



HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

44th PARLIAMENT, 1st SESSION

Standing Committee on Science and Research

EVIDENCE

NUMBER 096

Thursday, September 19, 2024

Chair: Ms. Valerie Bradford



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• (1545)

[English]

The Chair (Ms. Valerie Bradford (Kitchener South—Hespeler, Lib.)): I call this meeting to order.

Welcome to meeting number 96 of the House of Commons Standing Committee on Science and Research.

I'd like to remind all members of the following points.

Please wait until I recognize you by name before speaking. All comments should be addressed through the chair. Members, please raise your hand if you wish to speak, whether participating in person or via Zoom. Thank you all for your co-operation.

I'd like to welcome MP McLean today, who's subbing in for MP Ben Lobb.

Pursuant to Standing Order 108(3)(i) and the motion adopted by the committee on Thursday, May 23, 2024, the committee resumes its study of innovation, science and research in recycling plastics.

It's now my pleasure to recognize and welcome, as an individual, Dr. Mohammad Arjmand, assistant professor, University of British Columbia. We have, by video conference, Allen Langdon, chief executive officer, Circular Materials. From Éco Entreprises Québec, we have Charles David Mathieu-Poulin, lead, governmental and external relations.

Welcome to all of our witnesses today.

Up to five minutes are given for opening remarks, after which we will proceed with rounds of questions.

Dr. Arjmand, I invite you to make your opening statement for up to five minutes.

Mr. Mohammad Arjmand (Assistant Professor, University of British Columbia, As an Individual): Thank you so much.

Hello, everyone. My name is Mohammad Arjmand. I'm an assistant professor and the lead of the plastic recycling research cluster at the University of British Columbia.

I have some important remarks regarding plastics recycling in terms of what I have faced over the last several years in working in this area. Plastic waste and pollution have been acknowledged as the second most important global environmental and social issue in the 21st century, after climate change.

We know that in the Canadian context, according to Environment and Climate Change Canada, over three million tonnes of plastic

waste is thrown away. The vast majority ends up in landfills, and about 29,000 tonnes find their way into our natural environment. Plastic waste is a matter of concern for Canadians, given that only 9% of plastic waste is recycled, 12% is incinerated and the remaining 79% is dumped into landfills.

According to the Government of Canada, the government plans to achieve zero plastic waste by 2030. Nevertheless, this challenge is highly reliant on the collaboration of federal, provincial and territorial governments, in conjunction with the public, academia and engaged industry members. As articulated in the Canada-wide action plan by the Canadian Council of Ministers of the Environment, there are three interrelated themes that should be thought of in this area: One is prevention, the second one is collection and the third one is recovery.

We need to remember that replacing plastics with alternative materials such as glass or metal containers is not an option. It is not an environmentally sustainable solution because they are considerably heavier, thus contributing to higher carbon dioxide emissions during transportation, which might affect our planet.

Canada is working in the area of replacing this plastic waste with bio-based plastics. We have a lot of forests, and we can do a lot of good work in this area. There are a couple of challenges that we need to consider. First, the physical properties we are receiving from bio-based plastics are usually not as good as petroleum-based plastics. That's part number one. Second, the amount of material we are producing through bio-based plastic still cannot compete with the petroleum-based plastics. That's the second problem we have in this area. The third part is the cost, which we need to consider. Still, I believe we have had huge improvements in the area of bio-based plastics, but there is way more to go.

I mentioned that there are three main strategies to tackle plastic waste. One of them is collection. It should be mentioned that over 15% of total generated plastic waste worldwide is collected for recycling. That is 55 million tonnes out of 353 million tonnes. The challenge is that, due to deficient proper collection mechanisms, 30 million tonnes of plastic just can't progress to the next stage, and around 20 million tonnes of plastic are being thrown away or wasted. I don't think that in Canada we are actually doing a much better job compared to the numbers that we have across the world.

