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EVIDENCE

Thursday, May 8, 2008

Chair

Mr. James Rajotte

Standing Committee on Industry, Science and Technology

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● (1105)

[*English*]

The Chair (Mr. James Rajotte (Edmonton—Leduc, CPC)): Order, please.

You seem to have a point of order, Monsieur Vincent.

[*Translation*]

Mr. Robert Vincent (Shefford, BQ): I would like to add an item to the agenda.

[*English*]

The Chair: This is a point of order.

[*Translation*]

Mr. Robert Vincent: I would like to add an item to the agenda. I would like us to discuss Bill C-454, that deals with the Competition Bureau, at the end of our meeting today.

[*English*]

The Chair: This is Bill C-454, and it was adopted by the House on Monday.

[*Translation*]

Mr. Robert Vincent: I think that it was passed unanimously last week.

[*English*]

The Chair: I think it was on division, but it was adopted by the House.

The bill has been referred to the committee, but this is a substantive motion with respect to discussing when we are going to look at Bill C-454. So I need direction from the committee on whether they want to bring this up today.

We have two panels today of fairly substantial witnesses. Does the committee want to do this at the end of business? I guess this would be at the end of panel two today.

Mr. Carrie.

Mr. Colin Carrie (Oshawa, CPC): Mr. Chair, we already have a very busy schedule today, and what we have is a subcommittee that we bring out. We've set our schedule on the science and technology. I think maybe that would be more appropriate to discuss at the next subcommittee meeting.

The Chair: Thank you, Mr. Carrie.

Monsieur Vincent.

[*Translation*]

Mr. Robert Vincent: I think that it is appropriate for us to study the bill now, because the price of gasoline is skyrocketing every day and every week. I feel that we should make this bill a priority by the summer so that it can be passed as quickly as possible and so that the Competition Bureau can be given the power it needs to investigate the oil companies.

If you ask the Liberal Party for their opinion, I am sure that they would agree.

[*English*]

The Chair: Thank you.

Mr. McTeague.

Hon. Dan McTeague (Pickering—Scarborough East, Lib.): Thank you, Chair.

In theory, I don't have a problem with looking at this. I'm just not sure we have the opportunity to do it today. I note that we are here until two o'clock, at which point we will be asked to go to the House. The question is whether or not Monsieur Vincent would have, in essence, unanimous consent to have us discuss this now or at some point in the not-too-distant future.

I don't think we have any objections to doing this, but I'll leave it to the chair.

The Chair: Monsieur Vincent, could we have a subcommittee meeting on Tuesday? It's Thursday today. We could have a subcommittee meeting at 10 a.m. on Tuesday, and we could make this the first item of business.

[*Translation*]

Mr. Robert Vincent: Agreed.

[*English*]

The Chair: All right, it's 10 a.m. on Tuesday. Then we'll have a subcommittee meeting with Monsieur Vincent, either you or Madam Brunelle, Mr. McTeague, Mr. Carrie, and Ms. Nash.

We are continuing our study pursuant to Standing Order 108(2), our overview of Canadian science and technology. We have five witnesses today, representing four organizations.

From Bioniche Life Sciences Inc., we have Ms. Susan Goebel, the E. coli project manager. From the Canadian Generic Pharmaceutical Association, we have Jim Keon, president. From Canada's Research-Based Pharmaceutical Companies (Rx and D), we will be hearing from Mr. Rob Livingston, vice-chair, federal affairs committee; and Mr. Normand Laberge, vice-president, federal government affairs and federal-provincial-territorial relations. Finally, from Trojan Technologies, we have Ms. Linda Gowman, chief technology officer.

Welcome to all of you. We will start with Ms. Goebel.

● (1110)

Ms. Susan Goebel (E. coli Project Manager, Bioniche Life Sciences Inc.): Mr. Chair, members of the committee, on behalf of Bioniche Life Sciences, I want to thank you for the opportunity to speak to you today.

Bioniche is an innovative biopharmaceutical company based in Belleville, Ontario. Our mandate is to act on innovation and improve the quality of life. We are publicly traded and invest heavily in research and development. Bioniche works hard to successfully commercialize our products for the benefit of our stakeholders and Canada. We currently employ over 200 people in highly skilled scientific jobs, with revenues in excess of $27 million.

I am here to speak to you about E. coli O157:H7, a deadly bacteria that continues to affect Canadians.

Bioniche's commitment to science and innovation has led to the development of a vaccine that is the first of its kind in the world. This vaccine was developed through strategic alliances across Canada and is truly a national success story.

The initial discovery occurred at the University of British Columbia. The Alberta Research Council assisted with the vaccine scale-up. Testing was conducted at the Vaccine and Infectious Diseases Organization at the University of Saskatchewan. Commercialization is being achieved by Bioniche in Ontario, and we are exploring supplementary manufacturing in Prince Edward Island.

Throughout all of this, the Government of Canada has been a strong supporter of the vaccine, providing funding through programs such as the Industrial Technologies Office, the agri-opportunities program, and the scientific research and experimental development program.

Canadians remember all too well the tragic outbreak in Walkerton, Ontario where thousands fell ill, seven people died, and many will never return to full health, all due to this pathogen. At the time, governments at all levels vowed to ensure that tragedies such as Walkerton never happen again.

Cattle are the primary reservoir of this bacteria. This deadly strain of E. coli does not make cattle sick, because these animals are not susceptible to the bacteria's toxin; people, however, are. Each year approximately 100,000 cases of human infection with E. coli O157:H7 occur in North America. This bacteria causes diarrhea in most people; however, in 15% of the cases people will develop a bloody diarrhea, and a further 10% of the cases will lead to kidney failure or death.

Although this innovative vaccine could easily be defined as a public health vaccine because it reduces a public health risk, it's given not to Canadians but instead to cattle. This way it helps to prevent the E. coli strain from entering the environment at the source.

An independent economic report estimates that vaccinating Canada's national cattle herd will result in a two-to-one return on investment, with annual savings of $63 million—$30 million in health care costs, and $33 million in benefits to the agricultural economy.

Canada is currently the only country in the world where regulators have granted cattlemen access to an E. coli O157:H7 vaccine. Given the numerous benefits resulting from vaccinating beef and dairy cows, one might assume that cattlemen will move quickly to use this vaccine. However, it's not that simple.

In late 2007 there was a recall of over 20 million pounds of hamburger in the U.S.A. that was linked back to Canadian beef. The negative publicity was yet another blow to Canada's beef industry, a commodity-based system struggling with increasing input costs and recovering from mad cow disease.

Cattlemen receive no direct benefit for spending money to vaccinate their animals. This bacteria does not make cattle sick. Canadian cattlemen are willing to administer the vaccine, but at this time they cannot incur the expense without receiving an offsetting increase in revenue. For this reason, cattlemen are reluctant to spend money to vaccinate their beef and dairy cows.

A Government of Canada program that encourages the adoption of E. coli O157:H7 vaccine over a period of three years would provide leadership for the agricultural sector, use innovation for the benefit of public health, and position Canada as a global leader in food safety. The end goal of this program would be to vaccinate the national cattle herd by 2010. After three years, the benefits of vaccinating cattle against E. coli O157:H7 are expected to be readily evident and justify continued use.

In summary, this Canadian vaccine is a world first and a shining example of innovation. Widespread adoption of this vaccine will position Canada as a global leader in food safety and provide much-needed assistance to the agricultural sector, particularly the beef industry. It will also preserve consumer confidence in Canadian food safety and benefit public health.

Thank you. I'd be pleased to answer any questions you have.

● (1115)

The Chair: Thank you very much, Ms. Goebel.

We'll go now to Mr. Keon, please.

Mr. Jim Keon (President, Canadian Generic Pharmaceutical Association): Thank you, Mr. Chair.

[*Translation*]

On behalf of the Canadian Generic Pharmaceutical Association and our member companies, I thank you for inviting us to appear during your study of Canadian science and technology. The CGPA is the national association representing the generic drug industry in Canada.

Generic medicines are inexpensive versions of the original brands, manufactured by a number of companies once the patents on the brand-name originals have expired.

[*English*]

There are no differences as far as the quality, purity, effectiveness, and safety of generic and brand name drugs. All drugs sold in Canada must be reviewed and approved by Health Canada, and Health Canada stands by the quality of both brand and generic drugs. That gives Canadians the confidence in both brand and generics. Both brand and generics must meet the same standards and regulations established by the Food and Drugs Act.

Generic drugs in Canada, for 2007, were dispensed to fill 49% of all prescriptions. I'm actually pleased to say that according to industry data, for the first quarter of 2008, for the first time ever, generic drugs are now the dominant sector in Canada. More than 50% of all prescriptions are now filled with generics in Canada. However, in the United States generics are used to fill 67% of all prescriptions, so we feel we have a long way to go to catch up to our big neighbours to the south.

Generic drugs filled 49% of all prescriptions last year, for only 20% of the cost. When I've been at committee in the past, I've been asked about our pricing. I'm pleased to say that our prices have come down close to 25% in both Ontario and Quebec as a result of intensive discussions with those provinces over the last couple of years. We're now in similar discussions with the western provinces in Canada. Generics will be an even better value and even more important to the health care system on a go forward basis.

Canadian generic pharmaceutical companies are proud of their contribution to affordable health care in Canada. We're equally pleased that we can play a role in getting made-in-Canada medicines to countries facing crises, where they are desperately needed. CGPA member companies donate about 100 million doses of medicines each year, at an approximate value of $20 million. We participated with the Prime Minister at the opening of Health Partners International, and we're strong supporters of that organization.

Also, as announced earlier this week, one of our member companies, Apotex, the largest pharmaceutical company in Canada in terms of research and development spending and employees, will be the first company in the world to obtain and use a licence to export generic drugs for humanitarian purposes under the landmark WTO decision and Canada's own access to medicines regime.

Canadian generic pharmaceutical companies are making significant investments in Canada, and we have aggressive plans to expand these investments over the next five years.

Today generic pharmaceutical companies spend 15% of Canadian revenues. It says here that it's about $450 million—it's actually greater than that now—on domestic research and development activities. Our member companies are actively seeking to expand their domestic sales and increase exports. And we have committed to doubling our industry's employment over the next five years to 21,000 highly skilled jobs. We have a very good news story to tell in terms of being an export-oriented industry, and the high-quality R and D and manufacturing jobs we have. We hope to tell that story more often, and in a better way, than we have in the past in the Ottawa circles.

In regard to issues today, I'll touch on a few.

Canada's generic pharmaceutical industry supports patent rights and the right of any pharmaceutical company—brand or generic—to recoup their investments and turn a profit to help grow and sustain their business. What we do not support, however, is excessive intellectual property protection that guarantees longer periods of monopoly prices to brand-name companies without bringing additional benefits to Canada. Our current intellectual property regime in Canada for pharmaceuticals goes beyond our international trade obligations, through NAFTA and TRIPS.

[*Translation*]

In the last 21 years, successive Canadian governments have strengthened the commercial monopolies of manufacturers of brand-name medicines with no resulting increase in expenditures, as a percentage of sales, in research and development in Canada. Historical data from the Patented Medicine Prices Review Board in fact shows the opposite. In 1987, holders of pharmaceutical patents made a commitment to Canadians to increase their annual expenditures in research and development to 10% of sales. In 2006, they devoted only 8.1% of Canadian sales to research and development, and, in real terms, an amount of less than 2% of Canadian sales has been invested in basic research on new medications.

● (1120)

[*English*]

The Chair: Mr. Keon, you have the last minute.

Mr. Jim Keon: I have a couple of comments on the regulatory situation on patents in Canada.

In October 2006 regulatory changes were made to the patented medicine notice of compliance regulations to stop the practice of evergreening of drug patents by brand name companies. We applauded the government for those changes. These tactics had unfairly kept generic competition off the market and forced Canadians to pay monopoly prices. In our brief we indicate other areas where we had problems with those changes, particularly in regard to data exclusivity.

I would like to mention, in closing, that following those changes in October 2006, very recently the Government of Canada published proposed further amendments to the regulations in the *Canada Gazette*, part 1, on April 26 of this year. Those regulation changes would reopen the loopholes to allow brand name companies to abuse the patent system to unfairly delay generic competition.

We're urging the government to withdraw those proposed amendments. The government has allowed only 15 days for public comment. The deadline is fast approaching. We would ask this committee for its urgent support in also opposing those amendments.

Thank you.

The Chair: Thank you, Mr. Keon.

Mr. Livingston, are you starting?

Mr. Rob Livingston (Vice-Chair, Federal Affairs Committee, Canada's Research-Based Pharmaceutical Companies (Rx & D)): Actually no, I'm not.

[*Translation*]

Mr. Normand Laberge (Vice-President, Federal Government Affairs and Federal Provincial Territorial Relations, Canada's Research-Based Pharmaceutical Companies (Rx, & D)): I will start. We are going to divide our time in two, but we will not exceed it.

Mr. Chair, we appreciate this opportunity to appear before the committee today on behalf of Rx&D. You have our written submission; we will use our time today to underline four recommendations.

Rx&D comprises more than 50 innovative companies employing 20,000 Canadians in highly skilled jobs. Our goal, and the goal of our member companies, is to develop new medicines and vaccines that can help Canadians live longer, healthier and more productive lives.

Rx&D firms are the largest single funder of health research and development in the business enterprise sector. They have funded more than $1 billion in research and development investments in 2006, a figure exceeded only by the telecommunications sector. We are a proud partner of Canadian Institutes of Health Research (CIHR) with whom we have invested more than $320 million in biotechnology research.

We are pleased that your committee is looking at science and technology policy in Canada. Our sector has been supportive of the government's science and technology framework launch, but we also feel that there is a great deal that remains to be done.

[*English*]

Mr. Rob Livingston: In particular, there are a number of public policy factors that affect Canada's ability to attract the investments critical to ongoing pharmaceutical innovation. We put forward recommendations in our submission to address these public policy factors today, and we will focus on four of them.

To put these recommendations into context, I refer you to your graphic on the timelines for the development of an innovative medicine from laboratory to pharmacy. We've also taken the liberty of expanding it on this billboard so we can refer to it when we're talking about some of those issues. On it is the 20-year patent life. As you can see, a good part of that gets used in drug development and then you go through the various regulatory steps to get on to the market and you end up with what we call your period of market, which ranges anywhere from five years up to nine years. So I'll talk to you about some of those regulatory steps.

