question and implements a viable and long-term approach to defending Canada's interests in the far north.

● (1555)

I hope my comments are of some value to the standing committee. You face an important challenge in helping Canada define a proper and sustainable approach to Arctic sovereignty and northern defence.

Canadian governments have wrestled with this issue many times over the years. I wish you the very best in your efforts.

Thank you, Mr. Chair.

The Chair: Thank you, Professor Coates.

I will now give the floor to Mr. Wilfert.

Mr. Wilfert, you have seven minutes.

Hon. Bryon Wilfert (Richmond Hill, Lib.): Thank you, Mr. Chair, and I thank our three presenters.

Through you, Mr. Chair, in terms of Canada and its love affair with the north, it has been off and on, as you pointed out, Mr. Coates. In fact, some would suggest that we've been least effective in terms of responding to the challenges of the north over the years.

Could you explain to me—building on the strategy you talked about—what we should really put in place? We've focused on only one part, and you're bringing in another dimension there.

Dr. Kenneth Coates: I'd be delighted to. I'm afraid I'm a university professor, so I tend to talk in 50-minute sprints. I'll try to keep my answers as succinct as I possibly can.

Hon. Bryon Wilfert: You'd flunk question period. You're allowed only 55 seconds.

Dr. Kenneth Coates: First off, I would say that I'm personally quite concerned about what you described as a love affair. I think our notions have always been romantic and mythological. Very few Canadians travel to the north, and the number of Canadians who go to the Yukon is much smaller than the number of Canadians who go to Florida, for example. We haven't embraced the north in that kind of practical sense.

When you talk about what we could do, I think sometimes the vision people have of the Yukon, with a quarter million people, and of the Northwest Territories, with 500,000 to 600,000 people, is wrong-headed. I don't think those territories can sustain that kind of activity, or surely it wouldn't be beneficial in the short term. I think we need stability. We need stability in the population, we need security of jobs, and we need a sort of sustained and properly planned development of natural resources, rather than the quick hit, taking the cream of the crop of our resources as quickly as we can.

I think we need to know that in fact we understand the whole region, that we have a presence across the whole north. I don't, again, mean that we should have 10,000 people in the military base on Ellesmere Island. Those kinds of things are impractical and are very expensive.

I was raised in the Yukon. When I first went to the Yukon, we had an air force base in Whitehorse, and it actually stabilized the population. It meant there were more stores, more businesses, and more things going on. Then it went away, and for a long time there was virtually no Canadian defence presence in the Yukon at all, and the Yukon suffered as a consequence. I would suggest to you that as you start thinking about how you plan the military expenditures—whether it's a permanent station, an air force base, or actual infrastructure such as satellites or whatever else—you combine it with not just the military side but with all the other sides. When you build a road, an airfield, a vital communications system, you'll actually build a better north.

Hon. Bryon Wilfert: That's part of the capacity-building for infrastructure, education, and everything else that we need in the north.

Dr. Kenneth Coates: Absolutely.

Hon. Bryon Wilfert: I have only seven minutes, and it seems to go so fast.

Mr. Keating, on the issue of an automatic identification system, have you been in discussion with any of the lead agencies, including Defence, Natural Resources, or Indian and Northern Affairs, with regard to your system? I understand you export 90% of it, so it would be nice if we could use it at home.

Mr. John Keating: Yes, we do. COM DEV is a very successful company. We export 90% of what we make, and we're profitable and growing. We've been in dialogue with various agencies around Canada for a long time. We've been working this project for four years. We actually have some activity funded by the Department of National Defence.

Most of the cost of developing this system I've just described has been incurred by COM DEV ourselves in anticipation of interest from the Canadian government in one form or another. I was meeting with various people today. The satellite we showed there was something that we paid for and that we launched ourselves. It's gathering real data. We have a contract from the Department of National Defence to build a demonstrator satellite, and they're paying about half of the cost of that. We're paying the other half ourselves. It's a very unusual situation for a private company to be funding development activities that are in the national interest.

Hon. Bryon Wilfert: I certainly congratulate you, because the use of resources is of course limited, and something of that nature, if it is integrated into a proper approach, I think, would be very useful.

Mr. Reimer, paragraph 3.8 of your declaration seems to encapsulate what we've been talking about, and that is the issue of indigenous peoples. I would like to see what mechanism would be useful for them in terms of exchange and cooperation. When the Minister of Foreign Affairs was in Tromsø, Norway, he talked about the integrated northern strategy—which we've heard about—and the four pillars.

You touch on those in this declaration. How do you see indigenous peoples in the north providing that kind of useful interchange, which would be helpful in achieving the goals the government has set forth?

● (1600)

Mr. Chester Reimer: Thank you for that question.

There are two ways of looking at it.

First is an expansion of the Arctic Council on the international level. I think the Arctic Council has to do more. We're very happy with it; we're very proud of it. It's the first, or perhaps the only, international organization where Inuit and other indigenous peoples sit at the same table. As you know, I was in Tromsø two weeks ago, and the ICC chair, Duane Smith from Inuvik, was there at the same table as Minister Cannon and the other seven ministers.

The unfortunate thing about the Arctic Council—and there's so much good to say about it—is that there should be more things on the table.

I was also there, back in 1994, 1996, when we were negotiating the Arctic Council. The United States of America said immediately that if we were going to talk about marine mammals, they were not going to be at the table. The Marine Mammals Protection Act, which as you all know wouldn't stand up to any WTO...it is not on the table. I must commend the minister for raising the sealskin issue in Tromsø two weeks ago, the European ban. He had the prerogative, he's the minister, but at the working group level we can't even study the issue of sealskins. The military is another thing the United States —and to some degree Canada and Russia—didn't want at the table. I think that's unfortunate.

It's not a decision-making body, but I think these kinds of things should be there, given that if you want to know what the Inuit are thinking about things, ask them. They have a constitutional right. In the four countries, it's a different degree of constitutionality, but that's.... I know we don't have a lot of time. Let's make the Arctic Council an enhanced institution.

Hon. Bryon Wilfert: That's almost a no-brainer, asking the very people who live there.

Mr. Chester Reimer: Right, and it's funny that these issues are not on the table at the Arctic Council when it comes to sovereignty, because that's what this meeting is about.

Just to remind you again, for those who don't know, there was a meeting of foreign affairs ministers in Ilulissat, Greenland. Disco Bay, which is a UNESCO world heritage site because of all the amazing icebergs, is melting like crazy now because of climate change, but that's where the ministers met. Everybody seems to be meeting there, by the way. I'm going off base here, but Chancellor Merkel—I'll just give you this example—goes there to do a press conference to show that Germany is doing something about climate change.

At that meeting, Mr. Chair, they were—

Hon. Bryon Wilfert: Because the chair is going to cut you off, if you could send us anything additional in writing, all three of you.... But I really want to push paragraph 3.8, because to me that seems to encapsulate what we're looking for.

Thank you.

Mr. Chester Reimer: Okay. Absolutely, yes.

Hon. Bryon Wilfert: My colleagues have the next round.

Mr. Chester Reimer: There is a pressing need. Thank you for mentioning that.

Hon. Bryon Wilfert: Thank you.

The Chair: Thank you, Mr. Wilfert.

[*Translation*]

Mr. Bachand, you have the floor for seven minutes.

Mr. Claude Bachand: Thank you, Mr. Chair.

Since our time is limited, for the first round, I will direct my questions to Mr. Keating. On the second round, my colleague will address the issue of the Inuit, which is also very important for us.

Mr. Keating, I am very happy to see you here. During a tour of MDA in Sainte-Anne-de-Bellevue, Mr. Donato convinced me that you should appear before the committee. I am the one who put your name on the list of witnesses.

I would like to discuss satellite surveillance. There is an article on your company in this morning's issue of the *Ottawa Business Journal*. The piece raises a few questions I would like to discuss with you.

When you talk about surveillance satellites already in orbit, are you referring to the Nanosatellite Tracking of Ships? Is this what we saw on the video that you showed today?

[*English*]

Mr. John Keating: What we saw in the presentation was information that was gathered from a satellite that COM DEV designed, built, and launched.

[*Translation*]

Mr. Claude Bachand: Is the Nanosatellite Tracking of Ships currently in orbit?

[*English*]

Mr. John Keating: That's right. That's in orbit now. It has just celebrated its first year in orbit.

[*Translation*]

Mr. Claude Bachand: Congratulations are also in order. I think I read somewhere that the satellite's expected like cycle was about six months and that it actually lasted more than twice as long as that. Do you know why that was the case?

[*English*]

Mr. John Keating: That's right. It's interesting because we built this satellite in seven months, which is an incredibly short period of time. When speaking to the United States Coast Guard about that timeframe, they were very impressed that a company could do that.

The purpose of this particular satellite was just to demonstrate the capability. It's not meant to be an operational spacecraft. It's very inexpensive, very rapidly designed, and built with very commercial components with no redundancy. We designed it, and because COM DEV is a company that builds space equipment, we know how to build things very thoroughly, very carefully, and with high quality. But this particular thing was designed just to demonstrate something very quickly. It has lasted very well, primarily because we know how to build things from a high standard in COM DEV, and the whole of the Canadian space business—MDA, as you talked about—has a reputation.... The Canadian space industry has a tremendous reputation for leadership in technology and quality.

● (1605)

[*Translation*]

Mr. Claude Bachand: I would like you to explain to us how this satellite operates. It revolves around both poles, and planet earth moves with each successive revolution. How many revolutions does it take for the satellite to cover the entire planet?

[*English*]

Mr. John Keating: In this particular example, this constellation requires six polar-orbiting satellites. The earth is rotating; the satellites are going over the North Pole and the South Pole, and the earth is spinning underneath. So in a period of time, this one satellite will actually look at every piece of the earth from the North Pole to the South Pole and everything in between. The problem is that it does it fairly infrequently, and when you're tracking ships, people want to see them on a more regular basis. So you need to have more satellites in orbit.

In our case, we've calculated that with six satellites we can provide an update, the worst case, for every one and a half hours. Since a ship is typically travelling at seven knots or ten knots, if you pick it up every one and a half hours, it's only travelled eight or ten miles, and that's more than enough to provide the sort of accuracy you need. Interestingly enough, the further north you go, because the area is smaller, you actually pick the ships up more frequently and provide more persistent coverage.

We've spoken to 45 different countries around the world—the Argentinian navy, the Indonesian coast guard, and so on—and those people are very interested in gathering this data. But primarily, the focus is looking after Canadian national needs.

[*Translation*]

Mr. Claude Bachand: It seems that putting the satellite into orbit involved complex mathematical calculations. I assume it was more complicated than 2 plus 2 equal 4. Could you give us an idea of the mathematical problems encountered? Have they been addressed since?

[*English*]

Mr. John Keating: They have, actually. It's very complex. The analogy I've used is that what we're doing here is detecting radio frequency signals from ships. The International Maritime Organization, many years ago, mandated that every ship above a certain size has to transmit a signal saying who it is, where it is, what the cargo is, where it's going, which port it's from, and so on. It has to send the information out. What that did was provide collision avoidance. So ships, if they're in the dark or in the fog, know who's around them, because they're sending signals to each other. That's an easy system to define, and it has a very short range of 25 nautical miles.

What COM DEV said was that if we can detect those signals from space, maybe we can provide a global picture of all the ship traffic around the world. The first problem with that is actually detecting a signal that was never intended to be received in space. For a company like COM DEV, that is easy. We are the world leaders in gathering radio frequency information from space. We are far and away the world leaders. Eighty per cent of all commercial communications satellites have our equipment on board. That's what we do.

The second challenge is the one you refer to, and it's a real problem, because these transmissions are very random. If I'm in a small cell with you and I send a random signal and you send a signal—we send a signal—they don't collide with each other. It's a bit like if I'm on a stage of a theatre and there are two people in the audience talking to each other. I can hear what they say, because there are just two signals. Now imagine the same theatre and you're on the stage and there are 10,000 people talking to each other. It just sounds like a mess. You can't understand anything.

What we've done is have a group of about 15 Ph.D. engineers, working for three years with highly advanced supercomputers, figure out how to use radio frequency information to extract that data you need, and this solution we have is far and away the most advanced solution in the world today.

[*Translation*]

The Chair: Thank you, Mr. Bachand.

Mr. Bevington.

[*English*]

Mr. Dennis Bevington (Western Arctic, NDP): Thanks, Mr. Chair, and thanks to the witnesses.

Mr. Reimer, maybe you could just touch a little bit on the changing nature of Inuit self-government. We see the change happening in Greenland. We, of course, have had division and a separate territory, Nunavut. In the Northwest Territories, we're moving towards greater devolution of powers.

All those things mean that regionally, Inuit within the Arctic are going to have a greater say over the development and direction of policy. How do you put that together in an Arctic Council. How do you see the regional interests of the Inuit and Arctic residents coming together now? Where do you see the future of this obvious movement towards self-determination?

● (1610)

Mr. Chester Reimer: You've asked some big questions.

The future, I'm not too sure of, but I'm positive about it.

But to get back to your earlier comments, to remind the members here, I think what you're getting at, for example, is that in Greenland they had what they called home rule in 1979. On June 21 of this year there will be further self-government, which they've negotiated very peacefully with their former colonizer, Denmark. I think many Canadian officials will be invited to that very important day. They're taking over many more issues, such as resources, and so on.

Most of you people here and members know there are four Inuit land claims regions. Nunatsiavut in Labrador was the last one to settle.

In Alaska we have a similar kind of arrangement. Their so-called rights or sovereignty are not as advanced in many instances.

In Russia, we don't have a lot going on other than administrative reforms.

To answer your question, I think what you're getting at is that there are these regional powers now, where regional devolution is going on. How can they have their voices heard internationally and also nationally?

Is that right?

Mr. Dennis Bevington: That's right. When you look at the Arctic Council, you're looking at a group of people appointed to a particular board. Now you're going to see the evolution of governance by the Inuit around the circumpolar area, and especially in North America and Greenland.

So is there going to be a need to bring more of the regional Inuit governance to the table as well?

Mr. Chester Reimer: The board members of the Inuit Circumpolar Council in Canada, for example, are the regional bodies. The Nunatsiavut president is on the ICC board, as are the Nunavut Tunngavik Inc., and the Inuvialuit Regional Corporation's president, and so on. They give specific direction to the Inuit Circumpolar Council. That continues to be one way the Arctic Council has been set up, so the ICC has that voice.

There's a second one that is more domestic. It's something called the Arctic Council Advisory Committee, which includes territorial representatives, Inuit, and representatives from various departments. There's some talk of making that into more of a Canadian-focused Arctic council that has a bit more meat, and not just an advisory committee. So there's some discussion about that.

There has also been an attempt in the past to have an international meeting of the minds of local and regional governments through what's called the Northern Forum. Personally, I don't think it has been that successful. The Northwest Territories has pulled out of that, but I think there is an increasing need for something like that.

Being able to bring regional voices to an international organization such as the Arctic Council might be a little tricky. I think other member states might not want, for example, four or five representatives from Canada having separate voices at an international meeting.

But I think there needs to be more focus within this new advisory committee I was telling you about, which is perhaps going to become a sort of mini-Arctic Council within Canada.

Mr. Dennis Bevington: Certainly at the latest Arctic Council meeting there were representatives of the public governments of the Northwest Territories; I believe that Nunavut, as well as the Yukon, was there. So there is a definite interest in all of these issues on the part of the regional governments, as well as the appointed members from the Inuit claims organization.

Mr. Chester Reimer: Right, but they were on the Canadian delegation; they were not really given a separate voice. They had to speak through Mr. Cannon.

Mr. Dennis Bevington: I'm speaking to the future here.

Mr. Chester Reimer: Okay, I see.

Mr. Dennis Bevington: Mr. Coates, probably the biggest dispute we're going to have very soon is between the United States and Canada over the Alaska-Yukon border.

How do you see us moving to a settlement of that particular dispute? I think it's the one that probably has the most potential to give us problems in terms of resource development and jurisdiction over a number of different areas.

● (1615)

Dr. Kenneth Coates: That's a very interesting question.

The way we will likely get to the dispute is the way we always do with the Americans, and that is to argue publicly and to resolve it quietly behind closed doors. We tend to take our stances: Canada has to say certain things; America has to say certain things. Then back behind closed doors, arms are twisted and things get resolved, such as allowing certain kinds of ships to go through the Northwest Passage.

I would agree with you 100% that this actually is the one that's more important than the Northwest Passage. The whole question of who controls the drilling rights in the Beaufort Sea, and things like that, are really, really important issues. The fishing rights issue is the one that's coming up to the table right now.

There was an expectation, I think—and certainly among the academic circles I work in—that as long as President Bush was there, we were going to get a fairly hard-nosed approach, and that perhaps when President Obama came in, we would get a lessening of that conflictual orientation. I don't think that's likely. In fact, I think the Americans are quite concerned about making sure they defend their interests in the region.

So the United States and Canada get on each other's nerves from time to time on a whole range of issues. We do tend to resolve these things relatively quietly behind closed doors, and I suspect on this one, that may well be part of the solution.

There was an issue, as you well know—and maybe you have talked about this before—raised by the Americans about fishery control, which I think has the potential to blow this up sooner rather than later.

The Chair: Thank you, Professor Coates.

I will now give the floor to Ms. Gallant.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): Thank you, Mr. Chairman.

If I have any time left over, I will share it with my colleague, Laurie, since it's his birthday.

With respect to COM DEV, I want to talk about the satellite and the transmission. What is the delay time between the time the satellite is taking the picture, so to speak, and transmitting it to somebody who can see it? Is it real time, or is there a delay?

Mr. John Keating: Yes, there is some latency there, but it's very short. In the picture I showed you there are some ground stations. They're in the far north of Canada and also in the south. In fact, we're negotiating at the moment to put one down in the Antarctic.

What happens is that as the spacecraft fly over, they downlink the data and then it goes through a fibre optic cable back to the operations centre. So it's a very small period of time between when the image is gathered and when the information gets back to the operations centre.

Mrs. Cheryl Gallant: And the images can be taken not only of our territorial waters, but we could see an approaching vessel that is beyond our zones. Is that right?

Mr. John Keating: It's very interesting, actually, because it's global coverage. Today we're talking about Arctic sovereignty and our concern to understand what's happening there. But Canada has a great interest in everything. We're interested in what's happening off our coasts in terms of monitoring fishing, in terms of terrorist threats, and in terms of drug interdiction. There is a whole raft of potential applications for knowing what's happening off the east and west coasts of Canada as well.

On a global basis, we have interests. We have shipping interests all over the world. If we are interested in what's happening in the Gulf of Aden, for example, in terms of the threats from pirates there, with this system in place we and our allies would know exactly where everybody is and could coordinate and organize looking after those things more effectively. So it is a global system.

Mrs. Cheryl Gallant: You spoke earlier about the frequency of evolution. What I'm getting at is how often can we see a certain sector?

Mr. John Keating: It's very simple. In the worst case, it would be one and a half hours.

Mrs. Cheryl Gallant: Worst case.

Mr. John Keating: Worst case.

Mrs. Cheryl Gallant: That's anywhere in the world.

Mr. John Keating: That's at the equator, because that's where there's the most space. As this thing goes around, there's more room at the equator. Therefore, it goes there less frequently. As you go further north, you see it more frequently, every hour or every half hour or so. And with ships travelling at the speed they do, that's more than adequate to manage maritime awareness and maritime safety.

Mrs. Cheryl Gallant: We were told earlier there's virtually no technology that could get that kind of information to the operations centres in good time, because of the curvature of the earth.

Mr. John Keating: That's right, because traditionally what happens is that most spacecraft are in something called a geosynchronous arc. If you imagine the earth is spinning on its axis here, if you put a satellite 36,000 kilometres in space, it rotates at the same speed that the earth rotates, so it orbits the earth once a day, the earth rotates once a day, and it looks like its fixed in space. So by far and away, most satellites are in that arc.

The dilemma is that if you're directly below, you can send signals up and down quite easily. As you go up toward the poles, the look angle gets shallower and shallower and shallower, to the point where you can't actually communicate with the north. You can't see what's going on, you can't communicate with the north, so there are no broadband services, there is very little in terms of weather monitoring, and there are no maritime surveillance tools available there.

Our solution is completely different from that. It involves small satellites. They're in very low earth orbit. Instead of 36,000 kilometres, it's 700 kilometres. They're rotating around the earth, and they go around the earth once every hour and a half, dumping that data down on a regular basis.

● (1620)

Mrs. Cheryl Gallant: To what types of organizations are you currently transmitting this data? Do you transmit it to corporate entities as well as governments?

Mr. John Keating: At the moment we've built a demonstration satellite that is flying. That information is being used today by the Canadian Department of National Defence to do evaluations and compare it with other sources of maritime surveillance data. They are very pleased with it. The intention for us is to provide the solution that satisfies the needs of Canada. That's our primary thrust and it's our primary obligation.

What we'd like to do is to do that in such a way that we can share that data with our allies. But that's a decision for Canada to make, in terms of our capacity to share that data with our allies around the world, for government purposes.

What COM DEV has been doing is talking to other people in other parts of the world to ask, "Would you be interested in a subset of that data?" The International Maritime Organization regulates very carefully who gets what data, and we're talking about potentially reselling that data to people in Australia or New Zealand or Norway or Great Britain.

Mrs. Cheryl Gallant: Do your satellites have any infrared capabilities to see below the ice?

Mr. John Keating: Today I'm just talking about one type of satellite, which is a satellite that's gathering regular frequency signals from ships.

In truth, the Canadian Space Agency long-term space plan that I alluded to earlier actually talks about a series of microsatellite constellations that have tremendous functionality. The first one we're talking about is maritime surveillance. Even on this satellite, we have a low data rate transponder, which can pick little messages up around the world to do water monitoring, or monitor forest fires, or gather information that is used around the world.

Following off from that are optical spacecraft that map the earth. We're in dialogue with some folks in Alberta about using that as a planning tool when people are doing oil development and exploration, building roads and tailing ponds using satellite data. There are ways of using radio occultation to get much better weather-predictive tools using microsatellites. Indeed there's a thing called a microbolometer that can go on the spacecraft, and it looks down and does infrared monitoring and can gather bits of information. COM DEV has built satellite equipment like that for other people before. In fact, COM DEV's MOPITT satellite is an instrument that is flying today on a U.S. spacecraft that for years has been the premier satellite for gathering information about what's happening with carbon dioxide in the atmosphere. That's using an instrument that's designed and built in Canada.

Mrs. Cheryl Gallant: We had the NATO parliamentarians from Europe here last week. One of the topics of discussions was the Arctic and sovereignty, because we share sovereignty. What we've learned is that the more likely route to be used is right over the pole as opposed to through the Northwest Passage. The representatives wanted to know whether or not Canada has the capacity to police these waters.

This question might be more for Mr. Coates. It's very important for NATO partners to know this, because should there be a perceived invasion, it's all the member countries' responsibility to respond. The question then is this. Based on what our current defence is, do we have the capacity to properly patrol our waters?

Dr. Kenneth Coates: The short answer is no; we're quite deficient in that regard.

The Chair: Perfect. Thank you. You're very efficient.

Mr. Russell, you have five minutes.

Mr. Todd Russell (Labrador, Lib.): Thank you, Mr. Chair.

It's a pleasure to be here with you, at least for this particular meeting.

I want to come back to that quote, "To develop the North, we must know the North. To protect the North, we must control the North." I'm sure this was not taken from the Inuit perspective, this particular quote.

First of all, when you talk about development, it almost has a certain connotation of somehow being primitive, which it isn't. Secondly, on "we must know the North", well there are 40,000 Canadians who know the north very well, and they're the Inuit of the north, and we don't seem to include them within our strategy.

Regarding "to protect the North we must control the North", I just want to ask a question to Mr. Coates and to Mr. Reimer. I just read the Standing Senate Committee on Fisheries and Oceans report talking about the coast guard. It seems that throughout this document there is a fair criticism that the Inuit have been ignored, in terms of the development of the strategy and maybe now the implementation of the strategy. We have legally binding agreements with the Inuit, from Labrador right to the Yukon, the land claims agreements.

There is a conference happening this week, actually right here in Ottawa, starting today, about the problems regarding land claims implementation. Do you think if we had proper implementation of those claims, which are enshrined in the Constitution of Canada, that would actually add to our sovereignty in terms of a legal perspective? Secondly, if we strengthen the self-determination—and that's kind of an oxymoron, but if Inuit had the tools for self-determination—does that not also enhance sovereignty?

The only other question I have is that we have a lot of assets out there within the north—Labrador, I agree, Mr. Coates, should be included, as well as the Yukon. We have a base for instance—$90 million goes in there every year—and we have 68 regular force personnel on that particular base. Because of the urgency, should not the Department of National Defence and other agencies be taking a very close look at the existing assets we have and how they can be better utilized in terms of developing our Arctic sovereignty and our whole policy around that particular issue?

● (1625)

Dr. Kenneth Coates: Thank you very much for a whole series of great questions.

We should be looking at our existing assets. We have facilities across the region. It's interesting that the Federation of Canadian Municipalities has taken a strong interest in exactly this issue. Their concern is that they have resources and needs, and if they can be combined with the current sovereignty issue we might get win-win situations all around. That would be excellent.

On implementing land claims, we have a long way to go. They are very complicated things to implement. We haven't done as much as we could to resolve them. There are a lot of big issues there. When they are implemented we're going to see a very different and much more positive world, because of the incorporation of indigenous understanding and engagement with Canada. The land claims process is a way in which a lot of indigenous people bought into this country in a very real and important sense. I think it helps.

We capitalize on indigenous knowledge in the north through the Canadian Rangers, as I'm sure you know. The remarkable ability of those people who provide us with eyes and ears and access to these regions is really quite profound.

There's a huge and very difficult debate between western science and indigenous knowledge. It is unseemly at times, but enormous learning in both directions has occurred, and where we've opened up our minds to working with indigenous people, we've learned a lot. Some great developments can take place there as well.

Thank you.

Mr. Todd Russell: Thank you.

Mr. Chester Reimer: I'd almost echo everything Professor Coates has said. In fact, before he said “win-win” I had already written it down. It's a cliché, but there is a “win-win” in your first question. Proper implementation of land claims would be better for the Inuit and all Canadians.

Right now there's a lawsuit in Nunavut versus the Canadian government, as you know. We need to settle that and take a look at it. The answer is absolutely yes, that if land claims are properly implemented and further developed, it can only work well for all Canadians.

You asked whether further strengthening of self-determination for Inuit or other indigenous peoples assists Canadian sovereignty. Absolutely. A lot of Canadian sovereignty claims are based on land use and occupancy by Inuit, so it's logical that self-determination for Inuit—who are not advocating a declaration of independence—is a declaration of working together. That means the rights have to be respected.

The Chair: Thank you very much, Mr. Reimer.

We'll give the floor to Mr. Boughen.

● (1630)

Mr. Ray Boughen (Palliser, CPC): Thank you, Chair.

Let me add my voice to those of my colleagues in welcoming you here this afternoon, gentlemen.

Mr. Keating, the question for you is on climate change. How can we reverse or slow down climate change of the north? We know about CO_2 and emissions. From your perspective, what can slow down this process?

Mr. John Keating: I don't claim to be an expert on climate science, but I've listened to Dr. Steve MacLean, who is the president of the Canadian Space Agency. He says it's very important to have accurate weather models for climate change to understand what's going on. The dilemma is that those models are incomplete today.

One of those models, for example, assumes that the sun is a constant, which it clearly isn't. There are mechanisms to use space exploration to look at the sun, see what's happening with sunspots and radiation, and see what impact they may have on climate change.

Steve talked about the importance of identifying those things that need to be measured and finding more effective ways to do that. Satellites happen to be very good at some of those things, not just because you can look at space and the atmosphere, but because you can actually look at Earth in a very consistent manner, gather information from all of Earth, and bring it back to a central location consistently year after year.

I'm not a scientist who's sufficiently knowledgeable about which bits of information you want to gather, but the notion that spacecraft gather the information very consistently, reliably, and repeatedly, and put that into climate change models to enable us to make the right decisions is a very important one.

Mr. Ray Boughen: Thank you.

Mr. Reimer, you talked about scientific research and desired methods. Can you expand on that for us?

Mr. Chester Reimer: Yes, I could.

Inuit are very eager to be part of the western scientific process. They're very eager to contribute their traditional knowledge, and they're also very eager to participate in what we often refer to as western science. I think the mechanisms are mostly process oriented. We're not just talking about hiring Inuit at the local level to go out and count fish. That may be one job for one person, but we're talking about using traditional knowledge that's been passed on from grandmother to grandfather to grandson to people who are living there today. Inuit observe animal migration patterns. They know if things have changed. They've been told by their great-grandparents that patterns change and animals disappear.

Connected a bit to your last question, we were told very recently, not even decades ago, that some things are changing. The animal migration patterns are changing. They were the first to tell us about climate change. Many people didn't listen. The mechanisms are: let's have greater partnerships, greater building relationships between academia, the member states of the eight countries, and especially Canada, and the traditional knowledge of indigenous peoples. But not only traditional knowledge—through their land claims processes and the land claim settlements, Inuit have created corporations and companies that are very willing to participate in other ways as well.

Thank you.

Mr. Ray Boughen: Thank you.

Professor Coates, on reacting rather than formulating our own plans, could you let us know what you see would be required in formulating our own plans rather than accepting others?

Dr. Kenneth Coates: Yes. Quite frankly, it's a major change in mindset. I'm worried right now. The historian in me says that we're in a period of time where we're having these meetings and talking about Arctic sovereignty, but let's assume we have three years of really cold weather, the Russian exploration for oil off the Arctic sort of doesn't do very well, they back off their plans a little bit, and this issue goes back onto the back burner for another 20 years. That's what happened after the *Manhattan*, after the *Polar Sea*, after the Cold War, and after the Second World War. That is our pattern.

I think what we need to do is to actually look at how we incorporate the north—not just the Arctic but the north—into Canada as a whole. We need to just assume that regardless of what anybody else does, we have an obligation to know the north and control the north. We have an obligation to work with the local populations to make their lives as rich as we possibly can. That has not been our policy, and in fact we do tend to retreat south of the 49th parallel and to sort of wait and see what happens. That is of grave concern.

The Chair: Thank you very much.

Thank you, Mr. Boughen.

[*Translation*]

Mr. Paillé, you now have five minutes.

Mr. Pascal-Pierre Paillé (Louis-Hébert, BQ): Thank you, Mr. Chair. I will share my time with Mr. Bachand if there is enough left.

Thank you and welcome. I do not know if you had the chance to read the position of the Bloc Québécois leader. He sent an open letter to *Le Devoir*. From what I can tell, his views match some of yours. I will be happy to send you a copy of his letter.

I understand from what you said that maybe, in your view, the government lacks long-term vision where the Arctic is concerned. Is that a fair assessment of your comments?

● (1635)

[*English*]

Dr. Kenneth Coates: I would say that Canada lacks a long-term vision for the Arctic. This government has done a fair bit in the last little while, more than we've had in previous decades, to be sure. But I think the country is not quite sure what to do with the Arctic as a whole. I think it's a much broader issue than just whether this government, this time, this year has a particular plan in mind; it's whether we as a nation have truly understood what it means to be a circumpolar country.

[*Translation*]

Mr. Pascal-Pierre Paillé: In your view, what will be the greatest challenge for the government when it comes to decisions that will have to be made?

[*English*]

Dr. Kenneth Coates: Is that for me or for...?

[*Translation*]

Mr. Pascal-Pierre Paillé: My question is directed to either one of you.

[*English*]

Mr. Chester Reimer: One of the biggest decisions isn't about militarily protecting the Arctic. It is not about that. It is about potential environmental, social, and economic disaster in the Arctic. To avoid that, you have to work closely with the local communities. You have to protect the Arctic from tourism, so that it's done in an appropriate way. You have to protect it from industry, so that it's done in an appropriate way, and you have to protect it from bad government policy.

[*Translation*]

Mr. Pascal-Pierre Paillé: I would like to ask one last question before yielding to Mr. Bachand.

Canada is huge. In northern Canada, are the challenges facing the government and the actions it must take different depending on whether we are talking about eastern or western Canada?

Mr. Chester Reimer: Is the question directed to me?

[*English*]

Dr. Kenneth Coates: These are very excellent and very challenging questions. There are huge differences, differences in the economic foundation, the oil and gas resources that go from northern Alberta up to the Beaufort Sea. We set very different agendas and very different possibilities than what there are in Labrador, for example. In Labrador and northern Quebec you have hydroelectric potential somewhat similar to what you have, say, in northern Manitoba. They're somewhat comparable issues. You also have issues of climate isolation, small population size—indigenous issues, generally.

The west has done a slightly better job of linking the north and the south: northern British Columbia, the Yukon, Alberta, up into Mackenzie, into northern Saskatchewan. I think the lines, for example, in Ontario are quite sharply drawn between southern Ontario and the north. So there are variations as you go across.

I think one of the issues for Canada, if I might, is that the provincial north and the territorial north together should be having a lot more discussions. There should be a lot more consideration of the common interests that link Labrador to the Yukon to the Northwest Territories to Nunavut.These things do not exist entirely within provincial structures.

One of the most interesting developments in this country is actually the winter cities movement, where communities that face similar climatic situations get together and share ideas. It's very successful. We should be doing that on a broader scale.

[*Translation*]

The Chair: There are 30 seconds left.

Mr. Claude Bachand: Mr. Reimer, can you explain to me why, of the four Inuit territories, Nunavik, which is located in Quebec, is not included in Canada's Northern Strategy? Do you support this strategy? Are you trying to amend it? Do you require our assistance to do so?

[*English*]

Mr. Chester Reimer: The Inuit Circumpolar Council is not in agreement with defining the north in that way. It creates problems at the Arctic Council. It creates problems domestically when the Inuit of Labrador and the Inuit of Nunavik are left out. They live on tundra. They live on areas that are very much Arctic, and they're left out of research, of politics, of everything. So, yes, we'd appreciate some discussion on that.

[*Translation*]

The Chair: Thank you very much.

Mr. Payne, you have five minutes.

● (1640)

[*English*]

Mr. LaVar Payne (Medicine Hat, CPC): Thank you, Mr. Chairman.

As well, I'd like to thank the witnesses for attending today. I have a few questions, and I'll start with Mr. Keating.

Obviously, it's a very interesting system that you have in terms of the automatic identification. I believe you said it would take six satellites to cover the whole.... Do you have any idea what the cost would be to implement such a six-satellite system?

Mr. John Keating: We have a very good idea of that. It's interesting. I talked about a series of constellations and those series of constellations providing different functionalities that meet national needs. The first one is the most expensive, because as well as paying for the spacecraft, you actually have to put the ground infrastructure in place: all these big dishes there in the north and in the south that have movable, pointing antennas; all the operation centres and the data sensors. The cost of that? The space piece is about $75 million; the ground piece is about $75 million. So for the first constellation that's $150 million.

From then on, if you have a similar-sized constellation, it would be about half the cost, and the long-term space plan includes a proposal to build that infrastructure.

Mr. LaVar Payne: How long would it take to put up that whole six-satellite system?

Mr. John Keating: It takes about three years to do that.

Mr. LaVar Payne: Right.

I have a couple of other questions in terms of the ships and the locator systems that you get their signals from. What about submarines?

Mr. John Keating: You wouldn't pick up information on submarines. There are something like 80,000 ships today that have these transmitters on board, and the number will increase over time as the requirements change. For submarines, you take a different approach.

I did talk about a series of constellations. The second one is low data rate communications. Low data rate communications can do all sorts of things. We're busy talking to people around the world about sending signals that monitor water levels and water pollution, that monitor other attributes related to what's happening on the earth, and that might be ice thickness or climate change information from remote areas that are sent to a satellite. One of the things you can do that we've talked to our government about is the potential of throwing transducers into the water that detect the sound of submarines going by, and those transducers have little transmitters on board that talk to our satellite. So we can actually monitor submarines through a spacecraft, but in quite a different way.

Mr. LaVar Payne: Can the other ships turn their transmission devices off?

Mr. John Keating: They can, actually. They're mandated to carry those things. They're signatories to the IMO, which requires them to do it. With respect to information and tracking, if a ship is transmitting its signal as it's supposed to, and then it turns it off, interestingly enough it becomes a target of interest. We can track its history across the world. It went from Sydney to the port of London and on to Brazil, but as it approached Canadian waters it switched off its transmitter.

Our software is able to detect all sorts of interesting things—they're called watchdogs. If it turns it off, we flag it up. If it's a Spanish fishing vessel that comes within 300 nautical miles of our shore, we want to know. If there are two ships that come together at sea and stay together, that's unusual, and we want to know what's going on. If two ships are sailing in areas in which they're not supposed to sail too close together, or if they're sailing in an area where whales are supposed to be breeding, or if they're drift-netting in the wrong part of the ocean, the software flags it up for us. So the software enables you to detect people doing strange things. We also have some very clever tools to figure out activities that may be of interest to our authorities, over and above the signal itself, but I can't talk about this much.

Mr. LaVar Payne: It sounds quite interesting.

I have another question for Mr. Coates. You talked about the lack of scientific capacity to support defence operations. Will the $2 million in the new high Arctic research station help to improve information data?

Dr. Kenneth Coates: There's no question that the money will help. I was talking to some folks from the Arctic Institute shortly after they received some of the funding, and they were absolutely delighted. They were describing the new research activities that would actually go on as a consequence of the funding. So the money is a welcome addition.

Lest you think that academics never come here but to ask for more money, part of the challenge is making it clear that all universities, colleges, research institutes should be engaged in this. It's not asking for more money; it's asking us as Canadians to use our money to put faculty members up there in these places.

● (1645)

The Chair: Ms. Neville.

Hon. Anita Neville (Winnipeg South Centre, Lib.): Thank you.

Would you like to continue, Dr. Coates?

Dr. Kenneth Coates: I would just encourage you, as you look at these challenges, to remember that part of the solution lies in getting everybody to participate. The solution is not always governments coming in and giving more money for more things. If this is a national priority, then all Canadians should be part of the solution, and universities should participate.

Hon. Anita Neville: You anticipated part of my question. You talked about the current threats and issues, and then you said we had to look forward. We know that the current situation does not allow the indigenous peoples of the north to develop the tools they need to address global warming. How would you provide resources and leadership to the Inuit? How do you see the role of the rest of Canada in addressing the north?

You made a comment about how more people go to Florida than go up north, and then we heard the comment that we have to monitor the tourism of the north. How do you reconcile all that?

Dr. Kenneth Coates: You guys ask really great questions—this is wonderful.

How do you monitor and reconcile these things? It's a hard challenge. Tourism is one of the fastest ways of bringing resources, money, and jobs into a community, but it's environmentally disruptive if you don't do it properly. I think a lot of this goes back to aboriginal control, local control, local influence in decision-making. You bring in tourism and other things you can monitor and control yourself.

The question of how we get indigenous communities up to speed on these things is really quite fascinating. I'm a huge fan of aboriginal self-government. I'm strongly supportive of the land claims process and the implementation thereof. As an historian, I would remind everybody here who takes the longer view that 30 years ago nobody would ever have thought we would be where we are now. I was in the Yukon in 1973 when the land claims process started. If you had said that by the year 2009 we would have what we have today, people would have thought you were crazy. There were only a few folks who even dreamed of getting this far. We have a long way to go, but give the indigenous communities a huge amount of credit for what they've done, for their ability to make their own decisions, to get involved and engaged where they can. It's actually worked out far better than we think. There are some great success stories going on already.

Mr. Chester Reimer: I would add that there's a great opportunity for Canadians. The Arctic is so big right now, and the Canadian government could miss the boat on that. If the Canadian government, the Department of National Defence, sits down with the Inuit and asks them that question in a more appropriate forum, in a more formal forum, there'd be a lot of synergy happening between the Inuit and those in the south. We are already seeing it in the arts and music; we have presidents of France coming and buying Inuit art. It's there. Why are Canadians in the south and members of Parliament here not taking advantage of that in a mutually beneficial way?

Hon. Anita Neville: Thank you.

The Chair: Thank you, Ms. Neville.

Now, Mr. Hawn.

Mr. Laurie Hawn (Edmonton Centre, CPC): Thank you, Chair, and thank you all for being here.

For Mr. Keating first, a fairly technical question. It was alluded to that sometimes ships will turn that off, and you mentioned pirates. Obviously, pirates would tend to be non-cooperative targets. What ties do you have or are you contemplating, or are there, if you can talk about it, to space-based radars that would obviously correlate all that information?

Mr. John Keating: Thank you for raising that because that's an important point. I was talking about our ability to detect signals and what that might mean for somebody who was transmitting and stopped transmitting.

The intention of the Canadian government is actually to fuse this information set with other space-based information using radar systems. MacDonald Dettwiler, which some of us will remember from the ATK episode from a year or so ago, are in the process of designing and developing a space-based radar system. But all the radar system can do is show that there's a target there, there's a ship there. The trouble is, it doesn't know who it is. So it's a real problem, if you're a coast guard or a fisheries or a security agency, to know who they are.

The combination of AIS-space-based data and radar data is incredibly powerful, because you see all the people who are there with their radar blips and you can say, "Who's identified themselves?" Then you can say, "Who hasn't?" So who's there and not identifying themselves? That makes for not only a tremendous amount of useful information, but it makes for tremendous efficiency.

The traditional way of dealing with something that's more than 20 miles offshore is to have an airplane going up and down and up and down and a boat going up and down trying to figure out who's over the horizon, whereas with this system you can actually direct people to the place you want to go to and recognize that that's the target of interest, there's a blip but he's not signalling, and we want to see why he's not signalling.

● (1650)

Mr. Laurie Hawn: That's great. Thank you.

I have a question with a bit of a preamble, and, to me, it's going to be a fairly core question. This is for Professor Coates and Mr. Reimer.

We talked about the application of self-determination and self-government. There are some practical limits to that, and I'm interested in getting your thoughts. Canada is a very large country, and obviously the north is a very important part of that and the Inuit obviously are a very important part of that.

What practical limits do you see to their input into either military affairs or resource development and so on, and to what extent do you see the Inuit being able to determine or have some kind of a veto or greater influence on the broader Canadian national interest? Who determines the Canadian national interest in the north?

Mr. Chester Reimer: I'll be brief, given the chair's bell.

Who determines Canadian national interest in the north? Well, as the sovereignty declaration says, it's a partnership. By law, Canada has to listen, and by law, Inuit have to talk with the government. There's never been a hesitancy to do that, so that's who determines Canada's national interest.

There are also international mechanisms that this committee should be aware of, whether Canada has signed onto them or not, such as the UN Declaration on the Rights of Indigenous Peoples. But there are other international human rights mechanisms that you're required to address politically and legally. So there's an international way. We're not living in a microscopic world anymore; we're living internationally, and the Inuit are an example of that, living across four nations.

Certainly, national interest in the Arctic is fundamentally based in the land claims agreements. But it goes beyond international agreements. There is also good old-fashioned talking to each other.

Dr. Kenneth Coates: Quickly, I think what you'll see is the Government of Canada representing the government and the people of Canada, as they have in the past. It will be with the kinds of consultations and discussions you've had. There will be times when there's lots of time for discussion and times when it's basically a heads-up because you'll have emergency issues and things of that sort.

One of the things to also keep in mind when you think of self-government and self-determination is that this is a very, very long process. Indigenous communities are very small. They do not have a lot of skilled people, because a community of 5,000 people has a limited number of skilled people regardless of what ethnic background they are. What you're finding as you go across the north is that communities are taking up different kinds of responsibilities at different paces, and often focusing on health care and economic development and education first and other things coming down the line.

Quite frankly, and perhaps Mr. Reimer can say if he agrees with me or not, I think an awful lot of this has to do with the question of knowing they are respected, knowing the Inuit voice is heard, knowing there's a desire to listen, not for politeness reasons but because there's something to be learned from Inuit people. I don't think we're there yet. I don't think we've actually proven to the Inuit population that we listen to them ahead of time. That's not a legal issue, it's not a constitutional issue; it's a sort of small “p” political process.

The Chair: Thank you very much.

Mr. Preston is next. You have five minutes.

Mr. Joe Preston (Elgin—Middlesex—London, CPC): I'll let you finish that thought, if you have something further there. I know the bell has been very scary to you today, but I do want to thank you, because you've been very informative today.

Professor Coates, in your opening comments you made a statement about northern defence versus sovereignty. Can you expand a little on what you mean? Is one versus the other?

Dr. Kenneth Coates: It's an interesting question. Sovereignty is the legal, technical, constitutional issue of who owns what land, and we have a sovereignty issue about where the continental shelf is. You've heard all the UNCLOS debates and that kind of stuff. That's a question of where it is, of where the line is that shows we have official sovereignty over it.

You can have sovereignty over a piece of territory in a technical international sense and not be able to defend it. I invite you to visit any one of a dozen countries in Africa that have technical sovereignty. The boundaries are all still as fixed as they were when they were artificially drawn years ago, but that doesn't mean the country defends them.

That's the line I would draw. I think we need to put a lot more attention on what we have the capability to actually oversee. My definition of defence is a very broad one. I think we have a defence against ecological change and ecological disaster and a defence against not just the militarization and whether somebody's going to attack Ellesmere Island—highly unlikely and almost certainly not going to happen—but whether in fact we have the defence against all the other threats that might come in, things that we don't quite understand.

That's the line I would draw.

● (1655)

Mr. Joe Preston: You just broadened the definition of the defence piece, or, if you will, you drew back the definition of sovereignty to what we're capable of defending once we claim it. That was my point. If it's all about defence, then it quits being about using it; it's about protecting it more than anything else. But you've added some other stuff.

That was the only question I had, so—

Mr. Chester Reimer: Could I just jump in?

I would go a bit beyond what Professor Coates is saying, in that sovereignty isn't just about who owns the land and where it is. As the second section of the sovereignty declaration in front of you says, there's an evolving nature of sovereignty in the Arctic. I think Canada would do well to look at that. There are different interpretations of what sovereignty means in the Arctic, and I don't think that just because it's not cut and dried in the way Professor Coates said doesn't mean that we don't move forward on it. I'm sure Professor Coates didn't mean that's the only way sovereignty is defined, but we're looking at it more broadly.

Mr. Laurie Hawn: In the last minute I have a question for Mr. Reimer. How are the Russian Inuit—or the Danes, or the Norwegians—doing with discussions with their governments? Do you have any contact or dialogue with them about how they're doing, with respect to the Russians in particular, in addressing their self-determination concerns with their government?

Mr. Chester Reimer: Although there are close to a million indigenous individuals and about 40 peoples in the Russian Arctic, there are only 2,000 Inuit, and they're in Chukotka. If you know your geography and the Bering Strait, that's where they are. There have been some advances, but it's—

Mr. Laurie Hawn: It's not just the Inuit, then, but aboriginal peoples in general.

Mr. Chester Reimer: Yes. Canada should be proud; Canada, through CIDA and through the Inuit Circumpolar Council of Canada office, helped not only the Russian indigenous peoples during the process of moving from the Soviet era into the more modern era, but also helped Moscow's equivalent of Indian and Northern Affairs Canada to set up. They had no idea of how to deal with the Arctic.

There have been a lot of advances, and the Russian Association of Indigenous Peoples of the North is incredibly well organized and strong now, whereas earlier they were like a very young little baby sister to ICC. There have been advances, but as you know, because of the resources in the Arctic and other reasons, there's a lot to go. There's a lot of hunger and a lot of poverty in the Russian Arctic still.

The Chair: Mr. Payne, you have 30 seconds.

Mr. LaVar Payne: Okay, I'll try to make it really quick.

Mr. Reimer, I wanted to follow up on a comment you made in terms of the migration that the Inuit noticed prior to our talking about climate change. In your discussions with them, have they talked about previous migration patterns in many years gone by? Have those also changed, or is this just a one-time thing?

Mr. Chester Reimer: I was referring to animal migration.

Mr. LaVar Payne: Yes.

Mr. Chester Reimer: Yes. I think my point was that Inuit, because of their traditional knowledge that has been verbally passed on from generation to generation, know that weather changes. Weather changed in the past. They know that animal migration patterns changed. Through their knowledge and through their way of addressing this, they saw it.

They said something was different two decades ago. There was a much bigger shift. We're seeing new species. We're seeing others disappear, and nobody listened at first.

The Chair: *Merci beaucoup.* Thank you very much.

I want to thank all our witnesses. Mr. Keating, Mr. Coates, and Mr. Reimer, thank you for your collaboration with our committee.

Members, don't forget that tomorrow we have a hot meal with our delegation from Pakistan. It will be in this room from 11 to 12. The meal will be served at around 11:30.

[*Translation*]

Thank you very much.

The meeting is adjourned.

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