There are some strategies being applied right now. They are usually governed by the government. One of them is a deposit refund or buyback to collect the plastics. We need to work more in the area of collecting plastics, but there are more factors to be considered. One of them is the behavioural change that we need to work on with people. Policy-making is very important to consider. There are some other parameters as well, which I have provided in my report. That's part number one, about collecting plastic.

The second part is that even if the plastics are collected, the next step is plastic sorting. Mostly, the plastic sorting right now is being done by human beings. It's not efficient, particularly when we are working on a large scale. European countries have done a very good job, particularly countries such as Finland. They have come up with some robotic systems to improve sorting and separating plastics.

After the sorting, we need to work on other parts, such as decontamination. There are some additives inside the plastic that need to be decontaminated. Sometimes we have adhesives or tags attached, and some of the plastic could be greasy. Cleaning these plastics could actually create a secondary source of pollution as well. I believe this is not established in Canada right now.

Suppose that we can solve this problem to collect the plastics in an efficient way. We can separate the plastics and clean them. Then the third step is recycling. We need to do mechanical recycling, as it is the easiest way of recycling plastics.

Basically, what we do, and what we have done over the last several years in my research group and all across Canada, is reprocess the plastic and convert it into value-added products—

The Chair: I'm sorry. You're a little over your time.

We'll probably get to the rest of that through the questions.

Mr. Mohammad Arjmand: Thank you.

The Chair: Now we will turn to Allen Langdon, who is online.

If you would like to give your statement, go ahead for five minutes, please.

• (1550)

Mr. Allen Langdon (Chief Executive Officer, Circular Materials): Thank you for inviting me today, Madam Chair and members of the committee.

My name is Allen Langdon. I'm the chief executive officer at Circular Materials.

Circular Materials is a national not-for-profit organization that supports producers across Canada in meeting their obligations under extended producer responsibility regulations for packaging and paper products. This is also known as EPR, which, as a policy approach, is recognized as one of the most effective mechanisms for improving recycling rates. Under this framework, the businesses that supply packaging and paper products are operationally and financially responsible for these materials over their life cycle.

Our mandate is to advance the circular economy and build efficient and effective recycling systems.

One exciting initiative we are developing is a first-of-its-kind material access program, which will return processed material back to producers directly for use as recycled content, new products and packaging. This initiative exemplifies a true circular economy, which keeps plastics looped in the system to be used again and again.

The federal government has set ambitious recycling targets to improve the recycling of plastics in Canada. Supporting investment in infrastructure and innovation nationally is critical for system changes that will effectively enable the recycling of plastic and other material. Most importantly, collaborating with stakeholders in all levels of government on plastic and material management is needed to reach Canada's zero plastic waste plan by 2030.

Our work with partners across the supply chain is helping to advance the circular economy for plastics. Our partnership with the Canada Plastics Pact, for example, helps to scale up investments in infrastructure and innovation.

Recently, with our partners Éco Entreprises Québec and Recycle BC, we issued a request for expressions of interest to identify innovative plastic sorting, mechanical and advanced recycling technologies. We will assess the commercial viability of these technologies to help reintegrate recycled plastics into manufacturing supply chains.

Industry is significantly investing in infrastructure and innovation, but we can't do it alone. A collaborative, cohesive strategy needs to be developed to de-risk investment in the recycling system. A 2019 report commissioned by Environment and Climate Change Canada estimated that \$6.5 billion of capital investment is needed to expand the recycling system's capacity and achieve Canada's targets. There has been a decade of public and private sector underinvestment in recycling infrastructure in Canada. Incentives for the private sector are critical for driving innovation, accelerating the scale-up and transitioning to “designed for recyclability” solutions, equipment and technologies.

Supporting pilot and demonstration projects is also a key step towards commercial deployment of modern recycling technologies for sortation and mechanical and advanced recycling.

The Government of Canada has a crucial role to play in supporting the transformation of the country's recycling system. As such, Circular Materials proposes two recommendations for the federal government. One is to incentivize and de-risk private infrastructure investments in innovation and circular plastics projects through existing federal funding programs. The other is to expedite the development of a federal infrastructure and innovation fund that will scale up and commercialize technologies and solutions for the reuse and recycling of plastics.

By investing domestically in recycling infrastructure, Canada can create new, well-paying recycling and manufacturing jobs. Without this collaboration, our economy risks losing these high-value-add investments to other jurisdictions in the U.S. and Europe.

Studies have also shown that a circular economy for plastics and using recycled plastics in new products could result in an annual GHG emission savings of 1.8 megatonnes of carbon dioxide, which would provide further environmental benefits to the country.

Essentially, scaling up investment in infrastructure and innovative technologies is necessary to transition to a circular economy and meet ambitious environmental targets. This cannot happen overnight. A national strategy is needed to ensure the success of a sustainable and thriving future for value-adding plastic materials. Through our continued efforts, we look forward to working with governments and stakeholders to modernize Canada's recycling system. Collaboration is key to driving Canada's circular plastics economy and a more sustainable future.

Thank you for the time to speak. I look forward to answering any of your questions.

The Chair: Thank you very much.

We'll now turn to our third witness, Mr. Mathieu-Poulin, for five minutes, please.

[*Translation*]

Mr. Charles David Mathieu-Poulin (Lead, Governmental and External Relations, Éco Entreprises Québec): Hello and thank you, Madam Chair.

Hello, ladies and gentlemen of the committee.

First, I would like to thank the committee for this invitation to testify on a subject as important and complex as plastics recycling.

Éco Entreprises Québec, or EEQ, is a private, non-profit organization that, since 2005, has represented producers who market packaged products, containers and printed materials in Quebec. Under the principle of extended producer responsibility, or EPR, producers are responsible for developing, implementing and financing the province's recycling system.

In 2022, EEQ was appointed as the designated EPR management organization in Quebec, becoming the leader in the modernization of curbside recycling. As a result, as of January 1, 2025, EEQ will manage the collection, transport, sorting and sale of recyclable materials for the entire province. This new role puts us in a prime position to take a systemic view of issues around plastics, and ensure their sound management at the end of their life cycle.

Our approach to plastics is threefold. Firstly, because of the ambitious recycling targets set by Quebec's regulation, one of the main benefits of EPR is to encourage investment in infrastructure. Unfortunately, in recent years, sorting centre operators have often set aside major investments, aiming instead to sort at a lower cost, even if it means having to export or landfill recyclables such as plastics. As the manager of EPR in Quebec, EEQ is working to catch up with this major technological lag by demanding better performance from sorting centre operators, giving them the means to achieve these ambitious targets, but also by building new high-per-

formance, innovative sorting centres, like the one in Montreal East, which will start operations on January 2, 2025.

In addition, as Mr. Langdon noted, with our colleagues at RecycleBC and Circular Materials, we launched a Request for Expressions of Interest for the Processing of Plastic Packaging, also known as REOI, in the spring of 2024, with the aim of obtaining information on equipment manufacturers and plastic recyclers in Canada and elsewhere who wish to play an active part in modernizing the system. The information-gathering period is now over and projects are now being analyzed for implementation in 2025.

Secondly, we are also well aware that downstream changes in the system must be accompanied by changes upstream. That's why EEQ has implemented numerous eco-design and eco-modulation initiatives and programs over the past 20 years. In fact, we have a dedicated in-house team that supports producers in changing their packaging and containers for alternatives that are less disruptive to the recycling system. Notably, since 2021, several hundred thousand dollars have been awarded to producers via the Ecodesign Incentive Bonus, which rewards good practices such as source reduction, reuse, local procurement, recyclability and the integration of recycled content. In the coming weeks, we will proudly launch our Ecodesign and Recyclability Guidelines, which will guide producers towards more responsible packaging choices. These guidelines are based on global best practices, while taking into account the on-the-ground reality of recycling in Quebec.

Regarding plastics more specifically, we have also introduced eco-modulation measures in 2024 for certain categories in our tariffs, namely maluses on PVC and on biodegradable and compostable plastics. While the latter are often seen as a solution to certain plastics-related issues, such as ocean pollution, biodegradable and compostable plastics pose a number of challenges for the recycling system. Indeed, given that the vast majority of composting facilities in Quebec and the rest of the country cannot adequately process this packaging, it is often refused in residential compost bins. They end up either in the trash, where their value is lost, or in recycling, where they contaminate plastic bales and, subsequently, post-consumer resins. It is therefore important to consider the indirect effects of the increase in such products.

Finally, EEQ is proud to be a founding member of the Circular Plastics Taskforce, or CPT, whose mission is to create a circular economy for all post-consumer plastics in Canada. Since its founding in 2020, the CPT has carried out a number of research and pilot projects on several important plastics-related issues, such as traceability, food grade, flexible plastics and thermoformed PET. The deliverables of these projects, such as research reports and white papers, have become reference tools within the plastics industry worldwide, giving the Canadian leaders involved an international showcase. We'd also like to thank Environment and Climate Change Canada for the financial support it has provided to the CPT in the past, and hopefully in the future.

In conclusion, there is definite momentum in Canada around the circular economy of plastics, notably due to the multiplication of provincial extended producer responsibility initiatives. Although the arrival of EPR in the majority of Canadian provinces will lead to a series of investments in infrastructure and new technologies, this will not be enough to bring the whole system to scale. To encourage plastics circularity and accelerate the movement already under way, the federal government therefore has an important role to play in encouraging and derisking private investment in plastics recycling, from manufacturing to sorting centres and recyclers. Change on this scale will only happen if we all work together.

Thank you again for your invitation.

• (1555)

[English]

The Chair: You were right on the button. That was great.

Thank you to all three of the witnesses for their opening remarks.

I'll now open up the floor to members for questions. Please be sure to indicate to whom your questions are directed.

Kicking off our questions today will be MP Corey Tochor for six minutes.

• (1600)

Mr. Corey Tochor (Saskatoon—University, CPC): Thank you so much.

Thank you to our witnesses.

This is for Mr. Langdon, with the Circular Materials folks.

I found your testimony today very intriguing. There were a lot of common-sense solutions that I think Canadians should be open to. It sounds like a lot of the issues.... We don't have the infrastructure to properly become the plastic superpower that I think we are destined to become if we have the infrastructure for the plastics industry.

I understand that the Canada Infrastructure Bank is not fit for purpose to help our recycling infrastructure. Would that be accurate? Answer yes or no.

Mr. Allen Langdon: I don't know that I can make a comment on whether it's fit for purpose. The challenge for us is—

Mr. Corey Tochor: Did you have an application? I'm sorry, sir. We have limited time.

Did you guys apply for funding?

Mr. Allen Langdon: No, we don't have an application. We did not apply for funding.

Mr. Corey Tochor: Okay. Some in the industry are concerned about how it's a large amount of taxpayers' money—\$35 billion—to help build the infrastructure that we desperately need in Canada. That is one area where we are additionally disappointed in the Liberals because of how they've mismanaged the Infrastructure Bank. Obviously, infrastructure is a benefit for our planet, our economy and our country, and they are ignoring the plastic infrastructure.

How much of Canada's plastic packaging currently falls under the extended producer responsibility, or EPR?

Mr. Allen Langdon: That's a great question.

By the end of 2026, every jurisdiction in Canada—except for Newfoundland, the Northwest Territories and Nunavut—will have EPR legislation passed and will be operating under some form of EPR program.

Mr. Corey Tochor: That's good news.

In terms of some of the overlapping regulations and red tape, would you agree that there has not been enough leadership from the federal government to encourage the harmonization of different standards? You talked about all of the different agreements across Canada. It's a patchwork quilt of policies versus a national policy. What are your thoughts on that?

Mr. Allen Langdon: Definitely, as an organization, we encourage greater harmonization. We think part of the challenge is that the legislative responsibility lies with the provinces. Certainly, there is a role for them going forward in terms of a national strategy, particularly when you talk about infrastructure.

I think that's where all organizations operating in the space are looking for partnerships to be able to, again, de-risk the investments required, because now we have the material. We are going to be collecting the material across the country in the coming years. We need to make sure that we have the appropriate infrastructure to be able to recycle that material.

Mr. Corey Tochor: I'm very encouraged by your answer. I think most logical Canadians want us to become that superpower of plastics recycling.

Knowing where our plastics are and storing them properly is a big part of the battle. There was a private member's bill that my colleague Scot Davidson put forward last session. Are you familiar with it? It would have stopped the heinous act of exporting our waste to other countries, where we have no way of confirming its end use and how it is disposed of.

Are you aware of the private member's bill that was put forward?

Mr. Allen Langdon: I am aware of the bill at a high level, but not in detail.

Mr. Corey Tochor: Do you agree with the idea of Canada not exporting its waste?

Mr. Allen Langdon: From a Circular Materials perspective, we're focused on developing domestic markets for the recycling of plastic so that we can more easily transfer it back to our producers for use as recycled content.

I would also add that through the EPR programs, we are all—including Éco Entreprises—putting together very robust attestation and traceability systems so we can make sure that the claims being made about the material we're collecting and recycling can be validated. We find it will be easier if we can establish and maintain robust domestic markets for that material.

Mr. Corey Tochor: I have just a couple of questions at the end. My time is running out.

How have emerging plastic technologies and processes already contributed to a more circular economy? What are the new technologies that would get you excited about plastics recycling in the future?

Mr. Allen Langdon: I think we're in that process right now.

With our partner Éco Entreprises Québec, we have a request for expression of interest. Right now we're going through a technical analysis of what's been brought forward as possible solutions. By early next year, we'll hopefully have a portfolio of different technologies we want to work with to help us get to that next stage of ensuring we can recycle all of the plastics we're collecting in the various jurisdictions across Canada.

• (1605)

Mr. Corey Tochor: You talked pretty clearly about your plans for the future. Can you be very concise in your vision of how Canada can do more to become a world leader in technology innovation for the circular economy? If you had a magic wand, what is the first thing you want the federal government to change, such as a regulation or support for the infrastructure?

What is the first step that would help us along that path?

Mr. Allen Langdon: As I said before, I think some investments and partnerships on infrastructure would be a huge step forward. All the other building blocks are starting to slowly fall into place with EPR regulations being passed across the country. If we can develop a national infrastructure strategy to help build out the infrastructure needed, I think that would be a huge step forward in terms of developing a more circular economy for plastics.

Mr. Corey Tochor: Thank you so much for your testimony today.

The Chair: Thank you. That's right on time again.

Our second questioner will be MP Chen for six minutes.

Mr. Shaun Chen (Scarborough North, Lib.): Thank you, Madam Chair.

Thank you to our witnesses today.

I know we're all aware of Canada's role on the international stage. This past spring, we hosted the fourth session of the Intergovernmental Negotiating Committee on Plastic Pollution, announcing over \$3.3 million in funding that would go to support

Canadian organizations innovating in the fight against plastic pollution. Of course, recycling is an important part of the solution.

Mr. Arjmand, you highlighted the fact that only 9% of the four million tonnes of plastic waste generated in Canada each year is recycled. You began to speak about value addition in the recycling process, and how that would go a long way in supporting the circular economy. You ran out of time, so I'd like to hear from you.

Could you finish your testimony?

Mr. Mohammad Arjmand: Thank you so much.

For the plastic being collected and sorted out very well, there are three general techniques being used by different countries right now.

One of the easiest ones is mechanical recycling. We can have it in any small city across Canada. It can generate fills and jobs. We can simply convert some of the plastic waste being generated in each city to some value-added product. Sometimes we can improve the physical properties of plastics. You can imagine that plastic waste, such as drinking-water bottles, could be easily converted to an electrical conducting material that can, for instance, absorb electromagnetic waves. That's how we go from low-value products to value-added products.

The second approach... When mechanical recycling—which is the easiest one—is not possible, countries have started to move towards chemical recycling. The capital investment in infrastructure is higher, but the materials we can get from chemical recycling are value-added products. We can generate some chemicals from the plastic waste that can find their market.

If the previous two are not possible, there is a third one. Some of the plastics are challenging, so some European countries have started to work on energy recovery. We know most of the plastic waste is being made from petroleum-based material. It has a high number of calories, so it has a lot of energy. Some countries have started to burn this material to generate energy, and from that energy they generate electricity or power. The challenge is that we might generate some toxic gases. We need to have very good filtration systems, so high technology is required over there. Some countries, such as Germany, are front-runners in this area.

Mr. Shaun Chen: Thank you. That's quite fascinating.

You mentioned earlier that some countries, including Finland, are using robotic systems. There has been an increase in AI and robotics.

Could you speak about some of the opportunities that might exist in this space?

Mr. Mohammad Arjmand: Sure.

I have been working with a couple of companies in British Columbia. The major challenge is that, when we are working at a larger scale, human beings don't work anymore. We need to have the separation of plastic done very well. Right now, using artificial intelligence has become important. Some advanced technologies in this area are using robotic systems that can detect the plastics at a larger scale and separate them. Then these plastics are ready to be sent to the next stage.

• (1610)

Mr. Shaun Chen: That's fantastic.

I know you are the Canada research chair in advanced materials and polymer engineering, and that part of your research looks at the different industries that can use recycled plastics. Certainly, this would help fulfill the circular economy that we've been talking about today, namely, industries such as housing, the auto sector and aerospace.

Could you speak to some of the opportunities that exist in these industries, and how those sectors can collaborate with the broader community in furthering this goal of reducing plastics and recycling?

Mr. Mohammad Arjmand: Sure. We should be very careful that the recycled plastics.... The industry right now is hesitant to use them for food industrial packaging, because of the presence of contaminants, but other industries, such as aerospace, defence, construction or appliances can use these plastics.

The whole idea is that if we receive these recycled plastics, we need to find a way to, first, process them, and, second, improve some of the properties, such as electrical, mechanical or thermal, in order to make them adjusted for those target industries. That's what we need to consider.

One important point that I would like to highlight here is that whenever we recycle plastics, the properties start to decline. They are not as compatible as virgin plastics. That is one of the reasons the industry is so hesitant. In terms of price, virgin plastics are much more competitive compared to recycled plastics. That's one of the biggest challenges in the industry right now.

Mr. Shaun Chen: I'll turn to Mr. Langdon, on video conference, if I can.

I know that you also have talked about the circular economy and have organized industry representatives. As Mr. Arjmand mentioned, it is a challenge to utilize recycled plastics in the food industry because of the concerns around safety. I know you have done some work in this area. Could you speak to your work?

Mr. Allen Langdon: We've struck a material access group, which is a group of producers who are interested in working with us over, I would say, the coming months to develop a real and realistic plan on how they could access plastic material, actually all material, directly for our system.

We're going to be establishing a system that's going to be managing probably upwards of 1.5 million tonnes of material across the country. We're intent on ensuring that the producers who are paying for the recycling of this material will be able to access that material

and have it come back directly to them in the form of recycled content.

The Chair: That's a little bit over our time. You might get a chance to finish that thought with another witness. Thank you.

We will now turn to MP Blanchette-Joncas, for six minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you, Madam Chair.

Welcome to the witnesses who are with us for this study.

Mr. Mathieu-Poulin, I commend you on all of your organization's work. As a Quebecker, I am always proud to see a Quebec company that is thriving and is at the forefront in various fields, specifically the environment. It is encouraging to see the work you are doing, and it is also evident that positive things are happening. It's clear that what Quebec is doing in various areas, whether Hydro Quebec, day care or pharmacare, serves as inspiration to other parts of the country. So congratulations on your efforts to protect the environment.

Since you are with us today, I would like you to talk to us about the environment. We know that Quebec has always been a pioneer on the environment and environmental responsibility. Quebec isn't perfect, but it's making progress. Can you tell us about the latest developments in recycling and environmental protection, and specifically the latest innovations in plastics recycling, the topic of our study?

In your opinion, what role does Quebec play in the conversation about plastics recycling, whether with other provinces in Canada or with the United States? I know that Éco Entreprises Québec is working very closely with municipalities in Quebec to standardize practices by 2025, and also with organizations in other provinces, such as Circular Materials. What can you tell us about that?

Mr. Charles David Mathieu-Poulin: Thank you for your kind words and for the question.

First of all, in Quebec we have the Regulation respecting the recovery and reclamation of products by enterprises, which establishes extended producer responsibility, or EPR, and which is regarded by many people around the world as probably the most challenging, rigorous and ambitious. There is so much in the regulation.

We talked earlier about local recycling. The Quebec government has made recycling mandatory, in Quebec and in neighbouring provinces. I think one of our real strengths in Quebec is polystyrene recycling. It is not popular in other parts of the country, but in Quebec, we have built a good ecosystem, for both the transport and the recycling of polystyrene. As a result, even if polystyrene is in many cases banned outside Quebec, we are really opposed to banning it in Quebec, precisely because we have created that recycling chain.

I talked about sorting centres. We are very proud of the sorting centre we are going to open in Montreal East, which will probably be one of the most modern ones in North America. We talked about robotics and artificial intelligence. We are very proud to have worked with Quebec companies that are experts in the field and that are also building sorting centres elsewhere in the world, such as Machinex and Waste Robotics.

So a number of things are happening in Quebec, and there will be even more next year with the modernization of curbside recycling.

• (1615)

Mr. Maxime Blanchette-Joncas: Congratulations. Thank you very much.

There is a lot of talk about biodegradability, a complex but important concept. It is seen as an alternative to recycling. Ultimately, though, I think you would agree that it isn't a way to shift the problem. We know for example that certain bioplastics can be in the environment for 428 days without showing the slightest sign of degradation. Isn't it preferable to reuse or recycle single-use plastic, even compostable plastic?

Mr. Charles David Mathieu-Poulin: Yes, I certainly agree on that point.

Essentially, we have to think of the source of the problem. If the problem is the result of excess pollution of the environment by plastics, the idea of manufacturing plastic that is supposed to degrade in the environment is not necessarily the best approach. The goal should instead be to try to change public behaviour so that kind of plastic doesn't end up in the environment, or to build infrastructures, primarily outside of homes, so people can dispose of their packaging at the right place and not in nature.

There is a lot of talk about biodegradability. We were very pleased to see that the federal government wants to ban the word "biodegradable" as regards plastics. In many cases, they are not in fact biodegradable, unfortunately. In many cases, they become smaller pieces of plastic, microplastics, which end up in the environment or in the human body. I agree that we should not try to replace one thing with another that could result in even worse problems or consequences.

For our part, as I said, we have imposed a penalty in that regard, a malus: Our producers who make products with biodegradable compostable plastics will pay higher contributions to Éco Entreprises Quebec than the companies that do not. We see that as a way of encouraging people to do the right thing, that is, not to use that kind of plastic. I think it is certainly preferable to produce recyclable plastics, that can go through the cycle, as opposed to biodegradable plastics.

Mr. Maxime Blanchette-Joncas: Thank you very much.

I would like to hear your thoughts on the federal plastics registry. The federal government's intention is good, but I am keen to see the results. We need good intentions, but also positive action and good results. The federal plastics registry will be mandatory, but who will monitor it?

What specifically are you proposing to make sure the registry works and produces results so that we are not just going around in circles, which is what we have seen with other good intentions from the government?

Mr. Charles David Mathieu-Poulin: We have had a number of interesting conversations about the registry.

As you know, as the organization that manages extended producer responsibility, we receive a tremendous amount of information from our producers regarding the packaging they want to market. We suggested to the federal government that we could forward that information to the registry, but the registry and the information we receive are not in the same categories, unfortunately. So we will not be able to share with the federal government what is happening provincially. I think that is problematic for producers because they have to send two different reports about two different categories and provide various different types of information.

As to what is needed, I think it would be helpful to have more information about plastics. On the other hand, since the registry is so exhaustive and requires so much information that producers do not have right now, there is a significant risk that the information could be seen as being at too high a level. The registry is based on many hypotheses, namely that a lot of things will be counted twice since what is required is unfortunately extremely exhaustive. The registry's objective is interesting because we need more information about plastics. Some adjustments are needed, however, in the way that information is gathered. That being said, the registry will be in effect next year. It will be interesting to see how things unfold.

[English]

The Chair: Thank you. That's our time. That was great.

Now we're going to turn to MP Cannings for six minutes.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you.

Thank you to all the witnesses for being here. It's been very interesting.

I'm going to start with Dr. Arjmand. It's always nice to have someone from the Okanagan Valley here. You talked about some of the problems with recycled plastic, that it doesn't have quite the qualities that virgin plastic made directly from petrochemicals does. However, you suggested, I think, that if we added certain chemicals to that plastic we could use it for other purposes.

One thing I read in some information on you is that you're also working on 3-D printing of building components and things like that. Is that a way we could use recycled plastics for materials that would make them as good as or better than the virgin plastics we've been producing?

• (1620)

Mr. Mohammad Arjmand: It's a great question. I think we can take two strategies over here.

Any company that wants to work in this area should know whether, if they can process a plastic and reuse it, they can find the target market for that one as well as for the one without any additives. Sometimes it might not be necessary to add some extra components to improve physical properties. We can easily process the plastics and then maybe use them for some inferior applications as soon as they have their own market. That's the first part.

As a second solution, it is possible to add some additives to these plastics to improve their physical properties. Doing that, first of all, would give more value to the product, and it would also diversify the market. It's the way to go, particularly as I believe the technology exists, but as per my experience over the last couple of years with some companies, unfortunately many of them don't have expertise in this area. Maybe if there was more connection with... We actually have many good polymer scientists all across Canada, and that would help a lot.

Mr. Richard Cannings: One of the problems with recycled plastics, as I understand, is the cost. We're going through a lot of processes to reproduce this. Is the main part of that cost the sorting of the volume you have? It strikes me that, if we move to some of these more AI-based sorting systems, we could get very large volumes, and we need large volumes to deal with the problem. Would that ultimately bring that cost down?

Mr. Mohammad Arjmand: It's a good question. I think that, because the challenge is huge, the solution should be huge as well. That's number one. The way companies look at plastic is that if they receive, let's say, a pound of polyethylene for \$1 per pound, for recycling they need to collect it, and there is a cost for that. They need to separate it, and then they are going to reprocess it, and it's maybe going to cost much more than virgin plastics.

Unless there is an incentive from the federal government, I believe maybe the companies are not interested in moving in that direction.

Mr. Richard Cannings: Mr. Mathieu-Poulin, you talked about global best practices. I just want to give you some time to perhaps highlight some of what other countries are doing that we should steal and do ourselves. