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Chair

Mr. Stephen Fuhr

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• (1100)

[English]

The Chair (Mr. Stephen Fuhr (Kelowna—Lake Country, Lib.)): Good day, everybody. Welcome to our study on the naval readiness of Canada. I'd like to welcome our two witnesses today. From Halifax, we have Mr. Ken Hansen, thank you for coming to us today by teleconference, and in committee today, in person, is retired commodore Eric Lerhe. Thank you for being here.

Each of you gentleman will be given 10 minutes. I would like to start with Ken Hansen from Halifax, just in case we have an issue with the video later in the testimony.

Having said that, sir, you have the floor for 10 minutes.

Mr. Ken Hansen (Science Advisory Committee Member, Institute for Ocean Research Enterprise, As an Individual): Thank you very much for this opportunity to speak to you and to be heard.

We speak of readiness. The key question to ask is, readiness for what? National sea power spans what I call three conceptual spheres, which are safety, security, and sovereignty. Although officially a military organization that is focused on sovereignty at sea, the RCN is engaged in a very wide array of missions and tasks that range from such things as boater safety to multi-threat combat operations. These spheres of activity can overlap significantly, and they can vary with the circumstances. Largely informal arrangements, naval activities are often poorly defined and therefore poorly understood. The navy provides the Government of Canada with its most ready and responsive military force. The culture of the organization has always been focused on quick reaction, which is the inspiration for its motto, which is "Ready, Aye, Ready".

The ships are large, well equipped, and reasonably swift. Canadian sailors are self-reliant people, and the practices of seamanship demand that they be multi-skilled. This makes them very useful in military official and unofficial roles. The history of the RCN was focused on the North Atlantic and the trans-Atlantic linkage with Europe. Two world wars and the Cold War have shaped the navy's institutional values, its organizational structure, and its practical capabilities. The navy that exists today is a perpetuation of the forces developed during its first century of existence. The navy is now in transition. It is suffering from a poorly planned and executed renewal process. Ship numbers and types, operational capabilities, and experience levels are unusually low. Old helicopters provided by the RCAF, no sustainment ships, and retired destroyers have diminished the navy to a local defence force. While it has added new capabilities to the frigates and the submarines, and new

helicopters are very soon to arrive, the navy is far less ready to engage in distant, long duration, and complex military operations.

I return to my original question. Readiness for what? If the mission or task is local defence for short durations against a low-level threat, then the RCN has reasonable readiness and capabilities to handle such issues. Technologies make the Canadian modernized frigates the equals of any other, and the same is also true for the much-maligned submarines. The crews are well-trained and led. The RCN is also capable of local operations and tasks supporting other government departments and agencies in the safety and security spheres. The RCN contributes significantly to the maintenance of Canadian safety standards and laws in our national waters. It also does this effectively in foreign waters in co-operation with multinational coalitions and bilaterally with allies.

If the mission or task is for long-range, large capacity, or high-intensity operations, then the RCN will have great difficulty in maintaining the effort and producing significant results. In effect, it is a symbolic force. It shows the flag and then leaves. The fleet is simply too small and too narrowly focused on anti-submarine warfare to be of much value outside of that core capability.

The days of the RCN's self-professed categorization as a rank 3 medium power global force projection navy ended with the withdrawal from service of the last "Protecteur-class" replenishment ship. Those ships provided the support, supply, and sustainment logistics needed to enable naval operations at short range for long duration or at longer ranges for high-intensity operations. The navy places high priority on tactical proficiency. Conformity to best standards of practice is considered extremely valuable. Little else matters.

• (1105)

This focus on practical issues leaves the navy with a critical shortage of intellectual capacity and organizational skills. In effect, the navy is overtrained and undereducated. Alternate methods of action and "out of the box" thinking are not Canadian naval strengths. Mindset is a critical aspect of readiness often overlooked.

In my view, there are three major areas of weakness that affect naval readiness in Canada.

At the institutional level, the navy is simply too small for a country of our size. In a 2010 study, my master's student, Matthew Gillis, conducted a global survey of naval and Coast Guard forces and compared the RCN to other navies by population, area of responsibility, and gross domestic product.

By any standard of measure, the Canadian navy, especially in manpower terms, is at least only half of the strength that it should be. This diminished stature in a unified forces structure leaves the navy vulnerable to the creation of unified doctrines that do not reflect naval concepts and practices. Simply put, the tyranny of the majority dictates a common approach to all problems in all environmental circumstances. The naval view is largely ignored.

At the organizational level, the navy needs to diversify its structure and functions. The first sign of this is actually on the way in the form of the Arctic and offshore patrol ship. I predict that this utilitarian and flexible ship will become the naval equivalent of a pickup truck. It has reserve cargo capacity and utility spaces that will make it valuable in a wide array of safety, security, and sovereignty tasks.

If the RCN already had such a ship in service, it would be off the coast of Haiti by now loaded with disaster-relief supplies and using its landing craft in areas cut off by the storm. A major step toward improved readiness would be to make humanitarian assistance and disaster relief official missions of the Canadian navy.

At the practical level, the navy is limited by all manner of shortages of people, spare parts, and supplies. Young people are waiting interminably for training. Spare parts are being emergency-transferred from ship to ship. Operations have to be carefully planned to avoid logistical exhaustion. The margins for naval operations are simply too fine. In the event of the unexpected, no contingency reserve exists to make up for shortages in these areas and many others.

The future will be complex and unpredictable, so say the two Canadian Forces future security horizon studies. If you haven't seen them, I highly recommend them. In my view, the next major conflict is likely to be in either the far western Pacific or in the Arctic. In either case, the strategic context for Canada and for the RCN will be suddenly reversed. No longer a supporting force for Europe, Canada will be on the front line of a new and vast operating environment. I do not believe that the navy is ready for this circumstance or for any other that departs from the past strategic context that has shaped the RCN.

The force that the RCN will become is being decided upon now. Rather than a low-endurance, narrowly focused combat force, I believe the Canadian navy needs to diversify, significantly expand its logistical capacity, and integrate its procurement processes into developing the national industrial base. Only in these ways will the RCN become a truly ready, flexible, and reliable force.

I thank you for your attention. I look forward to your questions.

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

I apologize for not recognizing you as a retired commander at the beginning. I thank you for your service and for being here today.

Mr. Lerhe, you have the floor.

Commodore (Retired) Eric Lerhe (Centre for the Study of Security and Development, Dalhousie University, As an Individual): Thank you very much for inviting me. I will address maritime readiness from my point of view as one of the last commodores who, in 2002, took a full task group to sea. I will also address it as a doctoral researcher in international relations.

My thesis is simple. The world situation has gotten worse, and one of the tools the Canadian government has relied on for decades, a full task group, is no longer available. That will cause us and international order long-term problems.

Let me start by explaining what I was able to do with the full task group in the Strait of Hormuz. I had a missile-armed, anti-air warfare destroyer, two frigates, four helicopters, a supply ship, and two maritime patrol aircraft operating under the UAE. I had total sea control over the Strait of Hormuz. I was able to stay at sea longer than the other coalition and fly my helicopters further than the others because I had an AOR. I also was beholden to no one for a capability I did not have.

There, navies did not just do the traditional sea control warfare role. We served a constabulary function, providing search and rescue and anti-terrorism. We served the important diplomatic function of sending signals to the U.S., which was closing down its borders, that Canada was onside and supporting; sending signals to the regional powers that the U.S. was not operating alone and co-operation would be pretty smart; and sending signals to the world's economic markets. Some 30% of the world's oil passes through the Strait of Hormuz. Within one week oil prices had shot up 60%, but when the world market realized that sea power was going to be able to maintain the flow, oil prices fell down to their normal \$30 a barrel.

From 2001 to 2004, 16 of 18 major Canadian warships rotated through five task group rotations in the Gulf. Today—and Ken has made this very clear—we are capable of sending only two frigates for a much shorter period, and they will go out the door more slowly because we'll have to line up tanker support and, in some areas, anti-air warfare support. Further, there are no plans and no funding to replace the maritime patrol aircraft or our submarines. Even the bright promise of the national shipbuilding strategy must be qualified by the fact that it is unlikely to replace all 15 of our current frigates and destroyers.

Ten years after those rotations, the world situation has gotten worse. We have conflict in Iraq and Syria. Africa cries out for attention. There will be massive migration displacement as a result of global warming. But I would direct you to the Canadian Security Intelligence Service's strategic outlook 2018, which places the major threat as issuing from Russia and China.

The Russian case is the more extreme. In 1994, Russia signed the Budapest agreement with the other Security Council members, which guaranteed Ukraine's borders for the Ukraine giving up her 1,700 nuclear weapons. In 2014, Russia invaded Ukraine in the Crimea and almost certainly in the Donbass region.

Other countries with large numbers of Russian citizens, like the Baltics, are being regularly probed by Russian aircraft and are under cyber-attack from the same source. Even Canada has been probed, and just this spring, one of our submarines was tasked by NATO to track a large Russian submarine movement into the Atlantic.

China presents similar security challenges. On the good side, it's critical to maintaining control of North Korea. It's probably the only state with influence. However, this is offset by the One China policy and regular threats to Taiwan. A recent Canadian defence research report by Ben Lombardi argues, "The PLA continues to develop and deploy military capabilities intended to coerce Taiwan or to attempt an invasion".

China's reactions in the East and South China seas are equally problematic, but probably more so is the problem in the South China Sea, and very recently, the Permanent Court of Arbitration in the Hague completely rejected the Chinese claim to virtually all of the South China Sea by virtue of a nine-dash line.

• (1110)

Further, it has also seized much of the Second Thomas Shoal from the Philippines, even though it is clearly within the Philippines' 200-mile economic zone mandated by the United Nations Convention on the Law of the Sea. China has also enlarged and fortified many of these former rocks. Again, the Permanent Court of Arbitration called China to account. China, in turn, rejected the court's findings outright and lashed out at any state that supported the arbitration.

Last week, New Zealand's defence minister was "berated" by the Chinese foreign ministry for opining that:

As a small maritime trading nation, international law and, in particular, the United Nations Convention on the Law of the Sea, is important for New Zealand. We support the arbitral process and believe that countries have the right to seek that international resolution.

That should be Canada's position.

Finally, China has its eyes on the Arctic, primarily because of the recent report that up to 20% of the world's remaining hydrocarbon assets are in the Arctic. China has claimed—this is the position of one of its admirals—that "the North Pole and surrounding area are the common wealth of the world's people and do not belong to any one country", irrespective of the fact that almost all of those oil reserves are within the exclusive economic zone of the five Arctic powers, as UNCLOS, the United Nations Convention on the Law of the Sea, mandates.

There is a broad range of future directions. At the very low end, we will just see Russia and China posturing as they seek to regain elements of their former higher status.

At the high end, there are increasing concerns that these two states' actions will lead to interstate war. The most recent U.S. military strategy states that there is a "low but growing" probability of the U.S. fighting a major war "with a major power". The 2018 CSIS document I just outlined argues that Russia "is modernising conventional military capability on a large scale; the state is mobilising for war." The U.S. Pacific Command's intelligence chief was recently fired for publicly declaring that recent exercises indicate that China is preparing for a "short, sharp war" with Japan.

One will not know whether any of these states has actually committed to war, but we do know that the chances of conflict will rise. I suspect—and many others do—that the immediate strategic direction for both countries will be to aggressively pursue their international interests irrespective of the risk and international law. David Mulroney, a potential superb witness for you as our former ambassador to China, says China shows an unpleasant readiness to either ignore international norms or, at best, use them in "cafeteria style", where it picks those elements useful to it while ignoring the rest.

In picking their crises, they avoid direct challenge with the U.S. Again, Ambassador Mulroney noted that China has a particularly disagreeable habit of instead picking fights with smaller states that are the least able to defend themselves, like the Philippines.

What is the Canadian response? In the short term, Canada has responded well, although there are gaps. We have recently committed to a greater multilateral effort to engage these states. This is critical. China, more than Russia, by its engagement in counter-piracy operations and operations of peacekeeping in Africa, allows Canada a direct means of engaging with it in a positive sense.

Our hard responses are also well timed, if limited: 850 in the Middle East fighting ISIS, 200 training the Ukrainian forces, 350 supporting NATO in eastern Europe, and potentially 450 in Latvia and 650 in Africa. Two things are missing. We are doing nothing in the Pacific to reassure the U.S., Japan, Korea, and the other democracies. We now have plans for 2,500 people deployed. If you check in with the parliamentary budget officer, you'll see that this will generate \$1.8 billion in additional costs for DND. Currently, the government has promised only \$550 million. There is a shortage.

If the short term is responding reasonably well, my assessment is that the long term is more problematic.

I'll provide some brief recommendations for the future.

•(1115)

One, the defence of North America and the maintenance of Canadian sovereignty relies on surveillance on, above, and beneath the seas. This requires an investment in space, maritime patrol aircraft, and icebreakers. I agree completely with Ken Hansen on the future utility of the Arctic and offshore patrol ships.

Two, maritime surveillance via NORAD must be expanded and accelerated, especially in the Arctic.

Three, our NATO allies are feeling the most direct threat. They deserve from Canada, as an ally, rapidly deployable combat-capable land, air, and sea forces. The lead democracies in Asia are under threat. The ASEAN organization has proven useless. When crisis breaks out, just as in Korea, we'll be called. It would be wise to start deploying now both to show deterrents and to be prepared if things go terribly wrong.

Any large deployment of the Canadian Forces should go to Parliament. More importantly, it has been called for long-standingly by the experts that when something goes to Parliament via deployment, it should be accompanied by a forecast of the specific cost and the source of the funding. I can go into that in quite some length.

The national shipbuilding strategy is starting to deliver, however I note it's only recapitalized one-half of the minimum Coast Guard need—and I've already outlined the problems with the Canadian surface combatant numbers—however, outside the national shipbuilding strategy our future prospects are worse. David Perry has stated this simply, “The single biggest policy problem facing the Canadian military is an inadequate supply of funding to recapitalize”. The DND capital plan has over \$55 billion in unmet capital demand and only \$11 billion to pay for it.

The previous September, the Canadian government, with the rest of its NATO allies, committed to a defence spending target of 2% of GDP. We are at 1%. This committee must now weigh that target against our future capital needs and the world security environment. It must address personnel and excessive base infrastructure if there's any hope of getting this into line. *The Economist* gave us perhaps the best warning; it's warned that with China's and Russia's actions, if a state does not stand up for international norms “it will inherit a world that is less to its liking”.

That's all I have to say. Thank you very much.

•(1120)

The Chair: Thank you very much for your testimony.

We'll start with our seven-minute questions.

Mr. Gerretsen, you have the floor.

Mr. Mark Gerretsen (Kingston and the Islands, Lib.): Thank you very much, Mr. Chair.

Thank you, gentlemen, for taking the time to speak with us. I think that you're extremely passionate, and you both left it all out there on the table; you did a very good job of that.

Mr. Hansen, in the second-last paragraph of your remarks you said that “the next major conflict is likely to be in either the far western Pacific Ocean or in the Arctic”.

Can you expand a little on that; who do you think the actors would be specifically?

Mr. Ken Hansen: As Dr. Lerhe pointed out, the People's Republic of China is the obvious problem. Their repudiation of the United Nations Convention on the Law of the Sea and its dispute resolution mechanisms has really laid bare the very blatant ambitions they have for the South China Sea, I'm afraid, and how they intend to manage their relations with neighbouring states. The difficulty they have in honouring the commitment... They signed the United Nations Convention on the Law of the Sea, they ratified it, they thereby agreed to all the processes, definitions, and dispute resolution mechanisms, and now they've simply rejected it.

Sovereign states have that right. They will always act in their own vested interests, but the problem here is that it puts them into obvious conflict with a host of states in the area and calls into question one of the fundamental processes of how our globalized economy functions and that is, sea transport of goods, materials, and services. Ninety percent of global commerce is carried by sea. That part of the world's ocean carries a very large and important part of it and a number of our traditional trading partners.

We're now thinking about going into a Trans-Pacific Partnership that does not include China. China has its own trade partnership and some of our traditional allies, the aforementioned New Zealand and Australia, find themselves in the awkward position of being in both houses. There is a lot of confusion. There's a serious problem here with a very bellicose and aggressive major power in the area and a global interest in the high value of the trade that flows through the area.

I don't take exactly the same view as Dr. Lerhe about the Arctic. The problem in the Arctic is irresponsible ship operators. We're now starting to see more transit passages, Arctic tourism, etc. It's only a matter of time before an accident takes place with perhaps a single ship-operating company pulling cargo through the High Arctic, using a ship in poor material condition and run by a collection of international crew members who are not practised in High Arctic operations. There will be an accident. We don't have the logistical capacity to take effective action in the Arctic. We don't have a proper base of operations in the High Arctic. It's not even mapped to modern standards for the use of seamen and businesses.

•(1125)

Mr. Mark Gerretsen: I'm just going to jump in quickly because I am limited on time, but you started to go towards the next part that I want to talk about, which was the Arctic specifically.

Due to the changes in the Arctic, in particular opening up new travel passages, there is more more interest globally. What does that mean for our navy, in order to maintain what we do have? Of course, that is notwithstanding the fact that both of you have made remarks to the effect that the infrastructure that we have needs to be recapitalized or reinvested in. I'm interested to hear from Mr. Lerhe as well. What does the situation in the Arctic mean in terms of what we're providing? In your opinion, do we have to be expanding on the naval program just because of the particular changes in the Arctic?

Mr. Ken Hansen: Absolutely, yes.

One of the last projects I was involved with when I was in uniform was a future look at the navy. One of the key recommendations was that every ship built in the future for the Royal Canadian Navy should have cold-weather capability. Currently, they do not. This third ocean is a national responsibility. The navy cannot ignore it and an Arctic and offshore patrol ship is a pickup truck, but it is only a pickup truck. It needs to be supplemented and integrated into a bigger fleet plan that more tightly coordinates the navy and Coast Guard activity in the High Arctic. We don't have enough resources to meet this with any one fleet. They have to be integrated much more closely and practise at working collaboratively in Canadian Arctic operations.

Mr. Mark Gerretsen: Mr. Lerhe, would you agree with that? Do you have anything to add?

Cmdre Eric Lerhe: I would agree with that. On the lighter-hearted side of this, the threat to the Arctic from major powers is China, which declares that the resources belong to everybody and they're not going to recognize EEZs. The response from Russia, China's recent best friend, was that Russia would increase naval patrols in the Arctic to defend its interests against nations such as China seeking a share of the Arctic's mineral wealth. If you are a fan of Napoleon, this would be covered by precept number three: never interrupt your enemy when he's making a big mistake.