A fundamental driver of business investment is intellectual property. In this industry it takes approximately 10 years to develop a new medicine and costs an average of about $1 billion. That's a global figure, that's not a Canadian figure. It's a global effort, so it's in total. Intellectual property protection is our primary asset, given the high cost and risk of developing a new medicine or vaccine and the relative low cost and risk of copying it. Our regime needs to remain competitive if we're going to continue to be able to compete internationally for R and D investment.

After approvals and reviews, there's often only a five- to seven-year window in which a medicine can recoup its costs. We are the only G8 country without some form of patent term restoration. This is an instrument in which the time to develop and get a medicine on the market is recouped on the back end; it's added to the end. As well, there are significant incentives to infringe our patents, therefore, we need to be able to effectively enforce them.

We therefore recommend that the government deliver on its throne speech commitment to improve the scope and duration of intellectual property protection in Canada and maintain a stable, reliable, and globally competitive footing.

The Patented Medicine Prices Review Board was established 20 years ago with a mandate to ensure a balance between pricing patented medicines fairly and encouraging innovation and investment. Price increases were not to exceed the consumer price index, and over the past 10 years they have not. CPI has gone up about 2% on average per year, and the price increases of patented medicines have declined about 0.2%. We feel it's evidence that the board is exceeding its mandate.

Our second recommendation is that the government implement an innovation review of the PMPRB to ensure that it does, in practice, adhere to its mandate.

Every aspect of a pharmaceutical's life cycle is subject to intensive company and governmental review and oversight, a process that can and does take years. We accept this; we are, after all, talking about people's health. But inefficiencies and duplication are a disincentive to access to both new medicines and innovation and don't necessarily always enhance patient outcomes. For instance, the common drug review was established in 2003 with the intention of reducing duplication and effort in streamlining the review process among the provinces. However, we found that it is now prolonging and complicating the process, without any direct benefit to patients.

Our third recommendation is that the drug review and reimbursement evaluation process in Canada be evaluated for its competitiveness and should include standards of measures to improve efficiency, eliminate duplication, and strengthen transparency and patient involvement.

Our final recommendation is that there should be a framework in which to implement these recommendations. Global R and D investment is declining. There's greater competition, and we have new markets like India and China. We feel that other countries are implementing comprehensive strategies to look at some of these issues and that Canada needs a similar strategy upon which to look at some of these changes. We therefore would look for the committee's support for a recommendation to the government for a sectoral strategy.

Thank you very much. We look forward to your questions.

● (1125)

The Chair: Thank you very much, Mr. Livingston and Mr. Laberge.

We'll go now to Ms. Gowman, please.

Ms. Linda Gowman (Chief Technology Officer, Trojan Technologies): Thank you.

I think you have our submission before you.

Mr. Chair, members, it's a privilege to be here today.

Trojan Technologies is based in London, Ontario, and has been treating water with ultraviolet light since 1977. Trojan Technologies remains a Canadian corporation, although in November 2004, with annual sales of roughly $100 million, the company was wholly sold to Danaher Corporation of Washington.

Our growth has continued at a double digit rate, and our global reach is expanding. The majority of our roughly 500 employees are located in London, Ontario. Our sales are heavily global, and we have installed technology on every continent. Our considerable focus on research and development has allowed us to continue to innovate to bring clean water to an increasingly water-stressed world. We believe that out-innovating our competition is a key strength of our company.

Trojan Technologies has always invested heavily in S and T, but S and T isn't just about doing beautiful research or building wonderful technologies; often it's about building the market itself, and doing that profitably. Research itself—and we do fundamental research sometimes—can't be justified in business if it cannot be tied to business expectations. How, then, can we enhance S and T initiatives in Canada to have greater impact on our global competitiveness?

Challenges in successful S and T initiatives can often exist for us on the deployment end. Once the research and development is done, new environmental technologies need to be tested and purchased by a few alpha sites before they are readily accepted by others and before a market can develop. There is a requirement here for government agencies at many levels to facilitate the testing and adoption of new technologies by having qualified staff capable of conducting testing and rendering decisions of suitability in a timely fashion. The world economy is becoming ever faster paced, and timeliness of technology validation cannot be measured in years, or parts of years, when the natural scientific timelines do not warrant such delays.

In addition, staff at government agencies must be sufficiently educated and informed to be able to request or receive information to make informed judgments. The more educated and skilled these adjudicators are, the less risk there is for all. Education and skills should be obtained with the recognition that we are a small economy in a global sense, that consolidation of regulatory requirements within Canada is efficient, and that we must avail ourselves of the knowledge and practice that exists globally.

From a client’s perspective, purchasing new environmental technology can be seen as being a bit risky. Government incentives for the purchase of new environmental technologies can be very helpful in changing the perceived risk for a purchaser.

This sort of program in the U.S. was highly beneficial to Trojan 30 years ago when we started building the technology and market for our products. Such programs, if continued throughout the environmental sector, would likely serve to stimulate more innovation and, equally importantly, establish a climate within Canada for acceptance of innovation. The new technology, demonstrated to work in real life within Canada, becomes saleable internationally, helping to grow the Canadian economy.

The first installations are key, and these demonstration sites continue to be vital for our industry. Wouldn't it be nice if the first full-scale demonstrations of Canadian technology were easier to conduct in Canada than elsewhere? This does not mean that regulations and requirements for technology should be slack. Canadian regulations should be robust, and regulators and their staff should be informed, aware, and empowered, and execute their roles quickly and thoroughly.

On the front end of S and T we work with Canadian and international universities, tending to go where the expertise exists. Trojan benefited significantly in its infancy by participating in IRAP, whose small grants helped to fund essential research when moneys were extremely tight. The best experiences were always those that were executed quickly.

As the company has grown and become more profitable, SR and ED tax credits are a very efficient and effective means to support research and development. It is our recommendation that this tax credit remain.

The challenges in working with universities surround negotiations around intellectual property rights and managing public disclosure of findings that give strategic business advantage. In addition, the timelines of industry and those of universities are sometimes not aligned. We see the same challenges internationally, but perhaps therein is the possibility to distinguish ourselves as a country. There is a change at universities in Canada toward welcoming industrial participation in research, and that is very good because it is our collective knowledge, our collective value-added, and our collective focus on targeted research that will accelerate the innovation process.

Perhaps agencies such as NSERC, CIHR, SSHRC, and others could facilitate industrial researchers' participating at Canadian universities by offering career awards in the form of salary contributions toward qualified industrial researchers who wish to spend sabbaticals at Canadian universities. Bringing industrial researchers closer to universities and their students will also show graduate students that a life in research can mean a life in business and entrepreneurship, impacting global problems and benefiting the Canadian economy.

● (1130)

We have shared a few experiences and thoughts with you, hoping to be helpful. We are privileged to have been given this opportunity to participate in this forum.

I thank you.

The Chair: Thank you very much for your presentation.

We'll now go to the members for questions. Mr. McTeague, for six minutes.

Hon. Dan McTeague: Thank you, Chair.

Thank you, witnesses, for being here at our meeting today. This is a very important area that we haven't covered in some time.

I'll go directly to you, Mr. Keon. Your presentation pointed out the changes to the NOC regulations. I have had discussion with other members here about this. In essence, if I am to take you correctly, it reopens the loopholes on the subject of evergreening, something that certainly I thought had been addressed some years ago. Not only that, but I thought the balance had been seen in giving the brand name industry data exclusivity. That was a way of saying we're going to take away what appears to be an opportunity for the brand names; at the same time, we're going to provide them with that exclusivity.

I note that the research component as a ratio of their investment is down. I also note that Apotex, according to what our own Library of Parliament has pointed out, is at 17.6% in terms of R and D as a percentage of revenue.

Going back a few years, I remember that seniors, provinces, and a number of organizations came together to decry this. Most notably, the Supreme Court of Canada referred to the practice of evergreening as draconian. I was very surprised to see, following these things as closely as I do, that in the actual edition...or the first *Gazette* of this proposal—without much consultation, I add—the government freely admits that there will be delays in the generic market entry and that there will be costs associated with these delays.

Can you give us an idea of what the cost is going to be, given that there was anticipation, certainly by the provinces, that this practice would not be reallowed through the back door?

Mr. Jim Keon: Thank you.

Yes, I mentioned briefly in my comments that we were very disappointed in the changes. You're right, in 2006 the government had taken steps to seal off evergreening, to make it much more difficult to add on patents. And then after the government did that, the Supreme Court validated that and said yes, that was the law.

The government has said that anything prior to 2006 that was on a patent list at Health Canada—which gives a brand company an automatic right to stop a generic—can go back on the list. So we're very concerned; we think the regulations are difficult to interpret, but right now our patent experts are telling me that very large drugs that have not yet been genericized could get extra protection through these extra patents.

Take a drug like Lipitor, which has sales of $1.1 billion. Again, if I just do a very rough calculation here.... I mentioned earlier that we've negotiated new pricing regimes with Ontario and Quebec, so the generics are down to no more than 50% of the brand. As soon as we're able to come to market, on Lipitor alone we will bring savings of $500 million to $600 million a year—that's on one drug—for the health care system.

So these are very large numbers we're talking about here. The provinces, as we know, pick up most of the drug costs in Canada for seniors and people on social assistance.

● (1135)

Hon. Dan McTeague: How much notice were you given by the government about these changes in the RIAS?

Mr. Jim Keon: We were given no notice. And from talking to the provinces, I believe they were given no notice either.

Hon. Dan McTeague: Mr. Livingston, I want to ask you a question.

In previous times we dealt with products like Taxol. We dealt with Losec in the past, because it was an issue that did come up with respect to evergreening. These types of issues tend to be almost *causes célèbres*.

In the case of Taxol, members of your industry claimed a patent that was actually produced, created, and paid for by American taxpayers. It was later determined by the Supreme Court of Canada that in fact one of your member companies didn't have the right to it. The company that produced it in St. Catharines—the riding of a chairman who was previous to Mr. Rajotte—was allowed to in fact proceed with the product.

We also have the issue of Losec. Before, your members gave testimony to the fact that none of these products were produced in Canada. No research was done in Canada. Not even the packaging was done in Canada.

If you're asking for greater patent protection, and you're asking for more opportunity to extend to 20 years, why should Canada give you that extension when you're not prepared to make the investments in R and D to begin with?

Mr. Rob Livingston: Normand can talk to the industry level.

In terms of investment in Canada and actually products produced, we at Merck Frosst have a very large therapeutic research centre in Kirkland, with about 300 world-class citizens. We've developed about half a dozen products there over the years: Blocadren, Timoptic, Flexeril, Singulair, Arcoxia, and now Laropiprant.

I think there are some good examples of Canadian developments in Canada. As well, we have been investing about $120 million a year in Canadian R and D. That's more than $2 billion over the past 15 years. We put that research facility in as a result of the government's announcement to enhance patent protection.

So I think there are some good examples of where there has been some direct benefit from that patent protection.

Hon. Dan McTeague: On that subject, Mr. Livingston, could you or Mr. Keon tell us about the impact? For instance, Mr. Keon talks about Lipitor with respect to British Columbia, which has already anticipated what the cost savings are going to be if these changes in regulations are in fact reversed.

Can anybody give us a description of what impact it's going to have on their provincial health care budget?

The Chair: Mr. Keon.

Mr. Jim Keon: I would just repeat that the product Lipitor is the largest-selling product in the history of pharmaceuticals. Canada-wide sales are $1.1 billion. In British Columbia, sales would be over $100 million. Delaying a generic for a year or two years adds an extra $50 million a year, if we assume the price would be roughly half the current price. That's $50 million a year in British Columbia alone for that one product.

Hon. Dan McTeague: Thank you.

The Chair: Thank you, Mr. McTeague.

We'll go to Monsieur Vincent.

[*Translation*]

Mr. Robert Vincent: Thank you, Mr. Chair.

My question goes to Mr. Livingston. In 1987, when the Patent Act went into effect, you predicted that you would be investing 10% in research and development. Last year, you were only at 8.5%, and, in 2006, at 8.1%.

How do you explain this drop in the ratio of research and development to sales of patented products in recent years? Why has the proportion of research and development gone down? You predicted 10% and you reached 8.1%. Why?

● (1140)

Mr. Normand Laberge: I will answer that question.

The commitment of the member companies of Rx&D was indeed to raise the average ratio of research to sales to 10% before 1996. We actually fulfilled that commitment in 1993. We met the target, and it continued to increase to almost 12% or 13% in 1997-1998, after which it began to drop. But, averaged over the last 19 years, the ratio exceeds 10%. The exact figure is 10.17%.

The environment in which we work has changed a great deal in recent years. There have been regulatory challenges, such as market access because of the drug review, or the price freeze that was imposed, and they have changed the situation. At the same time, other countries have been able to attract more research dollars by changing their regulatory approaches as well as their patent protection programs. Our member countries are trying worldwide to attract those dollars, but they are having difficulty doing so because, as a result of the changes, the Canadian market is less appealing. Nevertheless, we maintained our average at 10.17%. We want to increase that average and to change the situation. The decline is explained by the changes in the regulatory framework in recent years.

As an example, I should mention that the changes Quebec made to its drug program very quickly brought in $650 million in investments. So you see the direct impact of regulatory changes. The recent change caused the drop. So there is a way to level the playing field, and that is what we are suggesting. We want to become partners and good ambassadors for Canada internationally and we want to attract those new dollars.

Mr. Robert Vincent: Research and development expenditures for pharmaceutical patents reached $1.2 billion in 2006, but only $232 million was invested in new products, or less than 2% of Canadian sales.

Can you explain why only $232 million have been invested in new products?

[*English*]

Mr. Rob Livingston: Just to clarify, I think what you're referring to is that in the PMPRB report they break down that total R and D spent. Of the $1.2 billion, they categorize it as “discovery”, “applied”, and “other”. I think the issue is the discovery component, that $232 million, which represents about 20%. Is that enough?

If you look globally at the allocation of the total cost, because there's not only the discovery, there are various steps—you have the discovery, and then you have the development, and then you have the approval of the drug.... I've been trying to find the latest statistics, but historically the drug discovery component usually runs at around 25% to 30% of those total costs. There are various steps involved in that, where you identify a disease, where you identify potential candidates, where you do some safety testing. Then if you have candidates that it appears are going to be safe and work for a condition, you then start the development process. That development process is where you try it in patients who have the disease, you try it then in healthy patients, and that's where the cost starts to grow significantly. So the fact that it's $232 million is probably maybe a little on the low side, but not that far off what it is globally.

Certainly at our facility in Montreal the majority of our $120 million is in what you'd call the basic research, but you still have to have the development component as well before you can get a drug on the market.

[*Translation*]

The Chair: There is one minute left.

Mr. Robert Vincent: Mr. Laberge, you mentioned earlier that 20,000 jobs were highly skilled. How many of those jobs are in manufacturing?

Mr. Normand Laberge: Almost exactly half the jobs in manufacturing companies are in direct research. On the manufacturing side, these are high-tech jobs requiring a high degree of knowledge because the industry is highly regulated. In basic manufacturing, the jobs are fewer in number, it is true. Our companies work in innovation. They are more focused on research and development than manufacturing. So regulation and patents are very important. We are in partnership with the knowledge industry to a greater extent than with manufacturing. That is what sets us apart, and it is why our recommendations seek to change this aspect in order to attract research dollars and high levels of income. The average overall salary level for our employees is much higher than the Canadian average. These are jobs that require a high level of knowledge; they are not by and large manufacturing jobs.

● (1145)

[*English*]

The Chair: *Merci, monsieur Vincent.*

We'll go to Mr. Carrie, please.

Mr. Colin Carrie: Thank you very much, Mr. Chair.

I want to thank the witnesses for being here for this very important study on science and technology. It hasn't been done in a long time, and I think it's important now that government starts to look at this to see how we can start stimulating more science and technology development here in Canada.

I'd like some clarification on a statement. In Mr. Keon's brief here, he made a statement, basically, that increased intellectual property protection had not led to increased domestic R and D spending for the pharmaceutical industry. He talks, as Mr. Vincent said, about this 10%. It says that big pharma is breaking its R and D commitment to Canadians, less than 2% of sales revenue is spent on basis research into new drugs, Canada's pharmaceutical R and D spending is well behind other countries, and that most new drugs are not truly innovative.

As we're looking at this right now, from listening to Rx&D, it seems there's one side of the argument, and from listening to the generics association, there's the other side of the argument. I was wondering if you could clarify both of your viewpoints on this very important statement, because government does play an important role in the work that both of you do. We're trying to do the best we can, but there seems to be a conflict in your opinion on that statement.

Is it true increased IP protection does not lead to increased domestic R and D and spending? Is that true, Mr. Keon? Could you start?

Mr. Jim Keon: Yes, thank you.

The data that we present in our brief come from the government agency, the Patented Medicine Prices Review Board. Those are not our data; they're data that it reports every year. I think we had provided to the clerk this morning a chart that basically shows that subsequent to Bill C-22 and Bill C-91, going back 20 years and then 15 years, the commitment of 10% in R and D—the research companies' commitment—has fallen below that for several years now.

So I guess our message to the committee would be to be very careful about buying that argument. It doesn't seem to have applied in Canada. We have seen, over the years, consecutive increases in patent protection through regulations, data protection, etc., yet the R and D numbers are not there.

One of the other messages I want to get to the committee today is that when we're looking at science and technology, Canada has a very strong generic drug industry. We should be proud of that. We have 10,000 or 11,000 jobs, many of them in manufacturing, many of those in the manufacturing sectors and areas that are being hard hit now with the Canadian dollar and losing jobs, which is one of the reasons we're concerned about the changes. But we're spending money on research and development. We're developing our products in Canada. Fifteen percent of our sales is going back into research and development for new products. They're being exported.

So when we develop intellectual property policy, we need to have a balance in Canada, and that balance has to be in terms of protection versus competition. We're arguing that the competition from generics is very valuable to Canada as well.

Mr. Colin Carrie: But are you saying that the generics are spending more money in research and development, percentage-wise, than the researchers, the Rx&D?

Mr. Jim Keon: Yes. It's almost double.

Mr. Colin Carrie: Percentage-wise.

Mr. Jim Keon: Yes.

Mr. Colin Carrie: Could you let us know what you think about that, Mr. Livingston?

● (1150)

Mr. Rob Livingston: Sure.

First of all, this has been an ongoing debate, and I think we need to put it into perspective. In Canada we need all the sectors. I think the generics play a very vital role, as do we, and there's another sector that's not here, called biotech. In the continuum as it currently stands, the biotech sector often does the development. We partner with them. We develop; we market. Then when they come off patent, the generics lower the price so that we get a cost savings to the market.

So I don't know that we're directly in competition. I think we're all part of the continuum. The challenge and the reason we always have this debate is the question around intellectual property. When is the right time? When should the patent period end? In Canada, we've had this debate now for some time, and Jim and I will continue to have this debate and continue to stay employed doing it. There will always be lots of dispute.

I guess it's our position that there have been some direct benefits. Prior to the changes back in the late 1980s, there were some famous cases where the Roche manufacturing facility in Vaudreuil and the Ayerst lab in St. Laurent left, and we declined to a very low level. A number of studies were done, and it was identified that one of the reasons was that we didn't have a minimum international standard of IP. With the various international agreements, Canada came into compliance, and we think there's quite good evidence that there has been a benefit. We went from 4.3% in the late 1980s. Our undertaking was to hit 8% by 1991 and 10% by 1996. I think we in fact exceeded that. We hit 10% by 1993. I think we were up around 12%. In addition, we have this whole new sector, the biotech sector, which is quite successful, whose R and D figures are not necessarily captured in these because of the definitions.

We do acknowledge that the figure has now gone below 10%, but as my colleague explained, we think overall the figure has been quite good. We think it could be better, and that's why we're here trying to recommend how to do that.

Mr. Colin Carrie: I think everybody would like to see—

The Chair: A very brief question, Mr. Carrie.

Mr. Colin Carrie: Very briefly, for generics, the whole idea here is to have affordable drugs for Canadians. You mentioned that if we looked at this a little differently, the costs for Canadians would go down. Yet if we look at the OECD averages, I think generic drugs in Canada are the highest amongst all countries. Is that true? And along the same argument, with IP protection, why don't they go down further?

The Chair: Mr. Keon.

Mr. Jim Keon: I think I mentioned briefly in my comments that prices of generics now in both Quebec and Ontario are capped at 50% of the equivalent brand, which is already subject to the Patented Medicine Prices Review Board. So those prices have come down over 25%, and if an up-to-date study were done, Canadian generic prices would now be very competitive. I mentioned that we're also hoping to reach agreements with western and Atlantic governments in the coming months on that.

The Chair: Thank you, Mr. Carrie.

Ms. Nash.

Ms. Peggy Nash (Parkdale—High Park, NDP): Thank you, Mr. Chair.

Welcome to the witnesses this morning.

My first question is for Mr. Laberge and Mr. Livingston.

Since 1987 we've had 20 years of longer patent protection. Before the 1987 change, the patent was seven or eight years—correct me if I'm wrong—and it is now twenty years of patent protection. The quid pro quo was that the industry would invest more in research. We've heard some concerns about how research is dropping, and it seems as though that part of the bargain is not being lived up to. Others have cited the Patented Medicine Prices Review Board annual reports as documenting these lower investments in basic research in new drugs.

In your statement you are critical of the PMPRB, and you say that "the regulatory burden is increasing and sending a negative signal that Canada may not be a predictable and stable environment for investments". That's a quote from the document. It seems to me that 20 years of patent protection represents a pretty stable environment. I'm wondering if it is because some of these reports are embarrassing to the industry, or what the rationale is for that statement.

Mr. Rob Livingston: PMPRB's mandate, when it was originally set up, was to ensure that price increases of patented medicines did not exceed the consumer price index. That was its mandate, and the industry was forced to accept that. What we've seen over the past 20 years is that they have moved to what we feel is beyond their mandate. They're moving now into looking very aggressively at introductory prices and looking at comparing those introductory prices to other lower standards. In other words, we feel they are getting into more or less the provincial jurisdiction, because as we showed you on our chart, once you get your approval after using up 10 years, if you want to get reimbursed publicly, which often you do, especially if it's a chronic therapy, you have to go through the PMPRB. You go through the common drug review. Then you go through the provinces.

The common drug review and the provinces are the ones that are more or less responsible for negotiating, although you don't use that term. They're trying to get the best available price. We think that the PMPRB now is moving into that realm, and it shouldn't. It should just be looking at non-excessiveness. So we are getting this additional regulatory burden up front, and then we're getting it still downstream even once you clear that hurdle.

● (1155)

Ms. Peggy Nash: It seems to me the data is highlighting that the deal made 20 years ago about extending patents and the requirement for greater investment is not really being lived up to. That is something I appreciate their highlighting for us.

I am concerned about the notion of evergreening, because that is on top of the 20 years of patent protection, and it is something, as my colleague mentioned, that the Supreme Court identified as draconian. These proposed regulation changes with no consultation with the generic industry would reinforce that, and who is going to take the hit? It will be Canadians, through both individual payments and their private drug plans, and through our provincial governments.

This is my question to you, Mr. Keon. The generics seem like a good news story. They are doing double the research. They're providing drugs at half the price of the name brand pharmaceuticals, which, as I understand it, are the fastest-growing cost to our medicare system across the country.

Can you explain to us what consultation and discussion you've had with the health minister or the industry minister or their officials, and what their rationale is for making this change?

Mr. Jim Keon: Thank you.

As I said earlier with regard to the changes that are now published in the *Canada Gazette*—and the comments have to be in by Monday—there was no consultation. We were completely surprised. I have some difficulty in understanding the rationale.

Pharmaceuticals have extra patent protection that doesn't exist for any other type of patent. That's through the patent regulations, where if a competitor is seeking to get an approval, a brand company can get an automatic block against that approval. What the Supreme Court said was that if you're going to enjoy that benefit, the patents you put on the list have to be relevant to your submission that Health Canada approved. And the government agreed with that in October 2006.

What is happening now, surprisingly, is that the government is saying they did not support the Supreme Court decision, even though they made that change, and now they're going to go back and let these patents be re-listed, even if they're not relevant to the submission, even if they should not be on the list in terms of the generic product that's coming. The effect is going to be much more litigation, much more delay for generics coming on the market. That's surprising to us. I think again in the discussions I've been able to have this week with some of the provincial ministries of health, they're very surprised and very concerned too. I do not have a good rationale for why the government would want to do that.

Ms. Peggy Nash: Mr. Keon, I know you had no presentation ahead of time. Has there been any discussion since the announcement?

The Chair: This is your final question, thank you.

Mr. Keon.

Mr. Jim Keon: We have forced our way into a few meetings this week, yes.

The Chair: Including into my office, although I didn't think you forced your way in. Thank you.

Thank you, Ms. Nash.

We'll go to Mr. Simard, please.

● (1200)

Hon. Raymond Simard (Saint Boniface, Lib.): Thank you very much, Mr. Chair.

Thank you for being here this afternoon.

My first question would be to Mr. Keon. I think you indicated you do a substantial amount of R and D. I wonder if you could clarify for me what a generic company would be doing in R and D. Are you developing new drugs, or is it mostly to do research and development in developing better processes to produce the generic drugs?

Mr. Jim Keon: Thank you.

For a generic drug, the research would be to develop your own formulation for the drug. You would either develop or import, define chemicals, develop the formulation. You then do your clinical trials to determine that the product has the same medicinal effect as the brand name company. Those are the types of research you do.

Our companies are also moving into a very important new area. We talk about biologics, and our companies are very excited. There's a process going on now in Canada with Health Canada, and consultations are under way on subsequent entry biologics, where the products are much more complicated. Our companies are anxious to do that.

I should say, just so people understand, that the generic industry has evolved quite a bit in the last five years or so. We now have companies like Sandoz, which is part of Novartis; we have Teva; we have ratiopharm; and we have our own Canadian company, Apotex. These are very large, sophisticated companies selling around the world, fully capable of developing the technology for these biologic products. We're quite proud of that as well.

Hon. Raymond Simard: But you do not develop new products, new drugs.

Mr. Jim Keon: A generic drug by definition is an equivalent product to a brand name product. Our value is in bringing the cost down and increasing the headroom for expenditures to go elsewhere in the health system.

Hon. Raymond Simard: That was my next question. What has allowed you to negotiate these huge reductions in cost with Ontario and Quebec?

Mr. Jim Keon: As I said, our volumes have been increasing. We have had significant growth in Canada for the last number of years. So I think in part the fact that governments are willing to put our products on their formularies faster than in the past, they recognize the value better.... So in return for some improvement in their listing process and the process for reimbursing generic drugs in Ontario and Quebec, we were able to negotiate those prices.

Hon. Raymond Simard: Mr. Livingston, you've indicated that your industry invests $120 million in R and D. Am I to understand that's 8% or 9%?

Mr. Rob Livingston: The actual industry figure is about $1.2 billion. The $120 million was my company, Merck Frosst.

Hon. Raymond Simard: Your company. So $1.2 billion.

Are you having a difficult time having access to top-quality researchers? Is that an issue here?

Mr. Rob Livingston: In certain areas. I know our particular company is finding it tougher to get MDs, especially with expertise around clinical development. I guess that's understandable, because I think we've all experienced shortages in family physicians. There's a big shortage, a big demand for those. We often need that expertise in our clinical trial and some of our other development processes. That's one particular area our company finds.

In terms of the industry overall, I don't know what data we have on that.

Mr. Normand Laberge: In a recent survey of our members, we asked about the biggest hurdles in that regard, and access to proper researchers was not deemed to be a major problem. Canada is doing very well in that regard, and recent government investments in education and basic research as well are helping.

So Canada is performing pretty well in that regard. Yes, we could be first instead of being in the average. It is the other hurdles that are hurting the most in bringing down the ratio of investment. Even though we are maintaining the average of 10%, it is low recently because of those new hurdles, which were not in existence 19 years ago but were put in place recently. The research base is not a major issue right now.

Hon. Raymond Simard: That's interesting, given that most of our witnesses here indicated that it was an issue. I'm glad to hear that your industry is not going through that.

Here is one quick question to Ms. Gowman. You were talking about industry and university research not being aligned. Can you explain that to us? We seem to be hearing lately that they are working together quite collaboratively.

● (1205)

Ms. Linda Gowman: What I said was that they weren't aligned to timelines, and sometimes not also to intellectual property needs and the need to retain confidentiality about some things that are strategic business advantages. We find sometimes with universities that keeping projects on track in a timely fashion, not having them be interrupted by whatever the academic schedule is, is a bit of a challenge. Sometimes research that is done in industry is deemed to be somehow second-class, for whatever reason, even though I'm biased to think that it's not.

So I think we have a bit of a cultural mindset there, but that universities are coming around to the idea that working with industry sooner rather than later in research forums—we're not talking about pharmaceuticals here, but about research that's closer to manufacturing—is an efficient thing to do and actually a good thing to do.

The Chair: Thank you, Mr. Simard.

We'll go to Mr. Stanton, please.

Mr. Bruce Stanton (Simcoe North, CPC): Thank you, Mr. Chair.

I'm going to split my time with Mr. Van Kesteren so that we can get some other questions in.

Mr. Keon, I note you've asserted rather strongly that there's been no consultation on this latest bulletin that was posted in the *Gazette*. But in fact, the process that is going forward here is really just a reaffirmation of existing policy as it relates to the pre-2006 regime that the government had. As a matter of fact, I note a copy of a letter in which the Quebec Minister of Economic Development indicates, in the translation, his support for this government's latest efforts in guaranteeing the integral respect for the modifications industry ministers had supported as late as October 2006.

There seems to be a disconnect here. You're saying there's really no consultation, but in fact this is a process that was already in place. Here you have a provincial minister who is agreeing and supporting the government's position in keeping this intact. How would you speak to that disconnect?

Mr. Jim Keon: I'm not aware of the letter, but I know the Quebec Minister of Industry has been very supportive of both the brand and generic industries. There are strong generic and brand industries in Quebec; I think that's one point to mention.

The decision of the Supreme Court reaffirmed that irrelevant patents should not go on a patent list. That was completely consistent with the government changes.

What the government is doing now, again surprising us—investments have been made in products with expectations that the law had been clarified—is undoing the Supreme Court decision, saying, for patents prior to the changes we made in 2006, we're going to let those irrelevant patents come back on to a patent list at Health Canada that automatically will block a generic. It's a very major change, and we were completely surprised.

Mr. Bruce Stanton: I want to get to my colleague here, but you also have some transition proposals in place to make sure those generic proposals are still in place with Health Canada, don't you?

Mr. Jim Keon: I'm not sure I understand your question. This change was a complete surprise to us. It's going to allow patents that had previously been determined to be irrelevant to our products to go back on the list and delay us from coming on to the market. It's bad for our industry. We made investments based on the law, and it's not good for provincial programs or other insurers who have to pay for this.

Mr. Bruce Stanton: In fairness to my colleague, we'll move on. Thank you, sir.

The Chair: Mr. Van Kesteren.

Mr. Dave Van Kesteren (Chatham-Kent—Essex, CPC): Thank you, Mr. Chair.

To continue on, I wonder if we're digressing. I don't mean to make light of the seriousness of this situation, but this study is to improve our R and D in this country and to enable companies to be able to do that more and more. I'm wondering if this battle might be fought another day.

I do want to make one comment. When I look at the gold nuggets that are up for grabs—Lipitor, Viagra, and Novasc—are these developed in the States? Is that possible?

Maybe I should ask the pharmaceuticals. Were these drugs developed in the States?

Mr. Normand Laberge: I can't answer that question. It's related to specific companies, and I don't have the information.

Mr. Dave Van Kesteren: Is it a fair assertion that maybe the majority of new drugs are developed in the United States?

Mr. Rob Livingston: I don't think so. I think they're a global effort.

Again, going back to our experience, does one jurisdiction have the lead in the development? Yes. Is Canada in a position to get that lead? Yes. I've identified about half a dozen where we have been.

● (1210)

Mr. Dave Van Kesteren: My next question would be with respect to the generics in other countries, specifically the United States. Will they be able to copy these drugs?

Mr. Jim Keon: Yes.

An hon. member: What are the rules?

Jim Keon: There are rules in the United States regarding patents, and to some extent they're different from those in Canada. But clearly the generics will be genericizing these products as well.

The one point I would make is that because of the laws that Canada had 20 years ago, it's thought that Canada is a generic-friendly legislative environment. In fact in the United States, as I mentioned, 67% of all prescriptions are now filled with generics. It's only 50% in Canada.

Mr. Dave Van Kesteren: Can we get some information on that? That's a key to this question too.

But I want to move on to another issue. I haven't had much of a chance to talk.

The Chair: Last question, Mr. Van Kesteren.

Mr. Dave Van Kesteren: You developed this new product that combats E. coli. Is there anything new on the table? This is a great idea. I think you're making a great recommendation. It makes good sense. Have you got something new? Are you possibly working on E. coli with poultry?

Ms. Susan Goebel: As with any product, you start going to the market with phase one, but there is usually a development plan behind the scenes that talks about the second and third generations.

Mr. Dave Van Kesteren: Has the government been helpful with their R and D and with the research money? Have you been able to take advantage of that? Have you got any recommendations or possible suggestions that would either improve or—

Ms. Susan Goebel: The Government of Canada has indeed been helpful with that. We have been working with the Industrial Technologies Office on the second generation—

The Chair: Thank you, Mr. Van Kesteren.

We'll go to Monsieur Vincent.

[*Translation*]

Mr. Robert Vincent: Thank you, Mr. Chair.

Mr. Keon, from Mr. Van Kesteren's question, I gathered that 50% of products in Canada are generic, while in the United States, the figure is 67%. Is that correct?

Mr. Jim Keon: In Canada, 50% of prescriptions are for generic medications. In the United States, it is 67% of prescriptions.

Mr. Robert Vincent: In 2006, there were 29 new active substances. I assume that they were patented or something of the sort. But of those 29 new substances, only four were significant innovations over existing medications. They can be put in the category of discoveries providing somewhat significant advances. But the 21 new substances in category three mean that the medications are the same, with only small or minor advantages over existing ones.

Does that prevent a generic drug being produced? If a new patent is applied for, are we dealing with a "new product" that actually is not new? Maybe we are only talking about one improvement, but if another 20-year patent applies to the product, it means that we still have the same products and that only 2% goes to the research and development of new products. The rest goes to improving old products, but they cannot be copied and sold more cheaply.

Is that why generic products only represent 50% of prescriptions in Canada?

Mr. Jim Keon: When a new product is put on the market, It is difficult to say whether a generic manufacturer is going to produce an equivalent in 12 or 14 years. In Canada, the average exclusivity period for brand-name products is more like 12 to 14 years, not 5 to 9 years as my colleagues have mentioned. If a product is on the market when its patent expires, the generic product manufacturers will decide if they are interested in producing it, and can still make a profit while selling it at half the price.

Mr. Robert Vincent: I am going to ask my question a different way.

If a company decides to make substantial improvements to an already patented product, thereby obtaining a new patent, does that mean that a manufacturer of generic products cannot copy it, given that the patent protection process is once more in effect? Am I mistaken?

● (1215)

[*English*]

Mr. Jim Keon: I will answer in English.

If a patent represents a substantial improvement, and if it is a new product, then that patent will protect the product and the generic will not be able to come to market until that new patent has expired. What we find with evergreening is that there are many patents on minor variations. For instance, it could be a different polymer or a different salt in the product, which does not change the product, does not in any way enhance the product. But these patents would have different expiry dates. The difficulty is that with the patented medicines regulations, the generic cannot come to market until it proves in court that it's not going to infringe on any of these patents.

The Supreme Court said that the patented medicines regulations were being abused, that irrelevant patents were going on the list and were delaying generic drug companies. The government said the same thing in October 2006. Terrific! Let's get rid of them. Health Canada was taking them off. The courts were taking them off. Terrific! Generics were able to come on the market when basic patents were expiring.

Now, again without consultation, the government is saying that brand name companies will be able to re-establish those patents on the patent list. And that's clearly going to delay the entry of generics, as the government has said itself. That is the difficulty we have with the evergreening patents.

[*Translation*]

The Chair: Mr. Vincent, do you want to ask a very quick question?

Mr. Robert Vincent: Yes.

According to what I have been told, the companies that you represent could move manufacturing and packaging of their products to China. Is this just a rumour or is it true?

Mr. Jim Keon: Our companies have at least 8,000 or 9,000 jobs in the manufacturing sector in Canada, mainly in Ontario and Quebec. We are fighting hard to protect those jobs in Canada.

The Chair: Mr. Laberge.

Mr. Normand Laberge: As their name implies, innovative pharmaceutical companies are involved in innovation and in research and development. That is where we concentrate our efforts, mainly in order to attract new investments. For every medication we make, Health Canada requires that the licensing and the safeguards are checked, wherever they are manufactured or for whatever market they are intended.

Mr. Robert Vincent: The job losses are what concern me.

Mr. Normand Laberge: There are no job losses in our case because we concentrate on research and development and on the added value that new medications bring.

[*English*]

The Chair: We'll go to Monsieur Arthur.

[*Translation*]

Mr. André Arthur (Portneuf—Jacques-Cartier, Ind.): Thank you.

Some of my friends call me naïve at times, and I am very proud of that. I would like to ask a naïve question to the brand-name pharmaceutical manufacturers.

When the patents that protect your products have expired, generic manufacturers legally adopt your idea and sell it at rock-bottom prices compared to what you were asking when you had to invest in research or recover that investment. I have always wondered, when the patent on a medication has expired, why the manufacturer, who knows that a good product of his is about to be copied and sold at half of its current price, could not cut his own price in half and keep providing the product to his clients.

I do not why you do not do that as a reflex action. Are there business reasons hidden behind your reluctance to lower your prices?

● (1220)

[*English*]

The Chair: Mr. Livingston.

Mr. Rob Livingston: Thank you for your question. I don't think your question is naive at all. We get asked that question quite often.

I think it comes down to the fact that brand companies have tried to get into the generic business. As a matter of fact, some of them are in it. Our company tried that business and we found that we weren't very good at it; in other words, we couldn't compete with the generics in the generic business.

Mr. André Arthur: With your own medicine?

Mr. Rob Livingston: Yes.

Mr. André Arthur: With your own products, you cannot compete with the guys who copy them?

Mr. Rob Livingston: It's a different business. You're selling to a different market; you're dealing with a different distribution system. And the big thing that we have in Canada is an automatic substitution policy at the provincial level, which says that the lowest price gets the market. So what happens to us is that as we approach patent expiry, if we are to drop our price, we have to make sure that we indeed have the lowest price to get that business. Even with that cost structure, we found that we could not lower it enough to compete with the generics, so we chose not to get into that business.

There have been examples where we've licensed out products. In certain circumstances, we've licensed out with generics to do that. But again, you only get a fraction of the revenue. So that's why you see us, by and large, in the innovation business, not the generic business.

[*Translation*]

Mr. Normand Laberge: I would like to add that, even though its patent has expired, a medicine can still be sold, not as a copy but in its original form. In some cases, doctors continue to prescribe the original medication because its beneficial effects and its side effects are not exactly the same as the copy. Everyone reacts differently to a medication. So there is always some kind of a market. Under those conditions, companies often prefer not to put a generic version on the market, for reasons that Mr. Livingston has explained.

[*English*]

Mr. André Arthur: Ms. Goebel, you explained to us that your vaccine was invented with the support of the Canadian government. How much support?

Ms. Susan Goebel: It was $7.6 million through the Industrial Technologies Office. I don't have the number for the SR and ED program.

Mr. André Arthur: After that, once your vaccine was on the market, you seemed to say that the government was hesitant about the idea of promoting it to the cattle industry. Did I understand you correctly?

Ms. Susan Goebel: The cattle industry is one that is suffering right now. It's not that the government doesn't want to promote it, but that the cattlemen need assistance.

Mr. André Arthur: So what exactly are you asking of the government, then? I understood that the government was not doing enough to get the cattle industry to adopt your vaccine. Now you're telling me something else. So I didn't understand you correctly the first time.

What do you expect of the government, as far as your vaccine for the cattle industry is concerned?

Ms. Susan Goebel: The ask before government is for $50 million over three years to help commercialize this, allowing cattlemen to adopt the use of the vaccine.

Mr. André Arthur: Is it because it's too expensive at this time?

Ms. Susan Goebel: It's a cost they're having trouble incurring right now.

Mr. André Arthur: And the cattle industry could not, on its own, buy it, use it, and promote it?

Ms. Susan Goebel: The cattle industry is a commodity-based system. There are certain segments within the system that are identity preserved. These are branded beef operations—Laura's Lean Beef, Top Meadow Farms, artisan beef. They are integrated systems that are able to take the cost and pass it on to the consumer. But that's not the case for most cattlemen.

Mr. André Arthur: Thank you.

The Chair: *Merci, monsieur Arthur.*

Ms. Nash.

Ms. Peggy Nash: We've heard some troubling testimony here today about the drug patent regulations. The government is proposing to change them with almost no consultation and within a short timeframe. This would extend patents in a way that overrules a Supreme Court decision that called this evergreening process draconian and one that would result in hundreds of millions in drug costs for our health care system. To challenge this, the generics will have to go to court, incurring even more cost for the health care system.

Mr. Livingston, did the brand name pharmaceutical companies request this change from the health or industry ministries? If so, what was the rationale?

● (1225)

Mr. Normand Laberge: The proposed amendments by the government simply reaffirm existing government policy. They are aimed at clarifying the intent expressed in 2006, which was to ensure that patents protected under the regulations would continue to enjoy protection until the expiry of the original protection. That was stated during the consultation back in 2006. The amendments do not change the rules of evergreening. They simply clarify the intent of the government that was going forward and not actually going backward.

The proposed amendments are further to the government commitment in the 2007 Speech from the Throne to improve the IP protection regime in Canada. So this is not a surprise. That was part of the speech and an ongoing process. It's simply to correct the situation that occurred in recent years. It's not changing the 2006 situation.

Ms. Peggy Nash: Did your organization or individual pharmaceutical companies have the benefit of consultation with the ministers in the development of this regulatory change—or clarification or correction?

Mr. Normand Laberge: We are responding to the *Canada Gazette* part I, consultation. This was the first time we saw the amendments.

Ms. Peggy Nash: Did you lobby for them?

Mr. Normand Laberge: The throne speech was pretty straightforward about the intent of the government to clarify this. We signalled the government that the way regulations were done was not clear and that corrections were needed. We did this as part of regular communications we have on all sorts of issues with the government. We did not specifically request any wording in the regulations; we simply invited the government to respect the commitment in the Speech from the Throne.

As I said, the amendments are simply to clarify the original intent of the government back in 2006.

Ms. Peggy Nash: So you didn't help to write the regulations, but you contacted the government about them. You took a cue from the 2007 throne speech.

Mr. Normand Laberge: We pointed out to the government that the regulations as written in 2006 were not clear and that the government needed to clarify its intent and apply its existing policy. We believed the government should make sure that the policy decision agreed upon in 2006 would be part of this, and that everyone should respect the law.

Ms. Peggy Nash: Mr. Keon, do you agree that this regulatory initiative, though it runs counter to a Supreme Court decision, simply clarifies or corrects regulatory policy as opposed to changing it?

Mr. Jim Keon: No, it's a fundamental change. In fact, the Supreme Court looked at the patented medicines regulations, which are a function of the Patent Act.

The Patent Act has a clause called “early working”. It says that a company can use a patent to develop a product for research and regulatory submission purposes. The regulations flow from that and allow brand name companies to block a generic.

The Supreme Court said that the extraordinary power given to a patent owner in pharmaceuticals should be used only when the patents are clearly relevant to the submission. The government agreed with that. In 2006, it said that it was never their intention that these irrelevant patents would be used to block a competitor, and the government made the change.

We are surprised at this change, and we had no input, no warning. We tried to talk to Health Canada and Industry Canada but were never told, prior to seeing it in the *Canada Gazette*, that such a change was being considered.

The Chair: Thank you.

Thank you, Ms. Nash.

We'll go to Mr. McTeague, finally.

Hon. Dan McTeague: I'm very disturbed that the Conservative government would have taken the position of actually not even informing the industry affected after so many years of hard-fought battles to correct this problem. Even the President of the United States, when reviewing this back in 2002, referred to it as absurd and beyond reality that the patenting of even...I think he referred to it as the pill bottle in which a drug was found was used strategically to keep generics off-line.

If it were the other way around, if a regulation were being proposed that would affect the brand names, would we not expect the kind of response we're seeing here today? I am flabbergasted that we would allow this to happen.

Mr. Carrie, you take back to your minister the need for further consultation and for really looking at this hard and long, because I think, frankly, that it's going to damage a lot of the provincial formularies that are anticipating these changes. And of course, it is a question of equity.

I want to ask something that is specific to this committee, and that is about the level of R and D. We can talk about the percentages, but I want to know what truly is research and development.

I'm wondering, Mr. Livingston, Mr. Laberge, and Mr. Keon, what you consider R and D. Do you consider advertising to be R and D? The Income Tax Act actually says that it is. Do you consider marketing to be R and D? The Income Tax Act says in fact that it is. Mr. Livingston and Mr. Laberge, are we giving a false impression of what in fact is a declining amount of R and D being done by your industry?

● (1230)

Mr. Rob Livingston: The R and D we are reporting is that which qualifies under the PMPRB, and it's written into, I believe, the Patent Act. It was the SR and ED definition as at 1987. It's been a while since I've looked at the detail. The SR and ED definition is that it has to be a cost directly or indirectly related to scientific uncertainty. In other words, quite often what CRA has used as that point of scientific uncertainty is the granting of market authorization, the NOC. As to costs involved up to that point, as I mentioned, the majority of those costs occur in the clinical development phase. You have the various phases—one, two, and three. There are the costs, direct and indirect, of that as well as the costs if you're partnering, as we often do, with university and research institutes.

Our experience has been that CRA has been quite restrictive. There are a number of areas in which we feel they have not been reasonable in allowing those costs. Certainly to my understanding, there is nowhere in there that says you can include advertising costs. I don't think there's any way that would fit that definition, but that's a definition we comply with.

I don't know what definition was used to come up with Jim's number. I'd welcome it being submitted to PMPRB so it could be included and evaluated as well. Let's include all of it, then.

Hon. Dan McTeague: I don't have any difficulty with that. It's just that when someone suggests that they are investing in R and D, when investments or patents are being made in other countries, and we have a residual of simply warehousing in Canada, and yet these amounts of moneys that are being suggested....

I appreciate that you're working with universities, and I think that's very good. So are the generics, at the same time. I'm trying to figure this out, not with respect to SR and ED but with respect to the definition of the Income Tax Act. If you are educating the public about your product, for instance, and it falls under the definition of R and D, to what extent are your R and D claims in fact not real research? To what extent are they for advertising or marketing your product or, in other words, selling your product directly to pharmacists, or whatever the case may be?

Mr. Rob Livingston: As I say, the definition we have to comply with is from the Income Tax Act. It does not allow that , so therefore it couldn't be included in that number. Also, the restriction is that it has to be R and D performed in Canada. So R and D performed outside the country would certainly not qualify.

I guess one of the invitations I'd offer is this. We have a very large biomedical research facility an hour and a half down the road. I'd welcome the opportunity to take the committee through it. You can talk to the researchers and you can see what they're doing. You can see how they start with a disease target, how they do the screening, and how they do the molecule development. You can ask them yourselves. I'm more than willing to do that.

Hon. Dan McTeague: Thank you.

The Chair: Thank you, Mr. McTeague.

I want to thank all of you for coming in. I know there are a lot more questions, but we do have two panels today of an hour and a half each, so I want to thank you for your presentations and your responses to members. If you have anything further for the committee, please submit it to the clerk, who will ensure all members receive it.

Members, we will suspend for a few minutes and bring Dr. Alper and Dr. Munroe-Blum to the table as quickly as possible.

● (1240)

The Chair: Order, please, members and witnesses.

We are starting our second panel here. We have two very distinguished guests and look forward to an excellent discussion.

From the Science, Technology and Innovation Council, we have the chair, Dr. Howard Alper, and we have a member, Dr. Heather Munroe-Blum, who is the principal and vice-chancellor of McGill University. I think we'll allocate about 10 minutes between the two of you for presentations, and then we'll go to questions from members.

Dr. Alper, do you want to lead off?

[*Translation*]

Dr. Howard Alper (Chair, Science, Technology and Innovation Council): Thank you, Mr. Chair.

I am speaking to you today in my capacity as the chair of the Science, Technology and Innovation Council. I am here with my fellow council member, Dr. Heather Munroe-Blum. On behalf of Heather and myself, I would like to thank committee members for the opportunity to speak to you about how the council is contributing to science and technology policy in Canada.

[*English*]

It's a great pleasure for us to be here.

[*Translation*]

It is very timely that your committee is studying science and technology issues, given the introduction last year of the government's Science and Technology Strategy, which positions science and technology as part of the government's economic agenda, directly supporting long-term productivity and competitiveness.

I will not go into details on the strategy itself, as I understand that Mr. Richard Dicerni, the Deputy Minister of Industry Canada, and Mr. Iain Stewart, the Director General of the Portfolio and Coordination Branch, already presented this topic to you a few weeks ago.

[*English*]

The S and T strategy highlighted the need to revitalize external science and technology bodies through the creation of a single integrated committee with a strong voice. The STIC, or Science, Technology and Innovation Council, is therefore an important element of the strategy.

Scientific and technological innovation not only provide solutions to environmental issues, health, and other important challenges; it also contributes to the enhancement of economic competitiveness and productivity. This multi-year S and T strategy is very important for the country. The Minister of Industry is fully engaged in advancing the strategy and council members are making a meaningful contribution by providing nimble—and I underline that word—responsive expert advice on issues in this respect.

In terms of the composition of council, Chair, you may recall that in March I sent a letter providing information on council membership. I also noted some of the work we have been tasked to do. But let me add a few comments.

First of all, personal. It's a great honour to serve as chair of this council, to serve my country and to contribute to the country in this regard. Canadians are so fortunate to have such a phenomenal group of people on this council. I've chaired 13 committees in Canada. I had to resign from all of them when I took on the council—conflict of interest—to chair or serve. I serve on a number globally. This is the best committee I have ever run. The people from industry, academia, and government are not only engaged; they are committed to this enterprise.

For example, recently we had to deal with a short-term issue and set up a meeting with four days' notice, and all 18 members but one for part of the meeting were there. That's just one minor point, but I think it's very important.

Who is on it? There are seven from the corporate sector, presidents and CEOs of small and medium-sized enterprises, as well as trend-setting research-based organizations. There are four outstanding university and college presidents, including my colleague to the left, who is a treasure to this country, in my opinion. It was important to have real researchers on the committee. I'm still a real researcher; I run a group of 15 graduate students and post-doctoral fellows. But it's important to have people from across the country, and there are three outstanding individuals, all Canada research chairs, who serve on the committee. There are three deputy ministers on the committee who serve as well. They add an important voice in terms of providing advice to the process from policy creation standpoint.

In terms of the role and work of council, we report to the Minister of Industry, and he is responsible for S and T across government. Our principal mandate is to provide timely advice, as I've already noted, on S and T issues identified by the government that are critical to Canada's economic development and social well-being. Additionally, we will provide regular state of the nation reports to benchmark Canada's performance in S and T against international standards. Heather Munroe-Blum will provide more detail in a moment.

In putting this council together, we looked at other successful models globally and tried to incorporate best practices. The council operates on the following principles. Our work supports the S and T needs and priorities of government. We address issues that are crosscutting in nature, that are relevant to STI, and that can be dealt with in a timely manner.

● (1245)

When an issue is brought to us for attention, we create a working group of usually four to six individuals, a subcommittee of council, to consider the matter, report to council, have a debate, and come to closure. Then the recommendations on the advice function are presented to the government.

I'll describe some of the issues that have been considered and that are being considered. The S and T strategy described four general priorities: environmental S and T, natural resources and energy, health and related life sciences, and information and communication technology.

We were asked to recommend themes or sub-priorities within each of these four areas that we should focus on as a nation to achieve accelerated growth or accelerated development in those areas. I served on John Howard's group setting national research priorities for Australia, as the foreigner, and that was an incredibly valuable exercise to learn from. It has transformed Australia in the last six years.

Another issue is to deal with Canada's international S and T portfolio, to look at opportunities for Canada on a global basis, and to provide advice on a coordinated strategy for S and T that's relevant to all sectors—industry, academia, and government. We had a working group this morning at nine o'clock that I left at 12 o'clock.

We're also looking at procurement policies at the present time. It's a separate working group that meets at three o'clock this afternoon. We have a meeting of STIC tonight and tomorrow. Today's a busy day.

Also, I should mention that council had a large role on two initiatives announced in the budget that I think are remarkable. One is the Vanier Scholarships, valued at $50,000 each—500 scholarships—and the other is the Canada global excellence research chairs program, with $10 million for seven years per chair.

Those are some examples. I'll ask Heather to comment on the state of the nation.

● (1250)

[*Translation*]

Dr. Heather Munroe-Blum (Member, Principal and Vice Chancellor, McGill University, Science, Technology and Innovation Council):

Thank you, Howard.

Like Howard, I am very pleased to be with you today. I feel that the work of the members of this committee is very important for the present and the future of Canada.

[*English*]

It's an honour to come and present before you and talk to you about this new national initiative and also to see democracy working so well.

As Howard said,

[*Translation*]

I am going to speak briefly about one of the council's initiatives.

[*English*]

This is our Science, Technology and Innovation Council state of the nation report. Indeed, if you think about one of the big questions facing Canada right now, and if you believe, as certainly our gifted chair and the members of the council do, that science, technology, and innovation are at the heart of the future success of the country, it's important for us to know how Canada is actually doing in this domain. I'm sure as members of a committee you often wonder exactly that, as you have to deliberate on the important questions about our science, technology, and innovation programs and policies.

So the state of the nation report is one of the major initiatives being undertaken by the council in the first year of its mandate. The idea here is to create what will be a cyclical report, a public report that will serve to help us to benchmark Canada's science, technology, and innovation performance both against its own progress at year over year, but maybe most importantly, against the progress of the nations with which we both compete and collaborate worldwide. I think it has been well demonstrated that we have no benefit from science, technology, and innovation at the local level if this is not science, technology, and innovation that is recognized worldwide as having a quality and an impact that ranks with the very best in the world.

So the council has set to work, with me and Peter MacKinnon working with a group of the council, in the first instance, to develop a framework, which we will discuss at our meetings today and tomorrow, that will lay out key dimensions of performance that we feel will be very important for all sectors—government, universities and research institutes, and the private sector—both to understand how well we're doing against the competition worldwide, how well we're doing against our own progress over time, and to formulate recommendations related to areas of strength and weakness to build up our capacity and our impact, as I said at the beginning, for local benefit via worldwide recognition of our excellence and impact.

I'll stop there. Thank you, Chair.

● (1255)

The Chair: Thank you. We're over time here, and I do know members have a lot of questions.

On a procedural note, Dr. Alper, you mentioned a letter you had sent. I believe I saw the letter at the time, but if it's possible to get a copy of that letter again—

Dr. Howard Alper: I have it.

The Chair: Okay. We'll get to that to the clerk and then to the members.

We'll start with Mr. McTeague, for six minutes.

Hon. Dan McTeague: Ms. Munroe-Blum and Dr. Alper, thank you very much for being here today. It has been very informative. I think I speak for some of the members in saying we hope afterwards to get more from you, as opposed to lengthy questions.

Dr. Alper, in your own view, what could Canada be doing that it is not already doing to meet the challenges of science, our reputation internationally, which Ms. Munroe-Blum referred to? Are there countries that you can identify that tend to be leaders in this area, particularly the commercialization of R and D?

Dr. Howard Alper: That's a very good question.

I think Canada has done very well on the so-called knowledge advantage, the support for research in public institutions and universities. But we have challenges, as you noted, and one of our major challenges is research and development in industry. We need to do better.

I didn't have time to tell about all the working groups we have, but a very important one is one led by David O'Brien on industry R and D, to review and consider where we are now, benchmark us against the best in the world—and we'll come to that in a minute—and provide advice on any new initiatives, instruments, etc., that different stakeholders, not just government, can undertake for the future.

Some of the major success stories on a global basis include Finland, Korea, and Sweden. In all three, there are very large investments within industry for R and D and commercialization.

Last week I had the honour—it really was an honour—to speak to the European Union committee. I was the keynote speaker in Istanbul on research and technology for development. That is the terminology the Europeans use, which we would call science and technology, or research and innovation. I was invited there, I have to tell you, because of the reputation Canada has in S and T policy and accomplishments. Yes, we have challenges, but we also have accomplishments.

The warm-up speaker before me was the former Prime Minister of Finland, Esko Aho. He spoke for 15 minutes on transforming Finland from a natural-resource-based economy to one that is knowledge-based, a mixed economy. It's not just Nokia, which we all know, just as we do RIM in Canada, but it's also converting forests to value-added products, something in an area Canada has not taken advantage of, other than to produce paper and some other things. He mentioned some of the tools or instruments the Finnish government has used to make this happen and to accelerate its development. I fed that information in to David O'Brien's working group.

There are other best practices elsewhere, but those countries I mentioned really have much to be proud of in terms of what they've done in that regard.

So there is commercialization from an industry perspective: big companies spinning off small companies, small companies being created, and then of course the creation of companies from academia. We've made progress in this regard, but this is an area in which we need to make significant improvements in the coming years.

● (1300)

Hon. Dan McTeague: Thank you for that.

I have no more questions, Chair.

But Mrs. Munroe-Blum, could you please answer?

Dr. Heather Munroe-Blum: Yes, if I could augment what Howard said, I think we've been in an experimental mode in Canada for the last 10 to 15 years. When I think about the middle of the 1990s, when dramatic cuts were taken in the federal granting councils, in the provincial university systems, I think we've come an enormous way forward with the great, well-thought-out, creative investments in attracting and retaining great talent—the Canada research chairs, the Canada Foundation for Innovation—the transition of the Medical Research Council into the Canadian Institutes of Health Research, and beginning to deal with the full research costs of research done through universities.

I'll just say our challenges are twofold. One is that we are still undereducating our populace. At the end of the day, whether you look at commercialization as one of the outcomes or you look at the health and societal benefits that come from having a strong research, science, and technology innovation culture, you can see that Canada is doing well at the community college level, but underperforming in preparing people at the masters and doctoral levels, particularly in science-related degrees. That's an area I think we can take on and prevail in.

The second is that when we look at inter-country comparisons—and this will be very important for our state of the nation report—we tend to look consistently at those that have been successful, which are, as Howard said, these small nation states. You could add Israel and Singapore to the list he gave. Both our challenge and our strength is that we have a huge geography with a relatively small population. It would fit into California readily. Tokyo has more people than the whole nation of Canada. This large geography has created strength in our capacity to network, strength in our ability to understand that it's only through harnessing the synergies of private sector and government investment and what our universities, research institutes, and educational institutions do that we will really have outstanding areas of impact. We need to think more strategically about that. In that regard, Australia is a great example. It doesn't have the U.S. south of its border, but it has some other comparisons with Canada.

The Chair: Thank you.

Thank you, Mr. McTeague.

We'll go to Monsieur Vincent.

[*Translation*]

Mr. Robert Vincent: Thank you, Mr. Chair.

The government would like to concentrate its research resources in four priority areas: environmental science and technologies, natural resources and energy, health and related life sciences and information and communications technologies.

Could you expand a little more on the first two of those areas and tell me what mandate the government has given you in that regard?

Dr. Howard Alper: If I may, I will answer in English.

[*English*]

In the two areas you mentioned—natural resources and energy, and the environment—vis-à-vis also commercialization, there are a number of issues and challenges in Canada that need to be addressed and that can make significant progress through research in the next five to ten years.

Water is one area. Water is very important to us environmentally, the water and energy nexus. For instance, in Alberta with the oil sands, technology has improved significantly in the last 15 to 20 years such that, at the current cost of a barrel of oil, it is profitable to upgrade the tar sands. But there are challenges. There are technology challenges, and there are environmental challenges. So it really spans both areas, energy and the environment.

The consumption of water in the process used to upgrade oil sands is not sustainable. We're using far too much water, so we need to develop some new technology that either reduces the consumption of water or a totally different technology that doesn't use water at all. A lot of important research needs to be done in that area, and from an environmental perspective, the byproducts in the upgrading of oil are mountains of solids, sulphur-containing solids and others, that are damaging to the environment. That issue has to be addressed. So that's just one.That's the water issue, and as well, there is the oil sands issue.

There are areas in Canada that, for the future, could yield new benefit. One is research in the Arctic, the north, both from an environmental point of view and from an energy perspective. That too is important. There is sensor technology for environmental applications, not only discovery of new places to farm—more advanced GPS technology—or security-based work to protect our environment, but other applications as well.

Heather, do you want to add anything?

● (1305)

[*Translation*]

Dr. Heather Munroe-Blum: Did you also ask why those four areas?

Mr. Robert Vincent: No, I did not ask why the four areas.

Dr. Heather Munroe-Blum: I misunderstood. Thank you.

Mr. Robert Vincent: I was interested in the way that you spoke about the tar sands. You said that water is used to extract oil from the tar sands.

Would it not be up to the oil industry to do that research? Why has the government given you the mandate to do the research at the same time as the oil industry? Is it to help the oil companies speed up the process? The deadline to find a solution to the tar sands is 2010 or 2012. By giving you the mandate, is the government not diverting the work that should be done by the oil companies?

[*English*]

Dr. Howard Alper: A lot of the work that has to be done is fundamental, and to address the two issues I just described requires basic research. That research takes place not only in a company but also in academia, particularly the two issues I mentioned, developing technology to reduce water consumption and to minimize economic issues. But there are other places. Alternative energy such as wind power, solar energy, and so on, are all part of the energy domain, and those are important areas for research for Canada.

When we say energy and natural resources, we are referring to a portfolio of approaches to address the challenges of non-renewable energy and dealing with opportunities in the renewable sector. It's not just dealing with oil and gas, it's not just dealing with Alberta; it's dealing with the east—for example, Nova Scotia and carbon capture, storage, and sequestration. This is a big issue. The G8, at its summit in July, will be dealing as a priority with the development of a low-carbon society, and that's one approach to doing so.

This research spans many different parts of the country and different components in addition to petroleum.

[*Translation*]

The Chair: Do you have any other questions, Mr. Vincent?

Mr. Robert Vincent: I would have preferred your answer to have been a bit more specific to the tar sands. My main question had to do with the tar sands. I would like to hear you respond about your study of the tar sands.

[*English*]

Dr. Howard Alper: I'm a chemist, and that's not a disadvantage. By the way, my answer has nothing to do with the science, technology, and innovation account. I'm talking as a chemist about a particular issue that needs attention.

Enormous progress was made, from the 1970s to the 1990s, in the tar sands technology. We produce quite a lot of oil per day by these methods. Nevertheless, there is research going on now, but certainly not enough of it, on trying to make a watershed discovery will change the dynamics of the field. Let me phrase it that way. I think this is important to understand. We've made enormous progress in this sector; however, challenges remain in both water consumption and environmental issues. These challenges are non-trivial, and we need to focus our energies on developing new technologies that minimize their impacts.

The other thing is to—

● (1310)

The Chair: Okay, Dr. Alper.

Dr. Howard Alper: I'll just finish.

The Chair: I'm sorry, we're way over time here.

Dr. Howard Alper: Yes, I know. I've given you a chemistry—

Dr. Heather Munroe-Blum: Could I do a 30-second intervention?

The Chair: Perhaps I'll follow with this issue, but I have a list of members here and I want to be fair to everyone.

Mr. Carrie.

Mr. Colin Carrie: Dr. Alper, one criticism of the national science adviser was that there was no mandate, no reporting structure, and the office was underfunded. But the major criticism was that the advice given was insufficient and inconsistent. I was wondering if you could comment on the face time, as well as the formal and informal interactions, that you've had with the current minister.

Dr. Howard Alper: To provide context, the STIC was set up and announced as a full membership in mid-October. I believe October 18 was the exact date. November 18 was the first meeting. It met in January, and it meets tonight and tomorrow. The minister is at all meetings, in person. We have had wonderful interaction and rapport with the minister. These are exciting and major issues that we're coming to grips with. Twelve years ago John Manley, when he was the Minister of Industry, said to me that the most challenging problem in Canada was how to enhance industry R and D. We are trying to tackle this problem.

The interaction with the minister's staff has been superb. Heather can confirm this. Peter MacKinnon, who chairs the international S and T working group, this morning said to me in the corridor, "Your staff is phenomenal, just as good as the council itself." He said, "We're blessed that the minister's office and the minister in particular have been so engaged with us on an ongoing basis." That's all I can say.

Dr. Heather Munroe-Blum: The council is made up of an extraordinary group of members who are leaders in their various sectors. It's fair to say they wouldn't show up with the regularity they do, or work with the intensity they do, both on the work of the council at large and the work we do in the committee structure, if they felt it was a useless exercise.

Like Howard, I've been involved in many provincial, national, and international science councils and bodies, advisory groups included. But I've never seen anything like the attention this minister gives. And on the occasions that I've been with the Prime Minister in public, he has shown that he has knowledge of the work we're doing. I would say that the press we get to keep our work moving forward is a wonderful encouragement. So is our sense that there's a receptor out there waiting for it. I think it's quite exceptional.

Mr. Colin Carrie: Thank you very much.

The point was also raised that STIC would not be able to fulfill the demands for immediate and long-term independent, transparent advice. The criticism was that STIC really isn't at arm's length, because it includes three deputy ministers. And it was stated that STIC would not report publicly.

Could you comment on those charges and correct any misleading facts that might be in the statements I just read to you?

● (1315)

Dr. Heather Munroe-Blum: Maybe I could begin and say that, first of all, there are many bodies in Canada that provide findings and guidance and advice, and the Council of Canadian Academies clearly is one of those doing that kind of work. I would hope the entire academic enterprise of the country serves to provide arm's-length guidance, advice, and input to government and others on the work that's done.

You phrased it, or framed your question, as if it were a before or after picture. At the end of the day, I think one would be hard-pressed to say where the impact has been previously. I guess my source of encouragement comes from the fact that, indeed, I see enormous progress in a very short period of time, and I think our results or performance will be put to the test over time.

Mr. Colin Carrie: Can you comment on the fact that there are deputy ministers there?

Dr. Howard Alper: Yes, I could, because this is hardly an original idea. It exists in Australia, Finland, India, Japan, etc.

In late September I was in Canberra to run the executive committee of what's called the InterAcademy Panel, an academy of science for the world. I co-chair that with Chen Zhu, the minister of health for China. The Australians found out that we were meeting and asked me to appear before their Science, Engineering and Innovation Council, which has been going for 11 years. So it's not new or recycled.

The room was full. The membership there consists of approximately 12 individuals, and 10 deputy ministers were in the room. Why were they there? There were too many, because it is an external body, and the preponderance.... In fact, the chair at the time, Jim Peacock, said that if they had to do it over again, they would choose three to four deputy ministers.

The deputy ministers are absolutely key, because they provide the framework within a government context of how to take advice from us and to bring it forward. That has nothing to do with independence or dependence; it has to do with making top-notch advice and recommendations.

Dr. Heather Munroe-Blum: In fact, one might be discouraged if they weren't present, for exactly the reason Howard states.

Mr. Colin Carrie: Thank you for that.

The Chair: Thank you, Mr. Carrie.

We'll go to Ms. Nash, please.

Ms. Peggy Nash: Thank you.

Again, welcome to the witnesses. Thank you for your presentations and the work you do on behalf of Canadians. It's certainly good to hear that Canada has a great reputation for science and technology.

Dr. Alper, I was very interested in your comments about the importance of innovation adding value to Canada's raw materials, to our commodities, and to really maximize the benefit we get from the many natural resources our country is so fortunate to have.

Something we've heard from other panels, or on which we've had discussion, is getting the balance right between the investment Canada makes in research for commercial purposes—which obviously is very important going forward—and basic research, which can be decades long and perhaps has no obvious end-purpose at the time it's being undertaken. So a question I've been asking witnesses is their view on whether we have that balance right between basic research and commercial research, that is, short or targeted research. If not, what would you advise this committee to place greater emphasis on going forward?

Dr. Howard Alper: That question is actually central to any country's strategy. As you say, some research leads to commercialization; it could lead by six months, sometimes three years, sometimes ten years, sometimes a generation, and sometimes never.

I have two examples. If you go to a hospital and want the chief diagnostic for certain possible diseases, it's magnetic resonance imaging. It's derived from what's called nuclear magnetic resonance, developed in the 1950s. But the transformation from that basic research—which serves the research community very well as a general diagnostic—to its application for health took from about 12 to 15 years. It was not foreseen. Of course you are aware of the laser, which has fantastic applications now, be it in treatment of eye disease and in many different sectors, but it was discovered from very basic research.

Having said that, it is my personal view—and I'd like Heather to give her perspective on this, as I think she'll agree with me—is that to have a proper balance between excellent research and.... What I mean is that the signature has to be excellent; that drives whatever we do. We need excellence in basic research and excellence in applied or targeted research. A country needs to make choices for areas of accelerated development. That's why Australia did it, Japan has done it, the U.K. is doing it now, etc. And we have done it. We define four areas in the strategy where we make recommendations on sub-priorities, with the themes within those areas, just as Australia and others have done. As vice-president of research at the University of Ottawa, I led the process for setting strategic areas of development, with four areas and three to four themes.

Doing that exercise is important for several reasons. I discovered this during the Australia exercise. It builds cohesion and direction. Even the people who are not in one of those strategic areas know where the country is going; they know the direction. So a certain proportion of allocated resources needs to go into what I'll call areas for accelerated development, that is, the priority areas. However, basic research is absolutely key to support that, for exactly the reason you cited.

So a significant amount of money—the majority, in my personal view—should go for basic research, and a substantial minority for these targeted areas or areas of strategic development.

● (1320)

Ms. Peggy Nash: Do we have the balance right now, do you think, or do we need to emphasize one or the other?

Dr. Heather Munroe-Blum: I think it's a bit of a circular question, but we're not in bad shape with respect to the balance. I think we are lucky to be in a country that has a general respect for the fact—it wasn't true 15 years ago, but it is today—that if you don't have that pipeline of basic or fundamental discovery-oriented research, you will not get any benefits, whether in the commercial domain or policy domain. So you simply need that balance.

I would agree totally with Howard, and I like the way he put it, in favour of having the majority of the public investment in fundamental discovery-oriented research and scholarship, and then a significant minority investment in targeted research in the areas Canada shows promise in.

Maybe I wanted a question to be asked before about the four areas chosen on the basis of our empirical progress in those four fundamental areas and their importance to the country. So it's both about taking areas where we've demonstrated excellence and impact and are recognized for that on the world stage, increasing the critical mass of outstanding targeted research based on that pipeline of basic research, and thereby have Canada advance even further.

If I could add one last comment, I would say that just as important as the pipeline in fundamental research, as against targeted research, is to have the range of disciplinary fields covered, because if you don't have the social sciences and humanities translated to the human factor side, you can have all the robust technology in the world, but you won't know enough about how to get the uptake to have an impact on society.

● (1325)

The Chair: Thank you.

Mr. Simard, please.

Hon. Raymond Simard: Thank you very much, Mr. Chair.

Thank you for being here and for what you do for our country.

I can't help but notice that Canada's productivity is always lower than that of the nations we're competing with. It seems to me the fact that we have very weak industry R and D may be one of the reasons. Are there certain industries you could identify that are doing a good job in R and D, and could you tell us what they're doing and maybe what we should be emulating?

Secondly, with regard to the provinces, this is all about partnerships, and one of the most important partners is the provinces. Are there provinces that have councils such as yours, for instance, at that level? Are there provinces that we should really look at to see what they're doing in terms of science and technology?

Dr. Howard Alper: Thanks. Those are excellent points.

Let me address the second part first. Maybe Heather could address the first part, or whatever she wishes.

On the federal-provincial interface or landscape, there are a few councils like this one at the provincial level, and there are some provinces that invest significantly in R and D.

I was in Edmonton at the end of March to speak about science but was asked to speak also about this council. There was an excellent turnout from the public service, at the deputy minister and assistant deputy minister level and others. The basic discussion was, how do we improve our relationship and team-play better together? That's an issue that certainly merits serious discussion.

Alberta and B.C. have councils. Ontario has a council, as do several others. Several have very interesting policies internationally on S and T to look at as possible role models. Several have weaknesses as well that need to be strengthened. Working in a collegial manner between federal and provincial jurisdictions on the R and D issue is very important for the future.

Hon. Raymond Simard: And on the industry side?

Dr. Heather Munroe-Blum: In that regard, Quebec and Alberta were the pioneers in Canada in investing in their own science and technology policies. You actually see that there is a real synergy that could be achieved between an investment at the provincial level targeted to the framework of the federal level, and vice versa. Again, as a small population in a big country, we need to do more of that leveraging.

In fact, on the first question you asked, we have to do much, much better than we've done. I think there has been a disconnect between the preparation of corporate leadership to understand the importance of R and D and technology in advancing their own enterprises and understanding that, in Canada, universities do a disproportionate share of the research work. We're unlike other Western countries in that regard, where it's usually the reverse and industry does 70% and universities do 30%. Universities here do 70%.

Hon. Raymond Simard: Can you identify an industry that is doing something right?

Dr. Heather Munroe-Blum: The industries that have been our successes are aerospace, biotech, and you might say, leading into the pharmaceutical area. I think an unsung area of strength in Canada has been materials research, which ties into the engineering field. We have a long-standing history of strength there, and I think Howard would add the chemical industry to that as well.

Hon. Raymond Simard: Do I still have time, Mr. Chair?

Mr. James Rajotte: You have one minute.

Hon. Raymond Simard: Perfect.

I'd also like to know what your relationship is with granting councils, such as CIHR and CFI? They're going their way. They've identified their priorities. Are their priorities in sync with what you guys are talking about in terms of what you're recommending to the Minister of Industry?

Dr. Howard Alper: Not long ago we had a meeting of all the granting councils—CFI, the NRC—with Minister Prentice, me, and Rob Pritchard, who couldn't be here today. He simply couldn't make it. He's the vice-chair. We were dealing with exactly that issue and integrating priorities into the programs of the granting councils. My personal view is that in fact we are working extremely well together on this issue.

Also, we're working across departments. Last night I saw Tony Clement at a reception. We were talking about getting together to discuss the issue that you're now talking about.

● (1330)

Hon. Raymond Simard: Thank you.

The Chair: Thank you, Mr. Simard.

We will go to Mr. Stanton, please.

Mr. Bruce Stanton: Thank you, Mr. Chair.

Welcome, both of you. It is an intriguing topic, as always.

Dr. Alper, picking up on some of the earlier comments concerning how you're engaged with the minister, we heard that the deputy ministers provide the ability to implement ideas and so on, but we also realize that ultimately government policy is going to be set by cabinet.

Could you give us an idea of how STIC can interface at that level? How can you influence policy at that level?

Dr. Howard Alper: Let me add one thing to your point, and then I'll certainly address it. That is that one other role the deputy ministers have is to link to other deputy ministers across government and sensitize them to the issues STIC is addressing as well as possible future issues, just as the minister is responsible at his level across government.

I did not mention that, for example, the international S and T request for advice came from Minister Emerson at International Trade, putting forth a request to STIC through Minister Prentice, since Minister Prentice is responsible for it.

In terms of working across issues relevant to cabinet, as STIC develops its programs and as more and more issues are brought to the fore, I anticipate that a number of ministers will ask the Minister of Industry for us to consider them.

For example, at the meeting I attended in Australia I didn't just give a presentation; I sat through their whole meeting, and eight new issues were brought from five departments. Again, just like here, it is centred in one department, with one minister being the clearing house or focal point, as well as himself or herself bringing issues. But they come from all across the Australian government.

In due course, our expectation, and I have discussed this with several colleagues, is that this will result here as well.

Mr. Bruce Stanton: I have a second point with regard to the state of the nation report. When is the first one coming out? I do not know whether you may have mentioned that, actually.

Dr. Heather Munroe-Blum: We expect it to be at the end of this year.

Mr. Bruce Stanton: How is it going to be organized? Are there a number of key subjects that we can see coming out of it?

Dr. Heather Munroe-Blum: Our little committee is just bringing them before the council today and tomorrow for the first time, but we have a number of fields broadly; for example, the climate of innovation, with indicators reflecting that; international S and T collaboration, with indicators reflecting that; universities and how we do as both R and D and innovation leaders; the private sector on R and D; then, looking at benchmarks, where data are available to allow us to compare with peer countries in the world on our progress over time, levels of investment in R and D, tax and regulatory environment, and the like. But these are for discussion.

Mr. Bruce Stanton: Just to go back, one of the things Mr. Simard touched on—he's not here now—is the issue of productivity. You pointed out that there is still some room to go, but I am also thinking of the evolution of S and T strategy advancement in Canada. It is still a relatively new advancement. Thinking back, it is really in the last five to ten years, perhaps, that Canada has begun to come on strong.

Could you comment on that timeline? When can we start to see these critical investments in S and T begin to influence productivity and show up in some of the indicators? I guess the fundamental question is, is it still early to see those implications show up in the key economic and productivity indicators?

● (1335)

Dr. Heather Munroe-Blum: Let me say that we've been like a roller coaster in Canada. In the mid-1950s, Canada was extraordinarily strategic at the federal level in creating the granting councils, investing in them, and having a sense of the federation and how to optimize what we did.

Then we simply have not stayed the course. We see, both at the provincial level and the federal level, that every time you pull back you really suffer, because you lose ground, so you have to piggyback over what you lost and try to catch up with the competition.

We came back in the late nineties. I think we're certainly seeing the impact of the investments of the last 10 years on retaining and attracting talent. Let me just that say my own university alone attracted 800 new professors—predominantly, I'd say, because of the reputation of my university, but we could not have done it without the new federal programs—60% of them from outside of Canada.

So we're seeing those kinds of trends, but I think if you want to look at the broader commercial and industrial impacts, it will take longer to see them. I think we also have to optimize the provincial-federal policy to see the greatest impact.

Mr. Bruce Stanton: Thank you, Mr. Chair.

The Chair: Monsieur St-Cyr.

[*Translation*]

Mr. Thierry St-Cyr (Jeanne-Le Ber, BQ): Thank you, Mr. Chair.

Thank you for being here.

I sit on the committee today as an acting member. Unfortunately, this is not the committee that I normally sit on, but I am very pleased to be here. Before I was elected, I worked as an engineer, so I have always had a soft spot for investments in science and technology. I am familiar with the subject. I use the term "investment" in science and technology, because I really do see it as an investment rather than as an cost.

When the government invests in a significant way, whether in pure research or in research and development, it creates jobs for researchers and attracts companies, allowing them, as a result, to increase their productivity and hire more employees. The bottom line is that the government collects more taxes and reduces its costs, on things like employment insurance, for example. When investments are made in this area, the return is greater in the long term.

Do you more or less agree with that philosophy?

[*English*]

Dr. Howard Alper: Thanks for the question.

Research leading to creating new firms, for example, also results in tax being paid by the company to the government—provincial and federal governments. Therefore that's a benefit, a return.

Research and innovation or science and technology as documented, especially in the OECD, has provided enormous benefit. Several of you were asking about, or commented on, productivity. The OECD claims that if you increase research in industry by 1%, not only productivity, but personal income will increase by a factor of 12. Even if that is double what it really is, that's a big increase. That's why it is really important that we address the industry R and D issue.

[*Translation*]

Mr. Thierry St-Cyr: In your presentation, you say that the competitiveness of a country or a region will be better if significant investments are made. There will be less need for the government to provide assistance because the economy will be doing better. In broad terms, that is what I gather.

Is the opposite also true? If we do not make these investments in specific regions, is the economy going to do worse? Will the result be that there will be increased government involvement in things like equalization payments and employment insurance benefits, for example?

● (1340)

[*English*]

Dr. Heather Munroe-Blum: This will sound like a self-interested response, but if you look at the problems that regions are having across Canada, I think it's because of a lack of diversification of the economy. There is no greater way to predict success of the economy than to have a highly educated populace. In that respect education itself becomes a strong investment. And while the early levels of education are necessary to get to the later ones, you need an investment at the highest levels.

On your earlier point, if I understood it correctly, when jurisdictions are highly competitive, both with respect to productivity and the direct industrial sector successes that they have, you have a great alignment of a stable, predictable, effective level of government investment in research and higher education and you have a strong industrial investment in R and D at the same time. And they're done in a framed fashion.

[*Translation*]

Mr. Thierry St-Cyr: My questions are intended to highlight the fact that we are not investing equitably in all regions of Canada in science and technology or in research and development. For example, Ontario, where the federal government is located, receives a much more significant share of these investments, per capita, whereas Québec receives a smaller share.

The Chair: What is your question?

Mr. Thierry St-Cyr: Do you feel this can have an impact on the relative prosperity of those provinces?

[*English*]

Dr. Howard Alper: I think it's more complicated than that. For instance, in terms of granting councils and academic support, we talked about quality and supporting the best, and that means the best proposals irrespective of location. Some of that will benefit the immediate location and help build a cluster of innovation—for instance, the bio-farm industry in Montreal.

But at the same time, there may be outstanding proposals from individuals out in Vancouver that could still benefit that area. For example, look at the development of QLT from research of a biochemist and chemist at UBC that led to the creation of that firm.

It's only when you build clusters, when you have a high critical mass in a certain area of research, be it bio-farm, ICT, energy—the four priority areas we talked about. Then the investments, clustered in a particular location, do reap a harvest of results—as Michael Porter would say.

Nevertheless, you can diversify your investment cross-country and impact regions such as Prince Edward Island in certain areas.

The Chair: Sorry, we're way over time on the questions.

We'll go now to Mr. Van Kesteren, please.

Mr. Dave Van Kesteren: Thank you, Chair.

Thank you for coming. This is fascinating stuff, and we're so glad that you have taken the initiative. It's been said before that you were asked and you've responded to the challenges.

I'm concerned about one thing. In a past study—and I've used this example before—we looked at the challenges of industry, and we examined the forestry industry, for instance. When the question was asked where the equipment was coming from, the answer was that it's coming from Sweden. How did we ever lose that opportunity when our dollar was...?

So as exciting and provocative.... The high-tech seems to have much more appeal. Are you putting enough emphasis on the others?

I'll give you one more example, from my riding of Chatham-Kent—Essex. In the Leamington area we have the largest collection of greenhouses in North America. These people, a long time ago, before government initiated the move, recognized that there were 200 million people within one day's drive, and they created this incredible greenhouse industry.

The leaders in the greenhouse industry are the Netherlands and Israel. Have you looked at industries like that? Sometimes we go for the high-tech, but we're missing some other areas. These are our drivers.

● (1345)

Dr. Howard Alper: First, I certainly agree with you, and the industry R and D working group is looking at all sectors, from manufacturing to small-sector industries—greenhouse, whatever—in terms of dealing with the issue of enhancing R and D in those sectors.

But on a little cautionary note, right now the ICT industry is under duress in Canada.

Mr. Dave Van Kesteren: Yes, I know that. I chose that, but I could have perhaps talked about mining.

Are you looking at a certain industry and saying Canada is a mining nation—that's just an example—but we have this problem: we have all these resources that are found in these obscure, remote places, so are we possibly looking at new roads? If we could create transportation....

Dr. Howard Alper: From an S and T perspective, yes, transportation. It's just like in South Africa, where mining is a big industry. I must say the South Africans have created some interesting policies on nurturing the mining industry to do research—again, to produce value-added products, not just getting the elements out of the ground.

Mr. Dave Van Kesteren: The spinoffs.

Dr. Howard Alper: Right.

Mr. Dave Van Kesteren: I've been to Baffin Island, and I'm sure there are resources there, but how do you get to them?

Dr. Howard Alper: No, no, no.

Mr. Dave Van Kesteren: Are you considering some new methods to get at those remote areas?

Dr. Howard Alper: This working group is actively considering a wide range of issues, including different industry sectors—small, medium, and large.

Dr. Heather Munroe-Blum: I think it's conceivable that the state of the nation report will, as well, include where we are optimizing the sectors in which Canada has a clear advantage and in which it does not, and that will lend itself....

Dr. Howard Alper: If I could, I'll add a point on the state of the nation report, because the comment was made to me last week, after my presentation in Istanbul, that this is very courageous what we're doing. Nobody has done this well. None of the EU countries have done this well. There have been attempts.

In fact, Heather and the others are taking on this responsibility, and it's a challenge, because first you have to define what defines success. What parameters do you use? What criteria do you use? We have to work all that out before we actually do the measuring. So it's a great project, it really is, and we can be a trendsetter globally if we do this very well.

Mr. Dave Van Kesteren: That's all, thank you.

The Chair: Thank you, Mr. Van Kesteren.

We'll go to Mr. Eyking, please.

Hon. Mark Eyking (Sydney—Victoria, Lib.): Thank you, Mr. Chair.

I'd like to commend you for the work you're doing and thank you for presenting here today.

You mentioned earlier carbon capture. I'm from Cape Breton, and we have a lot of coal in Cape Breton. We have a few large coal-fired power plants. Of course, across Canada, in Ontario, in the U.S., in Europe, and especially in China, there are a lot of coal-fired power plants, and they are recognized as being some of the biggest polluters on the planet. Can you explain a little bit about how carbon capture works, and how we can monopolize this technology as Canadians so we can meet our goals, of course, and help the rest of the world in dealing with these polluting plants?

Dr. Howard Alper: This is a very competitive area right now. In Wisconsin there recently was a test of carbon capture and storage.

In the budget, of course, I think $250 million was set aside for a demonstration plant and research, and that's great. In fact, at the meeting I was at in March, the academies of the G-8 plus 5 had to prepare two statements, one on a low-carbon society. There is a paragraph in there on carbon capture and storage. So this is a very important area. Again, this is not really a STIC issue, but it is a scientific matter of particular note. Those who will succeed commercially in demonstrating the commercial viability of CCS—carbon capture and storage—will have a great advantage on a global basis, because they can market their technology elsewhere, not only in Canada.

In Canada this would provide a tremendous added value, as you so well articulated, not only in Nova Scotia but in Ontario, Saskatchewan, and Alberta, for different reasons. So it's a great area to focus on now. You know, in certain other countries, clean coal is a big issue that's being pursued. It goes in tandem with carbon capture and storage, because the process to clean coal may produce undesirable amounts of greenhouse gas. But if you can capture that and store it, it gives you—the company or the group—a competitive advantage. So there's a lot to do in this area. But the specifics of the science I am honestly not an expert on.

● (1350)

Hon. Mark Eyking: At the moment, are we putting enough energy and money into that research?

Dr. Howard Alper: Yes, we are.

Hon. Mark Eyking: And where is it all taking place?

Dr. Howard Alper: Some of it's in Nova Scotia, actually, and some is in Saskatchewan. This is in terms of demonstration, in terms of research in different places in the country, I assume. This is quite new.

Hon. Dan McTeague: Just on that point, if I might, are you working, for instance, with Ontario Power Generation? The Zero Emission Coal Alliance has come out with a number of proposals. It strikes me that some of the large emitters in my province of Ontario, the coal-fired plants.... Are they part of your consultation group for new energies, new technologies, and new science-based alternatives such as carbon storage or sequestration?

Dr. Howard Alper: No. I was asked a question on that particular issue, but STIC is not pursuing particular research right now. That's the role of the corporate sector or granting agency or whatever. But I do agree, this is a high-priority issue for the country.

The Chair: Thank you.

I'm going to take the prerogative as chair to finish up here.

I have a number of questions, and I know I'm going to run out of time, so perhaps what I'll do is put the questions on the table and I'll let you address perhaps one of them, and if you can get back to me on the other issues, it would be very helpful to have your opinion.

On the issue of intellectual property, one of the things the committee will have to wrestle with is should we recommend or are there better models of intellectual property? Especially if you have granting councils, if you have the university, if you have industry, if you have the researchers themselves involved in the development, what sorts of models should we be looking at in terms of intellectual property?

Second is the interplay between academic institutions and industry. Both of you have experience with that.

The third issue, about foresight, was raised on Tuesday. We need a group that looks ahead. Indirectly, I don't know if I'd say there was a criticism, but there was something your council would not be able to do. You're gauging what's happening now or gauging the past through your state-of-the-nation report. So if you take an issue like fusion, is that something, looking ahead, your council would be looking at or addressing? You could take that example or another example.

Another issue is how the council interplays or is different from the academies.

Another question was raised at the AUCC meeting. Ms. Munroe-Blum, you were there when I was challenged about why the government chose the four it did and excluded design, and I have to admit I didn't have a great answer at the time. The person who challenged me sent me some more information and makes some valid arguments, I would say. I don't know if it's strong enough to add it as a fifth, but it is worthy of discussion.

The final one is the big question. Perhaps you can address this one first and then you can address the others later. The whole issue of commercialization has obviously been a topic around the table. You've pointed out that in terms of basic research we're doing well, but as innovators or companies succeed, success almost presents more challenges. You heard from two groups today. Bioniche is a very good company. A second company is Trojan Technologies, in terms of environmental technologies.

As you go along, you almost face some real challenges. One challenge companies face is the building of a prototype, building a facility and getting the money to do that, and with Trojan it was the adoption of new technology, the same with Bioniche as well. Once you have created this new technology, whether your consumers are cattlemen or municipalities, how do you get them to adopt these new technologies?

There's a whole bunch of big questions there. I apologize for dumping all that on you, but you are two of the smartest people in Canada, so I am going to flatter you and then challenge you.

● (1355)

Dr. Howard Alper: I'll let her deal with the last ones; Heather will deal with one or two. The rest we'll have to deal with off line.

We talked a lot about industrial R and D, but also this applies to commercialization that emanates from university research. Concerning the person who told you about money for a prototype, which I would call a pilot plant—for a chemist, it's the same thing—there are small programs, Idea to Innovation and Proof of Principle, in two of the three granting councils. But that's from research accruing from university; from industry, it's a different issue.

That brings up again how you enhance support for R and D in industry. The big problem is that discovery requires creativity. The role of a university professor is to nurture creativity—that's it—as a supervisor of graduate students.

If you make some major or landmark discovery, it goes then to the next stage of scale-up, which is what you're talking about. Then beyond that, depending what area we're in, you have financing for it, including venture capital—the challenge of securing venture capital is a major issue in Canada right now—and then ultimately go to the marketplace.

The problem here is not on the R side of R and D; it's on the D side. This is where considerable focused attention needs to be addressed for the future. That's very important.

The other thing goes back to the former Prime Minister of Finland and what he had to say.

In Finland they enhance R and D through two mechanisms. They said SR and ED or equivalent tax credits are useful, but they're far less efficient and effective than direct grants to companies on a partnership basis—50:50, 60:40.... He said his government could demonstrate to you how effective this has been. This might be worth looking at. The second is that successful procurement policy is an essential part of the innovation process.

Those are two components that he raised.

I should tell you that in my evaluation of Slovenia and Turkey—Turkey is not in the EU, but it is treated as such—and I evaluated Emilia-Romagna for the EU, the number one innovation region in Europe....

Emilia-Romagna has a spinner program that is absolutely fantastic, which many countries and regions in Europe are now copying, whereby a student in the last year of his or her studies gets supported by the government, goes into an SME, is supported 100% for the first three years, and supported at a declining percentage for the next three years. You can show the growth of 964 companies in Emilia-Romagna in the last five years.

Turkey has a direct program of direct support—as a partnership, again, 50:50, or 60:40—and Turkey has a fascinating new technology entrepreneurship program, which just started April 1, to stimulate entrepreneurship.

Those are interesting things. But Chair, what you're really talking about is the D part of R and D and then going to the marketplace.

● (1400)

The Chair: We're well over time.

Dr. Heather Munroe-Blum: We'll come back on your questions. We've listed them.

I want to just conclude with one comment. It links to a statement you made and a question addressed by Mr. St-Cyr. That is that I think Canada is well positioned right now, but our progress is fragile in both basic science—remember, it's only just over a decade ago that we let that go—and in figuring out how to have what we might call competitive federalism in Canada and invest in excellence and the areas that are going to go forward. Part of this is foresight, part of it is how much we force common IP policies.

I want to say as a final word that equalization alone will not get Canada to where it needs to be. Clearly we have some equalization programs, and they reflect a part of Canadian values. But to really prevail in the productivity economic development arenas and in the health and social benefits that come from having strong STI platforms, you need a real strategy that says we can make tough decisions and we can reward excellence. Provinces need to have this, and the federal government has to have it as well.

The Chair: I want to thank both of you for your time this afternoon. Judging by the interest, we will certainly ask you to come back.

Mr. Bruce Stanton: On a point of order, Mr. Chair, there's just one small thing. Dr. Alper referred to a letter that was sent here back in March, and I don't know whether we ever received that. I want to check on that.

Dr. Howard Alper: I have it.

Mr. Bruce Stanton: That would be great, and if there were any other documents referred to in the context of the presentations today, if we could get copies, that would be fantastic.

Thank you.

The Chair: Absolutely.

Ms. Peggy Nash: On a point of order, Mr. Chair, based on not this presentation but the previous panel we had today, I would like to propose a motion. I do understand that normally 48 hours' notice is required for a motion. However, there is a time constraint that I believe would warrant this committee making an exception, and I'd like to put that to the committee, with your approval.

The Chair: You're proposing a motion. My understanding is that you'd need unanimous consent of the committee to propose the motion.

Do you want to put the motion forward?

Ms. Peggy Nash: I'd just like to say what the motion is, and if it ends up being a notice of motion, so be it, but I think there is strong rationale for creating an exception to this normal requirement.

My motion would be that the Standing Committee on Industry, Science and Technology urges the minister to extend, for an additional 30 days beyond the current 15 days scheduled to end on May 11, the consultation period for the proposed regulatory amendments to the patented medicines regulations of the Patent Act, published in *Canada Gazette* Part I on April 26, 2008.

My rationale for asking for an exemption to the current rules is that obviously by the time our committee would next convene, this period of consultation on these regulations would have expired. Given that this regulatory change seemed to catch everyone by surprise, and given that we've heard this testimony only today and there is a time constraint, it seems to me only fair that our committee ought to be allowed to make such a recommendation.

The Chair: This is the first I've heard of this motion. I don't have the motion before me. It's not in both official languages. As the member knows, for a substantive motion of this type, either there has to be 48 hours' notice or it has to have unanimous consent.

Does the member have unanimous consent to propose this motion?

Some hon. members: No.

The Chair: There is not unanimous consent to propose the motion.

You can put it on 48 hours' notice, and it could be discussed Tuesday, at the earliest.

Ms. Peggy Nash: Would it be possible, given the 48-hour requirement, for this committee to reconvene by conference call in a special meeting to deal with this, given the time constraint that would render this motion irrelevant by the time we next convene on Tuesday?

● (1405)

The Chair: My understanding—and the clerk can comment and say whether I'm correct or not—is that I as the chair would need four members of this committee to indicate to me in writing that they would want to have a meeting.

I've never had a meeting by conference call, but my understanding is that to call a special meeting to discuss this prior to our Tuesday meeting, we would need four members of the committee to sign a letter stating to me why they wished to do so.

Michelle will comment on the procedure.

The Clerk of the Committee (Ms. Michelle Tittley): Substantive motions do require 48 hours' notice for the committee.

Also, the chair of a committee, much as the Speaker in the House, can request that the motion be provided in writing—I would venture to say, in front of the chair—to be able to evaluate whether the motion is of a substantive nature to the subject matter presently under way or whether it's outside the scope of what the committee is dealing with.

Motions, if they deal directly with what the committee is presently discussing, can be admissible outside the 48 hours' notice if they relate directly to what the committee is studying. That said, as I mentioned, the chair would require that in writing to be able to evaluate it.

The committee can hold extra meetings, in addition to the meetings they have scheduled. That would be at the discretion of the committee, to advise the clerk when and where. Conference call meetings are typically very difficult to organize.

The committee could also, by unanimous consent, waive the 48-hour notice requirement or could agree to a compromise whereby the notice requirement would be, let's say, 24 hours as opposed to 48 hours. But that again would require unanimous consent.

The Chair: Ms. Nash, just on your point of order, we don't have unanimous consent for the motion today. I asked for unanimous consent and I did not get it.

I have Mr. Carrie, and then I have Mr. McTeague.

Mr. Carrie, is it on Ms. Nash's motion?

Mr. Colin Carrie: It is, basically.

The Chair: I've ruled that the motion cannot be accepted today, because it doesn't have consent.

Mr. McTeague.

Hon. Dan McTeague: I don't want to make this sound like a challenge to the chair, but I think Michelle's comments with respect to a matter that has arisen directly from a matter we're studying have to be taken into consideration. You may not require the unanimous consent, therefore, to hear and to delve into and to consider the motion that has been presented by Ms. Nash.

The Chair: Mr. McTeague, can I just thank our witnesses?

Thank you, Dr. Alper and Ms. Munroe-Blum.

Hon. Dan McTeague: Thank you.

Chair, I would suggest that you may want to confer again, just to get that wording absolutely clear. I am not certain. Your decision would otherwise be applicable and require unanimous consent if the matter had not been directly related to the subject at hand, but it seems very clear by the lines of questions and the presentation that in fact this issue is very much a question that is before the committee today.

I believe Ms. Nash's motion is very much in order.

The Chair: I will comment on that.

First of all, this issue was not raised at all in the second panel. It was raised in the first panel. Frankly, as the chair, I let questions go that in my view were not related to the study before the committee. The committee is supposed to study an overview of Canadian science and technology policy. My hope in having groups here like the Generic Association and Rx & D was to comment on science and technology in general, not to comment on regulations that are proposed by the government with respect to a specific industry. I would argue that the questions actually almost exceeded that, so I would argue it's not related to the study we're doing with respect to Canadian science and technology.

I've made my ruling with respect to the need for 48 hours or unanimous consent. That's my decision.

Hon. Dan McTeague: Chair, I would then ask that the committee consider now this point. Regarding the timelines on this, which were done in a way that I think we all agree are rather short—indeed, almost unprecedented—suffice it to say that I'm not here to challenge you, and we appreciate the opportunities you've given on latitude, but the reality here, sir, is that this is a matter that does deal with science and technology. It has a number of implications for science, but more importantly, a motion would probably read in the fact that we would then request the government to reverse its position.

I think it's very clear on the record that what is not allowed to be discussed here, as a result of your ruling, is in effect permitting the government to provide less comment, which is injurious to one side. I don't see how that benefits industry. I don't see how it's not relevant. Of course, we have a difference of opinion, and you're the chair, but rather than create a commotion about this, suffice it to say that I think all members would want to be ready on Tuesday for a motion that will have the effect of asking the government, notwithstanding the decision by the chair today, to reverse the position that gives only 15 days for one side to comment.

● (1410)

The Chair: That's fine, but I will comment, as it is my prerogative to do.

The person who moved the motion in fact is no longer here, because as chair I've allowed us to go ten minutes over time. I stand by my ruling that it's not related to the study of science and technology. I would encourage members: if they want to bring motions forward, that's fine. But on this study I would encourage us to stick to a study of science and technology policy in general. That's what scientists and researchers and institutions across this country want us to do. It's certainly what I've heard as the chair of this committee.

I think that's a valid public policy question. It will be brought forward in a motion, but with respect to the rules, and I'm advised by the clerk, it is a substantive motion and needs either 48 hours or unanimous consent. It did not get unanimous consent; therefore, it will not be considered today. If Ms. Nash submits it, it will be considered, I suspect, on Tuesday.

I'll also remind members that we have a subcommittee meeting at 10 a.m. on Tuesday, so Monsieur Vincent or Madame Brunelle—someone from the Bloc—will present Bill C-454.

Thank you.

The meeting is adjourned.

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