Mr. Mark Gerretsen: It's a very political move, too.

Cmdre Eric Lerhe: What Ken has said about infrastructure is absolutely fundamental, and it's always best to cover things with a crisis potential by asking what you know about it. There's a surveillance function and a response function. Canada has certainly covered the response function well. I just heard the deputy commissioner of the Coast Guard outlining his concerns, and they are that we've just had the *Crystal Serenity* cruise ship steam through there and she was carefully prepared for the ice-free season. He's worried that now everybody will think it's really easy to charge somebody \$60,000 for a cabin and not make any preparations. So Ken's point about the safety infrastructure is also there.

However, we also need the surveillance architecture. We need the full constellation of RADARSAT. The maritime patrol aircraft, 10 in number, are not funded; there is no replacement plan, period. Our submarines, which should be outfitted with air-independent propulsion to work the ice edge, are likely going to fall off the end of the earth in the year 2036.

• (1130)

Mr. Mark Gerretsen: How prepared are we in terms of surveillance?

The Chair: I'm going to have to hold you there, Mr. Gerretsen. Maybe someone will circle back with that question.

I have to give the floor to Ms. Gallant.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): Thank you, Mr. Chairman, and my thanks to our witnesses.

First of all, I want to thank both of you for the range of your comments. They're different from anything we've heard before, and they will certainly compose part of the study. I'm afraid, though, that the study we agreed to was done under a bit of a false pretense. We had originally thought that our study of air defence as part of the defence of North America, together with our studies of the navy and the army, would all be funnelled into the defence policy review. We found out during the summertime, when the announcement was made that we were sending out 600 peacekeepers before we'd even defined the review, that the whole exercise was just one in public relations.

Commodore Lerhe, you mentioned that we should be planning now to help our allies in Europe. We have people in Iraq right now, and we're planning for a deployment in Africa. We have people in Ukraine, the Baltics, and other places the committee isn't quite sure of, because we've never had a briefing from the chief of the defence staff, even though we've asked him for a briefing since this committee was first constituted. Each time we have a deployment, it's not just the women and men on the ground, or in the air, or under the sea; it's the whole sustainment group behind them that needs to be in place. There's great concern that we're not going to have the ability to have all of these people in place, should we need to. As it turned out, the first phase of our study on air defence was covert so that we would not have an open tendering process for the replacement of our fighters.

In any case, another matter we wanted to bring into focus was the remedy and protection of our forces after the attack on a recruiting centre in March of this year. We were having a very difficult time recruiting people to the military, and they're leaving the military in quite large numbers. This builds into our ability to have the forces ready for the instances you described.

With respect to your presentation, it's very helpful. The only information we receive, other than from witnesses, is in the news. We've had no briefings on deployments—

The Chair: Do you have a question, Ms. Gallant?

Mrs. Cheryl Gallant: Yes, I do. And this is questions and comments.

Mr. James Bezan (Selkirk—Interlake—Eastman, CPC): Point of order, Mr. Chair.

Ms. Gallant has the floor. It's comments or questions. She can use that time as she sees fit.

The Chair: Thank you, Jim.

Mr. James Bezan: She shouldn't be interrupted.

The Chair: Thank you.

Mr. James Bezan: She isn't badgering the witnesses at—

The Chair: If there's a question that's relevant to what we are discussing here, we should—

Mr. James Bezan: It is relevant. It pertains to North America—

The Chair: Well, that's my decision.

You have the floor, Ms. Gallant.

Mrs. Cheryl Gallant: In terms of having the CDS come before us to let us know how spread out our forces are, I would ask for copies of communications between the CDS and the committee clerk, to determine whether or not he's being disrespectful of our committee by not coming after all this time or if he's being prevented. However, that would require a motion and we are all too familiar with the tyranny of the majority, which was mentioned earlier.

All that being said, in an ever-changing and evolving threat environment, what capabilities should the Royal Canadian Navy attempt to acquire, in the future?

•(1135)

Cmdre Eric Lerhe: I and Ken Hansen are in pretty solid agreement that we simply must solve the missing AOR problem.

There is good news on the suggestion from Op Resolve. As an interim measure, we will take a converted merchantman of some form and convert it into a temporary tanker. That is a stopgap, but the current plans on the books are as stated. There are only joint support ships. At any particular time in the future, the odds are 30% that either the Atlantic or the Pacific will not have a tanker because it's in refit. So that's almost job number one.

Job number two is if we're to replace our submarines, we have to start planning now, and that goes to that overall problem of inadequate funding for capital.

I'll probably leave to somebody else to ask the question, because I could go on at quite some considerable length on what must be done from a fore-structure point of view, from a base point of view, from a personnel point of view, of what is required to get our capital into line—unless you'd like me to do that now.

Mrs. Cheryl Gallant: I have a question for Mr. Hansen, and then maybe we can get back to that and allow you to gather your thoughts.

Mr. Hansen, you mentioned that we need an integrated fleet in the Arctic, which we just don't have. We don't have many of the pieces for other coasts, let alone what we need in the Arctic.

Would you say that perhaps our NATO allies could help form this integrated fleet that is required to protect our Arctic waters?

Mr. Ken Hansen: Yes. Certain of them have things to offer. The Arctic Five that operate in the Far North know this far better than we do. The Danes, for example, are very advanced in how they manage their resources, how they organize the logistics that sustain them. There's a lot to be learned by doing comparative studies.

Going to the other angle of it, though, is logistics, intelligence, and industrial capacity. We shouldn't focus overly on numbers of hauls and numbers of aircraft. The history of this country has shown, on many occasions, that the few ships, the few resources that we did have, most often, were left unable to operate for the lack of spare parts, trained people, and repair facilities.

It is my personal view that we should be putting a lot more money into enlarging the logistical and repair capacities on either coast. Currently, you could not operate the entire Canadian fleet out of our west coast base. I think that should be a very basic planning factor, that the inherent advantage of sea power is that it's highly mobile. In two weeks, they could all be on the west coast and ready to operate. But if you can't sustain them, they're going to sit and not do anything.

So, logistics, logistics, logistics is the key, because it gives you what's called force multiplication.

The Chair: Mr. Garrison, you have the floor.

Mr. Randall Garrison (Esquimalt—Saanich—Sooke, NDP): Thank you, Mr. Chair.

Thank you to both our witnesses for their service, but especially for your testimony today.

I want to start by talking a little bit about submarines, again. I guess my question will go, first, to Mr. Hansen. I want to make sure we don't misunderstand his testimony. When he says that the fleet is too narrowly focused on anti-submarine warfare, I'm hoping people won't conclude that means we don't need a submarine capacity ourselves, and I'd like you to expand a bit more on that.

Mr. Ken Hansen: I am happy to do that. This is a very important issue.

In the Second World War we were involved in a struggle principally against a submarine threat. We did not have submarines or submariners of our own to train with and prepare us for that type of struggle, and we lost 24 ships before we sank the first enemy submarine. That's an exchange rate we could not sustain today, so submarines are a vitally important aspect of a fleet that is designed principally and foremost to be competent in anti-submarine warfare. They are vitally important if, for no other reason, than as a training asset.

Now, the big question is, can surface ships actually compete effectively against submarines? Our own submarines were in a big exercise on the west coast, performed incredibly well, and in another one on the east coast. You should ask the chief of the defence staff about what those exercises showed because those two submarines raised hell.

•(1140)

Mr. Randall Garrison: Mr. Lerhe, I would ask you [*Technical difficulty—Editor*] especially in the Pacific?

Cmdre Eric Lerhe: The rising number of submarines in the Pacific should cause great concern. I am continually amazed in Canada—I've been watching your testimony and your responses—and it's very pleasant because several years ago we'd have nothing but people wanting to get rid of submarines.

I always bring up the case of Singapore. Singapore, with a coastline no longer than that of municipal Toronto, has four submarines, and so does Canada. Something doesn't quite add up here.

What Ken has said is quite correct. In no way can a surface fleet replace a submarine because it will lose, and I think a 24:1 exchange rate is probably not wrong. A surface ship cannot compete against a submarine, primarily because the medium they find and launch weapons with is sonar, and a surface ship is 100 times noisier than a submarine.

People ask, "How noisy is a submarine?" The best response I've heard is "How noisy is your flashlight?" The fact is, they will always find you at three times the distance at which your surface ship finds them. When you launch a torpedo you will launch one with a 120-pound warhead, and they will launch a 21-inch Mark 48 torpedo with about an 800-pound warhead.

Missiles, like harpoons, damage ships. Heavy-weight torpedoes from submarines always sink them.

I think that's about it.

Mr. Randall Garrison: Great. Thanks very much.

As a member of Parliament who represents a riding that has submarine capacity and refit capacity, I've been a strong supporter of that capacity, and I think it's good that we have those discussions in public so people understand that importance. I think Canadians aren't aware of the great growth of submarine forces in the Pacific.

I want to go back now to Mr. Hansen. You said that a major step toward improving readiness would be to make humanitarian assistance and disaster relief official missions of the Canadian navy. I think that's very interesting because many people have argued that Canada is a nation with a reputation of helping internationally. Humanitarian assistance is something we do simply as part of our duties to be a good citizen. But you've connected this to readiness, and I think that's an important point that I'd like you to expand on a bit more.

Mr. Ken Hansen: Yes, thank you. I'd be happy to do that.

The humanitarian assistance and readiness missions, which we've been involved in, in the past, resonate very strongly not only with the Canadian public, but with Canadian naval service people. When they were off the coast of Haiti, many said that they didn't want to come back and that it was the most satisfying, rewarding work they had done in their entire careers.

It resonates, it's important, and it aligns with Canadian societal values and ideals.

What it does for the military is get it ready to do large-volume, logistically demanding missions at short notice. This is a tough task. To do the planning, the scenario development, and the concept development work to identify the skills, the volume metrics, the restrictions on the system as it exists, and to plan for improvement, I think is a vitally important part of getting ready for the types of problems that the future security environment studies identified.

We are already seeing mass human migration problems. We know that cyclonic storms are increasing in frequency and intensity, and that there are fragile states out there that will look to us for assistance.

That doesn't mean the logistical capacity that you would develop for such undertakings is competitive with combat capability. This is

the argument that goes against it most frequently. In fact, if you do the modelling and scenario testing, logistical deficiency is the biggest problem the Canadian military has, and to start building that kind of capacity makes it valuable in any number of scenarios that you can possibly imagine—high Arctic, far Pacific, Eastern Europe, it's all vitally important.

Cmdre Eric Lerhe: If I could, I would just qualify that. As I mentioned, David Perry said the biggest problem we have is in capital, with a \$50-billion demand and \$11 billion available. It's the work of this committee to weigh the threats. Is it major state war or is it global warming? Which is going to grab attention?

Yes, an HADR ship would provide tremendous backup logistical support, but to buy new? It's \$5 billion for two, because what's the point of buying something for one coast that's not on another?

Two, everything you buy, every ship you buy, two for \$5 billion, will eat twice that much in personnel, operations, and maintenance over the next 20 years. You've just created a \$15-billion demand. There are ways of doing it. There are proposals that are going to be coming for leased ships, for civilian-manned ships. They should be looked at by all means, but it's the recommendations of this committee to government that will tell the navy where it should be put its emphasis.

● (1145)

The Chair: Thank you for that.

I'm going to move the floor over to Mrs. Romanado.

Mrs. Sherry Romanado (Longueuil—Charles-LeMoine, Lib.): Thank you very much, Mr. Chair, and I'd like to thank our witnesses today for, first, their service to Canada and of course for being here today with your expert testimony.

As you know, we've been tasked to study the defence of North America and we are taking a holistic approach. We did the first phase in which we looked at aerial readiness, and the next phase, of course, is naval, and the third phase will be our ground support. We visited NORAD back in April of this year and what we discussed there was the fact that our maritime awareness is currently in the agreement that we have with NORAD, but the control component is not.

Given the fact that we're going to be looking at our relationships, and commitments, and so on, what are your thoughts on expanding that mandate to include the control component rather than just the warning component or surveillance? Could you elaborate on your thoughts on that, please.

Cmdre Eric Lerhe: Regrettably, you've highlighted precisely the problem when maritime surveillance was moved to NORAD. I think the case was over-stressed to no good effect by certain members in the Canadian navy and elsewhere who said, surveillance is fine, but the movement of Canadian ships for sovereignty purposes, Coast Guard vessels, and fisheries enforcement is too clearly a national responsibility for us to share with the Americans.

That might have been appropriate 20 years ago as a decision. I'm increasingly concerned that with the state of potential for conflict up there, and the need for perhaps a massive response to a huge oil spill, we're going to need far better coordination on that control function with the Americans. There certainly have been hints from them on the possibility of dividing...of doing NORAD regions in the north.

The Americans, based in Alaska, would be the coordinator of the western region of the north for both response and control; and Canada the eastern half. It's a great proposal that at least deserves mature study.

Mrs. Sherry Romanado: Superintendent Hansen, do you want to comment on that as well or I'll go to my next question.

Mr. Ken Hansen: No, I just want to support Dr. Lerhe and say that the control issue is a very defined term in a military context, but don't get hung up on it. The responsibility for the actions of that unit, whether it's a ship or an aircraft, always lies with the commander and that commander will always have direct contact with his national command and control authority.

If there's ever a question, it reverts to the national authority and the only problem would be in a short-fused, short-reaction time scenario, and again, it reverts to the commander on the scene to make the decision. These are constructs that we put in place for planning purposes. It helps to sort out and organize who does what to whom and who makes what day-to-day decisions, but in the crisis scenario, the commander always has the final control authority.

Mrs. Sherry Romanado: Further to my colleague, Mark Gerretsen's, comments, in addition to our surveillance issues that we have, the north warning system is set to expire in 2025, which will impact many branches of the military, in fact, all three. Given the fact that we have major investments that are required in terms of capital and in terms of human resources, what are your thoughts in terms of RADARSAT and the north warning system, on their importance, and where should we be focusing?

We have a lot of priorities on our plate right now and many demands and we do not want to make decisions on capital investment at the peril of other branches of the military. We were given that advice when we were at NORAD. I'd like to get your opinions in terms of where we start.

• (1150)

Cmdre Eric Lerhe: In my view, this screams out for expert opinion and it's not me, but I'll provide you my two cents' worth.

For RADARSAT, currently what is needed is at least three satellites and I believe there are plans for only one, or perhaps two. RADARSAT does a great job of tracking ships. I'm almost 99% sure it does nothing about the air-launched or submarine-launched cruise missile threat, *ergo* you need some kind of enhanced northern

warning system direct-line-of-sight radars. It's going to end up to be a balance of the two, but that's the limit of my competence.

Mrs. Sherry Romanado: Okay, thank you.

Professor Hansen.

Mr. Ken Hansen: I agree with Dr. Lerhe. What you do depends entirely on your future vision. For the sake of safe navigation, responsible resource management, and those sorts of things, RADARSAT is very well suited. If you get into a high-level conflict scenario, those surveillance resources are vulnerable to counter-measures and can be neutralized or even destroyed without too much difficulty. So what you see developing in the future and what is the need that has to be met must be very carefully considered when you go forward. Perhaps it would be a phased plan to deal with the routine administrative, safety, and law enforcement issues first, and then threat and sovereignty issues later, but it depends entirely on how you see the threat.

Mrs. Sherry Romanado: Given our current NORAD and NATO commitments, commitments that are coming down the pipe, and requests for support, we've heard from some witnesses that we are ready, but in your expert opinion are we ready?

Mr. Ken Hansen: In a naval context, no, we are not.

Mrs. Sherry Romanado: Thank you.

Cmdre Eric Lerhe: Certainly with regard to NATO, for all those reasons, we've in fact promised forces to NATO and they know that in addition to the 2% of GDP, even if we spend less, we must devote 20% of our budget to capital. We're devoting 12%. That follows on to what we promised NATO. They know that our maritime patrol aircraft and our submarines fall off the map some time in the next 10 years. That is a failure to meet a NATO commitment.

Mrs. Sherry Romanado: Thanks very much.

The Chair: I'm going to move over to Mr. Spengemann. You have the floor for five minutes.

Mr. Sven Spengemann (Mississauga—Lakeshore, Lib.): Thank you, Mr. Chair.

Commander Hansen and Commodore Lerhe, thank you both for your service to our nation, but equally important, thank you for your service through the policy world, which is very important especially at this juncture.

Commander Hansen, I want to take you back to portions of your testimony. With the Matthew Gillis study, you're saying the navy is simply too small for a country our size. He did some research and he said it's actually about half too small. Is that strictly for domestic defence purposes, or does that include the overseas roles that Commodore Lerhe has served in, in 2002-03?

Mr. Ken Hansen: No, it's for all of the purposes of the navy. We did first a global survey to get some general benchmarks. Then we compared the Canadian navy with other navies, NATO and non-NATO, that categorized themselves accordingly to what we at the time viewed ourselves, and we came up with these indices that showed a significant deficiency in personnel numbers, hull numbers, maintenance and engineering facilities, and so on.

Mr. Sven Spengemann: That's helpful. Thank you.

The second thing I want to point to is what the second-last paragraph in your written testimony talks about. You said, "the next major conflict is likely to be in either the far western Pacific Ocean or in the Arctic." I wonder if you could clarify for the committee the comments on the Arctic.

I don't think we've heard from other witnesses the likelihood of a major conflict in the Arctic. In fact, we had testimony just at our last session that suggested, because of the current conditions in the Arctic, if somebody were to go up there in a naval setting to cause tension, that would be very difficult simply because of speeds and the ice, and their detection would be fairly easy and interdiction would also be easy, either airborne or maritime. I wonder if you could take the committee to your thinking on the possibility of a major conflict in the Arctic.

• (1155)

Mr. Ken Hansen: If something does develop in the Arctic, Canada's response is going to be primarily maritime. It's what we would call a maritime theatre of operations. That's because it's dominated by the water or ice, depending on the conditions, and the lack of logistical facilities to sustain and support operations. That means the navy and the Coast Guard must support whatever undertaking is under way by rangers, army expeditionary units, etc. The navy will play a huge supporting role in the far northern Arctic. Simply put, at the moment they have no capacity, and once the Arctic and offshore patrol ships are online, they will have very limited capacity.

A major conflict—if you talk to people who've done the kind of work I have at Canadian Forces College doing modelling and scenario testing—calls forth a demand primarily for enormous amounts of logistics, *matériel*, human support, movement, and return of people and goods back to the point of origin. The lines of communication from points of support to the High Arctic are further than they are across the Atlantic, and as far as from Victoria to Japan. So the demand—

Mr. Sven Spengemann: Commander, perhaps I could interrupt you there. What I was getting at was more in the context of theories of conflict. What would be the nature of a major conflict in the Arctic and what time horizon would you cast on that? What things would people fight over to the effect that it wouldn't be just a single vessel, but a major conflict in the Arctic?

Mr. Ken Hansen: The right of passage is one thing, the freedom of navigation. The Canadian government's position is that these are internal waters, and there are others who hold that they are international straits and they have the right to go through there at any time and at points of their choosing. That could provoke conflict.

Of course, the resource issue you've heard and know about. Then there's the sovereignty claim: Is it national territory or is it not? Wars have been fought over far less than this.

Mr. Sven Spengemann: Thank you.

Commodore Lerhe, I wonder if I can take you back to your testimony about what you really described as a very significant erosion of our capacity to do overseas operations of the nature that we saw in 2002-03.

We had testimony at our last session from Vice-Admiral (Retired) Drew Robertson who said there are multiple capability gaps. What do we need to do to make sure that not only do we take our domestic security seriously but that we can continue to do the sort of work you describe? Maybe you could take us back to the 20% capital versus 12% and our commitments to NATO in a bit more detail.

Cmdre Eric Lerhe: Certainly. One of the great Canadian defence economists is Bill Tredennick and he theorized—and this, I would argue, should almost be the central work of this committee. In 1994, this committee had incredible influence on defence policy because it got into the finances, and was credible with its recommendations because they were based on strong financial work. But here's where we're at.

Tredennick says that when your percentage of defence budget reaches 12%, you are in "crisis". You must get to 20% to maintain what you have. You must get to 25% of capital to buy new things, like humanitarian and disaster relief vessels. How do you get there?

I think two years ago, ex-chief of the defence staff Hillier proposed that we must go from 66,000 to 50,000 people. Guess what? By dropping your personnel by, let's say, 10%, you almost double the ability with which you equip your people with quality kit. It's that's simple. I just cringe when I hear defence policy setting the personnel level before it does the calculations of what effect this has on capital.

I'll return to Dave Perry. The number one policy problem in Canadian defence is under-availability of capital. I think I've said enough.

• (1200)

The Chair: That's your time.

I'm going to move the floor over to Mr. Nater.

You have the floor.

Mr. John Nater (Perth—Wellington, CPC): Thank you, Mr. Chair.

Thank you to both of our witnesses today. There's been some interesting testimony.

I want to start with you, Dr. Lerhe, and something you raised toward the end of your presentation. You raised the idea that any significant deployment should go to Parliament for debate, for approval, and with that should come the cost of the deployment, the funding source of that deployment. Would you mind elaborating a little bit on why you see parliamentary debate and approval as being essential to deployment?

Cmdre Eric Lerhe: I was very clear in saying “parliamentary debate”. I did not intend, or state, that Parliament approves.

Within every parliamentary-based system, foreign policy and the deployment of troops is the exclusive purview of the executive branch, but how can we send Canadians to potential danger areas if they do not at least see their Parliament has discussed it and endorsed it, that there's broad public support?

Clearly, Britain has recently gone one step beyond that. They passed approval. I think there are a great number of questions to be asked about that point.

The final issue is...and both parties here do not have a glorious reputation with regard to the funding of deployments. In 2007, the declared incremental costs were \$1 billion, but the Conservatives only provided \$270 million to the department, meaning that had to be eaten by the department. Now, \$1 billion was not even correct. The PBO said it was \$1.9 billion. Still, they only got about \$270 million.

The Liberals, prior to that, had a significantly better rate. This fluctuates. The bottom line is, return to David Perry. When your \$50 billion in capital demand for what you have...this is not new stuff, this is what you have, and you've only got \$10 billion, you need to start plugging these leaks of money by signing on to deployments and not paying for them.

Mr. John Nater: I would push you a little on the convention that's been developing in Canada on the concept of parliamentary debate and approval. We can probably talk about that another time, because I do want to go on to a few other topics.

I want to follow up on your comment using the example of the full task group you commanded in the early 2000s. You used the example today of the potential of sending perhaps two frigates, that it would take longer, and we would need additional capabilities from elsewhere.

Would you briefly walk us through the process to engage those additional capabilities, the timing that would take, the process that would take, and any of the additional costs it would take to engage those additional capabilities to send those two frigates?

Cmdre Eric Lerhe: Yes. There was a decision to sail post-9/11. Eight days later, four ships left with five helicopters, shortly followed by the MPA .

It was a matter of rapidity, and Ken has outlined it, getting all their maintenance up to 100% standard, supplying the spare parts, getting everybody new gas masks, and still they were able to get out the door in eight days.

You don't have a tanker. It now becomes an incredibly painful and extended process. Lend me a tanker, you declare to your NATO allies, who all reply they don't have enough tankers themselves. We beg on our hands and knees. We get a tanker for an intermittent period. They say we're going to a war zone. What about our rules of engagement? Foreign Affairs from both countries must be brought in. They go to meetings. This is going to eat up at least another week and potentially two or three, and you still haven't got the tanker there. It has to come maybe from Spain or Chile and meet with our task force wherever it's going.

Finally, you say to a nation they must lend us an anti-air warfare destroyer. And they look at you as if you were coming from another planet, because who would assign long-range missiles to Canada that it doesn't nationally control with its own rules of engagement?

I am sure somebody would get an anti-air warfare destroyer close to you to protect you if you needed it, but you can forget any real sense of control over it from a national point of view.

● (1205)

Mr. John Nater: I want to carry on a little now about interoperability, the concept of shared defence of North America.

What types of interoperability would you recommend when we're looking at, whether it's the Arctic or maritime defence?

Cmdre Eric Lerhe: Canada in almost all areas has interoperability with the United States, which traditionally leads all coalitions. Anyway, it sets an extremely high bar because the Americans aren't going to cumber themselves with data links of a slow nature just because you couldn't afford a high-speed one. They will go to high speed, and Canada has traditionally always put its money where its mouth is and bought the best to remain interoperable with the Americans.

At the same time, Canada has also spent the money to maintain a certain number of backward links to NATO countries that necessarily did not go to the higher bar. So we're forward and backward interoperable. We really are one of the best in that function.

It must happen in all areas—land, sea, and air—because when it doesn't happen the results are appalling. Most famously, during the landings in Sicily in 1944, where the naval ships landing Canadian, American, and British troops saw an air raid coming in, there was inadequate processing of the information. Different headquarters had organized this, and the ships opened fire on 20 American air transports carrying American paratroopers and brought them down and killed them. These errors can still happen, *ergo* the high price we put on interoperability.

The Chair: And that's your time.

I'm going to give the floor over to Mr. Rioux.

[*Translation*]

Mr. Jean Rioux (Saint-Jean, Lib.): Thank you, Mr. Chair.

I'd like to thank our guests for their testimonies and for the very useful information they shared with us.

I will continue sort of along the same lines as my colleague Mr. Spengemann, who spoke about figures.

We know that the military needs reinvestment. I think everyone here agrees with that. Its budget is currently \$18.6 billion, which is about 8% of the country's budget and 1% of our GDP. We know that NATO would like the NATO member countries to invest 2% of their GDP. Even Mr. Obama asked us for that last summer.

We know that what is desirable and what is feasible are two different things. I am used to be an economics teacher. It is often said that needs are unlimited, but that resources are limited. What might be thinkable and doable in the Canadian context?

Increases that can be decreed are thinkable. A little earlier, you spoke about a proportion of 20%. This percentage would mean that instead of a budget of \$18.6 billion, it would increase to about \$42 billion. I don't think Canada is capable of that.

With respect to what is doable, what projections would you give us?

[English]

Cmdre Eric Lerhe: I find Australia always provides a good comparison. Basically, \$500 of Canadians' taxes per year goes to defence. In Australia it's about \$1,000. It's our job to explain to Canadians why they must go from \$500 to \$1,000.

Australia, it is often claimed, must spend that money because they're far closer to the dangers of the Pacific. This is nonsense.

Not Darwin, but a town south of there—it escapes my mind—is 4,050 kilometres from Beijing. Vancouver, our biggest city close to there, is 4,500 kilometres from Beijing, a difference in distance from about here to Sudbury. The bottom line is we're a Pacific nation and all of the indications...our immigration is immensely Pacific bound. We are becoming a Pacific nation. Yet Australia is able to devote 2% of GDP and has a force that will soon involve 12 submarines; two supply ships; two HADR ships; three anti-air warfare destroyers, very much the modern equivalence of the destroyers that we just got rid of; and frigates. They are buying F-35s and they will probably be buying the VTOL, the vertical takeoff and landing version, for their amphibious carriers.

They have been able to explain to their people why they need to get to that 2% and it's not just based on proximity to the threat.

I think I'll be quiet there, but if you probe me on how you sell your people on more defence I can probably respond to that, too.

• (1210)

[Translation]

Mr. Jean Rioux: So you are maintaining your recommendation of investing at least 2% of our GDP, is that correct?

Cmdre Eric Lerhe: Yes.

Mr. Jean Rioux: That is clear. Thank you.

How much time do I have left, Mr. Chair?

[English]

The Chair: You have about 60 seconds, but we've got time if you need to go a bit over.

[Translation]

Mr. Jean Rioux: Right.

Mr. Hansen, you spoke about the Arctic, and I found you very pessimistic. Yet, we announced investments for six Arctic patrol boats and new bases that will open in 2018. We spoke earlier about radar and satellites. We are also aware of the importance of the CF-18 surveillance missions.

Should Canadians be concerned, despite all these investments that we currently have in the Arctic?

[English]

Mr. Ken Hansen: I think the answer to that question is yes, unequivocally yes.

The distances to the High Arctic from our principal naval bases and Coast Guard bases, and the lack of facilities in the High Arctic to support and sustain operations are serious material deficiencies that would cripple any kind of Canadian response to an emergency. This could be a simple safety of life at sea issue, all the way up to law enforcement or to open conflict with a competitor nation, so I absolutely believe that the Arctic needs to have a much higher profile because of the logistical component.

This is an important issue with the United States as well. The Americans are also looking at how their very outdated and limited capacities are going to be augmented. When it comes to interoperability, this is an area of specific interest for the United States and they are looking to Canada for help and assistance in dealing with the future in the Arctic.

The Chair: Thank you for that.

Mr. Bezan, you have the floor.

Mr. James Bezan: Thank you, Mr. Chair.

I want to thank both our witnesses for being here, for your great advice and testimony today and for your service to Canada.

It's a very interesting conversation that we've had so far about the threat environment that we're in. I think this is critical to determining the type of navy that we need. We fully appreciate the shortfalls that we have right now in the Royal Canadian Navy. How do both of you feel about the navies of our NATO allies? I know they've gone through difficulties similar to those Canada faces and are now trying to reposition themselves with the growing threat from Russia and China. I would ask both of you if you could speak to that.

As well, you raised the interesting idea that we need to have that anti-missile air protection that the destroyer capability brings. It was interesting to see the Houthi firing upon U.S. warships, and the ability of the U.S. to bring down those missiles before they got to U.S. positions. If you could also speak to the fact that it's not just state actors we have to be concerned about now, it's also the non-state actors.

I'll start off with Professor Lerhe and then Professor Hansen could add on.

•(1215)

Cmdre Eric Lerhe: The Houthi one is a great example. I think caution is needed here as the U.S. is still trying to put together the picture.

What the *Mason* had to do to ensure they were defeated was fire. Medium-range cease barrel missiles, long-range standard missiles, and a spectacularly expensive Nulka deceptive jammer... This is high level. It doesn't get any more sophisticated a response than that. As you say, it's against somebody, a rebel force in Yemen, not one of the leading lights of naval capability, that was able to fire this from the back of a truck.

Let's go look at some of our NATO allies, and what they are doing. Britain is probably going to hit the 2% target, but the way she got there is absolutely terrifying. Several years ago, she looked at the threat and said, "We don't need maritime patrol aircraft anymore" and they got rid of their Nimrods. Then the Russians started coming right up to their submarine base in Faslane, and guess what the U.K. is doing today? It's making a rush buy of P-8 Poseidon aircraft, the most expensive in the world today, and I'm sure they are paying panic prices for the lot.

You then see a drop-off in defence spending percentages the further from Russia you are, certainly in naval capabilities, with quite limited capabilities for all except France. Others are staying closer to home. The bottom line is, there's a real need to reassure places like Poland and the Baltics that the U.S. will be there, and that she's going to have some high-capacity help from us.

I'll turn it over to Ken Hansen.

Mr. Ken Hansen: I agree with practically everything Professor Lerhe said, but you asked about NATO navies, and I think they are busy bankrupting themselves at the moment.

One of the philosophies of modern naval force organization and structure is looking for a uniformity of capability across the structure. We see that in Canada with the frigates and the future warship that would be built at Irving. We're looking for a uniformly high level of capability, as high as we can possibly afford. The problem is, the costs for new technologies as we see them today is very high. The cost for technologies that are coming is going to be breathtakingly high.

We're talking about things now like charged particle laser weapons, robotic drone swarms, and anti-ballistic missile defence systems. The cost of these things is so prohibitively high that they cannot be afforded as a common standard of capability. There has to be a lot more discrimination about how much we need and where it needs to be.

The Danes are very smart when it comes to modularity, using best commercial practices and standards for engineering. They are able to cut costs quite significantly below that of any other NATO country, so I highly recommend the committee look at Danish shipbuilding and design practices, especially when it comes to those two issues of cost and flexibility achieved through modularity. I believe this is the future in warship construction. In fact it could get to the point of what a warship actually is if you can load capability in and out of a common frame.

Eric made some very important comments about the lethality of weapon systems. If weapon systems are that dangerous, and I truly believe they are, then we have to find a better way to manage the risk and be able to produce, at short notice, replacement platforms in which to put these modules. The modules are what's expensive and what is valuable. The hull of the ship itself is not.

•(1220)

The Chair: Mr. Fisher, you have the floor.

Mr. Darren Fisher (Dartmouth—Cole Harbour, Lib.): Thank you very much, gentlemen, for being here. The amount of expertise you have shared with us today is truly incredible. I wish I had more time.

Both of you spoke at length about inadequate capital funding. In fact, it could probably be the central theme to many of your points.

From a force structure point of view, what type of equipment, infrastructure, and other capabilities would the RCN need today for future threats to Canada and the maritime domain? I guess I'm simplifying things. What would you have as a grocery list right now? If you had the capital funding, what would you start with short term, medium term, and long term? I would be interested, as well, in Mr. Hansen's point of view on this, to see how closely they compare.

Don't you have a grocery list for us?

Cmdre Eric Lerhe: The grocery list, for me, is that we need two joint support ships in whatever guise is reasonable. We need two HADR ships, as long as they have significant refuelling capacity to spell the JSS, the joint support ship, when it's in refit. It becomes a far more useful vessel if it has that kind of refuelling capability.

Admittedly, the national shipbuilding procurement strategy must live within its means, but we must look, probably in two years, when the final bill comes through for the Canadian surface combatant project, to make sure that we get something in the range of 15 ships, i.e., replacing basically what we have from an era where, I would argue, the threat was less than it is today.

Next, we currently have four submarines. One's in refit, one is in training, and one is available on each coast, maybe. This is so close to the bare bones that it would take only one small hiccup and a coast is left without a submarine. The bare minimum is six. You just have to ask how Australia figures they need 12.

Then, if you buy an HADR ship—and people always forget that it might cost \$2.5 billion for each ship—what you also need is another billion dollars' worth of troop-carrying or load-carrying helos, at minimum, probably, of 10 per ship, and you need about half a million dollars' worth of hovercrafts for them. On the shopping list, then, is that each comes with a crew of 500, and an annual O and M bill of about \$500 million for the two of them, i.e., operations and maintenance, gas, spare parts, and the like.

Finally, in my perfect world we would be deploying submarines to the Pacific from time to time. In fact, that would be a great way to be reassuring some allies if we can't get ships there, if we don't have a sufficient number of ships. In that case, perhaps, one of these HADRs also serving as a submarine tender would make sense.

Mr. Darren Fisher: So we don't need much, is what you're saying. Okay.

Cmdre Eric Lerhe: Oh, sorry, we haven't got to the MPAs.

Don't forget, we're building 16 Coast Guard vessels. There are currently 46 large vessels in their fleet. They are old. We are satisfying less than half the demand of what the Coast Guard requires. We have 10 MPAs. We originally bought 18, and we should have 18 maritime patrol aircraft.

Over to Ken.

Mr. Ken Hansen: The short term, for me, is one to two years. In that timeframe we should be looking to fill up the inventory of spare parts, supplies, ammunition, and information systems, so that what we have can be operated reliably and sustainably.

In the medium term, we should be looking at the logistical facilities we need to move the fleet wherever it's required, and be able to support it through the fleet maintenance facilities on either coast.

In the long term, we should be looking at the fleet balance. I recommend a fifty-fifty split between combat capability and logistical support capability because, if it's going to come to a shooting war, it's going to be at long range from those aforementioned bases of supply. For combat platforms, the submarine is the weapon system of the future. I don't believe that surface ships of the type that we can build and can afford will be able to survive in a high-threat environment. We need, as the Australians have done, to shift our focus over to the submarine fleet and use the surface fleet more or less in a support role.

•(1225)

The Chair: Thank you for that.

I'm going to give the floor to Mr. Garrison.

Mr. Randall Garrison: Thanks very much, Mr. Chair.

We've been speaking at a very high strategic level, and I want to take us some place that may seem quite small in comparison.

We've just seen that the government has decided to decommission and perhaps divest the Canadian Forces auxiliary vessel *Quest*. The Canadian navy will no longer have its own research vessel to do acoustic and sonar research. I see this as a general decline in the capabilities of the navy.

I would like an opinion from each of you on whether the capacities to do this kind of research are central to the navy and how we can survive if we don't have our own research ship.

I'll start with Professor Lerhe.

Cmdre Eric Lerhe: That is but the tip of the iceberg of the problem. Our capital figures, which I have already outlined, are at a crisis level in the view of the experts. Our research and development funding about three years ago—and it's been downward ever since—was 1.4% of our total budget. The U.S. R and D budget is 26% of their budget.

We ask ourselves, how come we don't have modern kit? Quite candidly, at 1.4%, the minimum you can do is attempt to be a smart customer. You're not developing anything. You're just able to shop a bit smarter than your neighbour, and even that's in question at that level.

Quest is just a signal of a far wider problem in research and development in Canada.

Mr. Randall Garrison: Thank you.

Mr. Hansen.

Mr. Ken Hansen: One of the lesser known sideline capabilities of the Arctic and offshore patrol ships will be to host containerized research laboratories and all sorts of other facilities on board. The research community here in Halifax is quite excited about this prospect. *Quest*, of course, was unable to go into ice water, and so that'll be a new ability. They're not as quiet as *Quest* was. *Quest* was designed to do Cold War acoustics research, but I think we have higher priority needs at the moment.

I'm very worried about research and development, as well, but also about education, modelling, and simulation. The navy does not have its own education program. It does not have its doctrine development and warfare analysis skills. The program that I used to chair at the college in Toronto is gone. The defence fellowship at Dalhousie University is now shut down. There's really no place the navy goes anymore to give its people the professional acumen they need at their mid-career point. I think this is just as big a problem as science R and D issues that are related to technical issues.

Mr. Randall Garrison: Go ahead.

Cmdre Eric Lerhe: One qualifier I have—and I hope you'll be briefed on it, or ask to be briefed on it—is that Canada is basing a lot of the statement of requirements for its new ships on a superb modelling capability at the Maritime Warfare Centre in Halifax, where we do top-level work. It explains in arithmetic detail why you need a missile that goes so far against a threat. We do have a very strong capability there.

I'll also echo Ken's thoughts.

I hope you hear more on this, but four years ago, we killed the security and defence forum. This was a program that ran at about \$2 million a year, it was run by DND, and it passed to 10 selected universities, which had to bid on this program. They each got about \$200,000, but they had to say they were going to put at least x professors at work on defence issues, they were going to train at least 10 post-graduate students, they were going to have four conferences, and they were going to produce 20 books. This program was running for about 25 years. The auditor general examined it in spectacular detail, twice. It was discovered to be one of the best values for money in a department, and we killed it. Now, if there's a little lingering event and you put up your hand, then they'll throw you some popcorn money for your next conference.

David Perry was paid by them. He is the most prominent and knowledgeable defence critic in Canada. There was also David McDonough. One half of the policy analysts in DND all came out of the security and defence forum training.

What are you going to get? Very soon you're going to have people commenting on defence issues who, quite candidly, aren't fit to take out your garbage, because they don't know anything and they're not trained. Return the SDF.

• (1230)

The Chair: Thank you for that.

We're done our formal questioning. Mr. Spengemann, you had a question. Ms. Romanado said she had one, too. So if you could split your time, we'll move to Mr. Bezan and then we'll go back to Mr. Garrison.

Mr. Sven Spengemann: Thank you, Mr. Chair.

I wanted to take you up on your invitation to Commodore Lerhe to comment a little bit on the Canadian public. I wanted to ask about public understanding of the navy, its complexities, the capability gaps we heard about, which I'm assuming are relatively small, as well as the importance of elevating Canadian understanding and supporting a decision to do more. I'll leave it as general as that.

Please give us your comments. Commander Hansen, we would like to hear from you as well. In the last session, we had witnesses from the Navy League and the Naval Association, each of which has a public outreach mandate, but I don't think we were able to explore that question in as much depth as we would have liked. So if you give us your views, that would be greatly appreciated.

Cmdr Eric Lerhe: I had a three-level answer to that question in mind, all in rising cost. The first level is this committee. I left you a copy of my MA thesis on the role of the defence committee in 1994 in shaping defence policy. Most analysis will credit that as being the gold standard in defence reviews. Why was that? It was that for several reasons.

The Minister of National Defence and Prime Minister Chrétien said they would seriously listen to this committee's report, and they studiously kept quiet on defence issues for the seven months it was running, so they didn't lead the committee. That's point one.

Point two, it was a virtually unanimous response. The Liberals and the Reform signed off on the report. The NDP I don't think had party status at the time, and the Bloc was onside. Suddenly, out of Quebec

City came this direction to dissent. People just knew they were forced into a corner. But that provided a very powerful role to the minister to say, when they started to make serious cuts in 1994, that they had consulted with Canadians and were listening to Parliament. These were painful cuts, but even defence didn't howl, because it was part of an honest process.

The next point about the committee is that they didn't go on a shopping trip or a cutting trip. Instead, they did analysis. They had serious discussions, and when they talked money, they were credible. When they talked about buying this or getting rid of that, it was based on strong logic.

Finally, there was a serious follow-up, because what this had created was a panel of parliamentarians who could go back to their constituents and talk credibly, using what they'd learned, to the public about why defence is needed and the like. This was a superb model. I was delighted that this committee and the Senate committee decided to return to their jobs in doing the defence review as the special panel did. You don't want to ask me my views on the special panel.

The next thing is to spend \$2 million a year on the STF program, about which I will not run on any more.

The third thing is, how does Australia explain to its public it's going to spend \$30 billion on 12 submarines when the previous \$6 billion were a—can I use the word “disaster”?—as a procurement. They spent probably \$2 million on the Australian Strategic Policy Institute, and the navy needed its Sea Power Centre. These are non-partisan, staffed by six or seven Ph.D. candidates who don't trot out the government line but do analysis. For example, if you want a detailed look at whether your country should build destroyers or not, you cannot do better than to look at the ASPI study. They have experts who say this is madness and experts who say this is the most brilliant program in history. However, there's a debate.

More importantly, what happens is their media responds, because they know that if a reporter makes an ill-considered comment on defence the odds are extremely good that one of 12 incredibly competent defence academics is going to rip his heart out. What does that result in? Before reporters open their mouths on a complex topic like shipbuilding, they check in with the Australian Strategic Policy Institute to ask whether they are on to something or not.

Those are my bullets for engaging and explaining to Canadians.

•(1235)

Mr. Sven Spengemann: Thank you.

The Chair: That took the whole five minutes, but it was good, so thank you for that.

I'll circle back with you, Ms. Romanado, if we have the time.

Mr. Bezan, you have the floor.

Mr. James Bezan: Thank you, Mr. Chair.

Professor Lerhe, I agree with you 100% that we need to re-establish our academic capabilities on defence policy and military operations, so I appreciate those comments.

I want to talk about the submarines. You look at the shipbuilding capacity that is now greatly increased in Canada because of the national shipbuilding strategy. To do the things that both you and Professor Hansen were talking about today and making sure we hit the 15 surface combatants and we have submarines in the future, which I agree wholeheartedly with, do we have the capabilities within the current construct of shipbuilding in Canada to do it? Or do we need to outsource it?

Cmdre Eric Lerhe: That's an incredibly complex question requiring expertise beyond my skills.

However, I have visited HDW, Howaldtswerke Deutsche Werft, a submarine builder next door to ThyssenKrupp, the other builder and exporter. It is incredibly proud to say its assembly line is lean, and it exports submarines or it will export its assembly line so people can build them themselves.

You look at the French, who often... With India, it's a "we build one, you build one" sort of thing. I think the argument is that, yes, it's capable of being done; and I've heard equally expert opinions say we shouldn't go down that route at all, be it because of cost or technology. So this really requires detailed research. My personal view is yes, we can.

Mr. James Bezan: What do you think, Professor Hansen?

Mr. Ken Hansen: Yeah, we are getting into areas here of industrial policy, what we see as the vision for the future of the industrial base.

I think for surface ship construction, there's no difficulty here. We are quite capable of exploiting the capabilities we currently have, those that we're importing from other countries at Irving Shipyard and Seaspan, and taking it much further because the policy is based on the strategy of continuous building of ships. The minute that's gone [*Technical difficulty—Editor*] will collapse just as it has done in the past and we will lose the gains that we make. That's to be avoided at all costs.

Submarine construction is difficult because of the numbers we currently have and could possibly envision. Even if we went to eight submarines, doubling the size of the submarine fleet, it's unlikely that we could sustain a steady, continuous building program at a single shipyard for submarines.

So my point earlier about where the emphasis goes and what the fleet composition of the future should be is a pretty complex one. It does need research. The government needs policy advice on this, but it involves multiple departments: education, employment, and industry.

•(1240)

Mr. James Bezan: As you both know, the surface combatants could be announced in requests for proposals as early as today. Do you have any ideas as to what your wish lists would be on how these ships would look and what type of capabilities they'd have?

Mr. Ken Hansen: Do you want to go, Eric?

Cmdre Eric Lerhe: You start, Ken, please.

Mr. Ken Hansen: I'm looking for a ship that has a fairly good size and what's called low design density. The more complexity you pack into the hull, the higher the complexity goes, which makes it more expensive to maintain, repair, and upgrade. I want a fairly big ship that's got reserve space for future expansion and one that can exploit this concept of modular technology, so that you could improve it without taking the whole ship out of service. You could put it to lesser tasks, you could have it doing things that are not principally naval missions: supporting the Coast Guard for example or doing health service provision to remote communities. All of these kinds of things are in the realm of the possible. I'm looking for an out-of-the-box solution when it comes to the future combat ship.

Cmdre Eric Lerhe: I'm a huge fan of the national shipbuilding procurement strategy and I've written on it. Right now, we have seven bidders who have a very strong probability of providing a ship that meets probably 95% of what Ken Hansen has just outlined. These are mature shipbuilding countries with mature navies who don't build crap. We wouldn't let them bid anyway if they did.

I must applaud the current Minister of Public Services and Procurement, who didn't get cornered on the issue of how much money is she going to spend. We all know they budgeted \$26 billion 10 years ago. We all know that every day inflation is stripping \$1 million out of that project. She has correctly said, "we are going to wait until this project completes project definition". That's approximately two years from now before we commit to a bill. That is critically important because three arrows will meet in about two years. Do you want 15 ships? Do you want 10 ships that are absolutely super-capable? Do you want 10 ships that have exceedingly high Canadian content?

Don't forget, we said we want military off-the-shelf designs. Very few people build anything with significantly high Canadian content, even though there are at least four firms with superb capabilities, that are selling literally hundreds of them overseas. The issue is what is it going to cost to change your French, Germany, British, Italian, or Spanish design to insert exceedingly high-grade Canadian content into it.

You will have competing ideas. In two years, there will be a huge debate. How much are you willing to spend and do you want more ships, more high-capability ships, or ships with the optimum benefit for Canadian high-tech industry?

The Chair: Thank you for that.

Mr. Garrison, you have the floor.

Mr. Randall Garrison: Thanks very much, Mr. Chair.

Having asked a bit about research and development, I want to ask a bit more about maintenance. This is in terms of the declining capacity of the Canadian navy to do its own maintenance and the question of maintenance of the new ships that come into service. What we're seeing is a tendency for some of the companies that build equipment to say that they must do the maintenance. What I've heard a lot, especially on the west coast, is that we are going to be dependent on private contractors and, in some cases, foreign companies to do the maintenance of our key naval facilities.

I wonder whether you share those concerns that I'm hearing locally.

•(1245)

Cmdre Eric Lerhe: I've had the privilege of reading a lot of the Canadian surface combatant documentation. When you read into it, you find that the designers say, yes, we'll bid your design and we'll incorporate it, but we insist on an incredibly high level of intellectual property transfer, so we can do the maintenance. There's apparently been blood on the floor on this topic. You read about it in the press.

Throughout my reading, the intent has been that Canadian firms will be doing the maintenance and I'm sure there must be some small element that might not be. That certainly is the tenor of the documents and I applaud them for it.

Outsourcing of defence capability to commercial firms is happening all over the world. I applaud the navy. I think it's probably, of the three services, one of the last ones to insist on a large government workforce doing direct maintenance on ships but at the end of the day, it's a cost factor. For example, a ship now will have six different radars. Are you going to train six different technicians to be able to address each one because they're probably fundamentally different or are you going to say, I'll accept a commercial guy doing work on three of them. It's simply a factor of dollars and cents. If the navy had a choice, I'm sure it would want all of its work done in-house.

Ken, I think probably has some strong views here too.

Mr. Ken Hansen: Actually, I do.

The history of the navy shows that the fleet maintenance facilities are vitally important in the maintenance of the fleet, keeping it ready, rectifying short-notice deficiencies, things that have to be fixed if the ship is going to get out on time to do the assigned task.

This is irrefutable. Those facilities are vitally important. Just do the simple math. With a fleet of 12 frigates, if one of them suddenly goes down, what's the percentage of your lost capability as the ship sits there and waits for a commercial contractor to show up, do an assessment, during business hours, by the way, and then send off his

report of findings to the head office, which may be a European company?

I have a son who is a naval reservist and is working on one of the reserve ships. They're now well into their twenties in terms of age. They are a maintenance nightmare. The contracted service support people have less and less interest in meeting their contractual obligations to keep those ships repaired and operating, simply because the effort that's required to maintain old ships escalates very rapidly.

I highly recommend a SPAR study—a company out of Annapolis, Maryland—that shows in the last three or four decades of life, the maintenance costs for old ships escalating by about 400% a year. You can understand why contractors will back away from those kinds of ships and not be interested in doing that work, whereas the navy absolutely must maintain the capability to handle it at short notice.

Cmdre Eric Lerhe: I had contractor support for six of those MCDVs. While it's news to me that it's gone to hell, when I was there the support was superb. The company that we hired would fly its technicians all over the world to repair them.

I will acknowledge Ken's point. Certainly based on the *Athabaskan*, a 47-year-old destroyer, once you start hitting age 30, your maintenance costs go through the roof, as you can all imagine what it's like maintaining a 30-year-old car.

The Chair: Thank you.

We have enough time to circle back to you, Ms. Romanado. You have the floor.

Mrs. Sherry Romanado: Thank you so much. Actually, this was really a fantastic segue to what my colleague Randall is talking about. I wanted to speak a little about education, and in terms of our maintenance and so on.

Regardless of whether we're talking about naval equipment, air force, or Armed Forces, our biggest spend is going to be in military procurement. On the question of intellectual property, sovereignty issues, our capacity to actually keep the jobs here in Canada is vitally important in terms of our economic growth and so on and so forth.

I have a question in that regard. We currently have the capacity to maintain our frigates and so on, and we have multiple companies bidding on these projects. In your opinion, should we be focusing more and more on keeping this capability here in Canada, in terms of our long-term growth strategy, in terms of creating those jobs, in terms of our sovereignty, our capacity to grow that industry? I will give the example of our aeronautic industry. We should be focusing on keeping that intellectual property.

I was looking at the briefing that we received for our Royal Canadian Navy, and it's even our training that we're looking at now, possibly even outsourcing that. What should we be doing in terms of keeping that capacity here? Of course we have to have that interoperability with our NATO allies and so on. But if we're able to invest in Canada, of course, I think that would be most ideal. Could you elaborate a little more in terms of our education, in terms of our training, in terms of our procurement, and of course, the supply.

The procurement of the asset is one thing, but then it's our capacity to maintain that asset for multiple years. As you know, we keep our assets longer than their lifespan, unfortunately. Could you elaborate a little more on that?

I'm sure, Dr. Lerhe, you have some comments, as well as Professor Hansen.

• (1250)

Cmdre Eric Lerhe: I can probably kick off. Yes, yes, yes.

Upon reading the documentation for the Canadian surface combatant, because it's in the news, there is a sustained effort to make it contingent that anybody who bids had better plan on transferring a huge amount of work to Canada, be it with equipment into the ship, or with investing in Canadian companies, or bringing manufacturing companies to Canada. That's the plan.

However, you also have to say that some Canadian companies, primarily because of the huge step-up that the Canadian patrol frigate gave them, have developed a massive worldwide market in the most sophisticated capabilities in the world. I speak of L-3 MAPPS, integrated platform management systems, the things that run your ship. They don't sell tens, they don't sell hundreds, they sell thousands to the most demanding customers in the world: the U.S. navy, the Israeli navy, the British navy. And ditto OSI, integrated bridge systems, again, hundreds of systems, and DRS Technologies, communications systems that are in the crown jewel of American shipping, the carriers, the nuclear carriers.... So we have the capability, and people can use something like the national shipbuilding strategy to lever themselves to, quite candidly, world dominance in those areas. Nobody is doing as well as we are in those areas.

However, when you decided to stop building CPFs in 1996 and start building AOPs in 2015, a 19-year gap, how many companies have the capacity to live through 19 years of drought exclusively on export orders? It's a tough demand, ergo the national shipbuilding strategy's intent is to go to a continuous shipbuilding program.

Mrs. Sherry Romanado: Professor Hansen.

Mr. Ken Hansen: I'm in complete agreement with Commander Lerhe. The strategy's intent is to develop the national industrial base. I've been writing about the shipbuilding strategy, and the problem is that you get differing views on what the strategic priority is among the goals: develop the industrial base, provide high-quality employment, or, provide the equipment needed by the navy and the Coast Guard. Depending on which speaker talks, you get a different assessment of which of those three things has the priority. That's

problematic when it comes to the kind of question that you're asking about Canadian benefit to the economy.

I was pretty disappointed, I have to be candid, about the decision to buy an off-the-shelf design, because that puts limits on the kinds of Canadianization that can happen by design. If we go with somebody else's design and it has that high design density I was talking about earlier, the costs of Canadianization will be spectacularly high. This is the situation we ran into with the Victoria class submarines. We didn't have the intellectual property rights, there was very tight design density, and they were extraordinarily expensive to modernize and Canadianize. The costs went through the roof. It is probably—it's not 100% certain—false economy to buy an off-the-shelf design if your intent is to provide maximum value for the Canadian industrial base. I see them as being at cross-purposes.

• (1255)

Cmdre Eric Lerhe: I will qualify that with one thing. Remember when I said our defence research spending has fallen to 1.2%? On the CPF, it was probably in the neighbourhood of 5% to 7%. All of those successful companies, I can almost be sure to 99%, were also matched by huge Canadian defence research to get SHINCOMs, DRSs—a very successful world model—IPMS, SHINMACS, again another defence research program, and the command and control system, all because we had a desire and we had the capacity. At the time, we had 13,000 people involved in the assistant deputy minister, materiel, group, which manages projects. Today we have 3,000, and, surprise, there are problems. When you cut your defence research budget by five times, the effect on the ability for the Canadian industry to come up with a product is dramatic. Therefore, I would say—and I wasn't in the room—perhaps the decision to go military off-the-shelf was inevitable.

Mrs. Sherry Romanado: I can guarantee you that we're not the people at the decision-making table, unfortunately.

I take your advice to heart. You mentioned that it's important that the members of Parliament understand the importance of defence spending and so on. Rest assured....

Professor Hansen, you mentioned that your son is in the naval reserve. I have two sons, and they both serve in the Canadian Armed Forces, so they call me the “force generator” here on the Hill.

Rest assured that the folks sitting at the table have heard you loud and clear. Quite frankly, I have trouble sleeping at night now, wondering how our sovereignty and our protection are going, but rest assured that we've heard you.

Thank you so much.

The Chair: Is there anyone else who would like to ask a question before we say goodbye to our witnesses?

I want to thank you both for your service to the country and for coming today and for your frank and very detailed testimony. Thank you very much.

The meeting is adjourned.

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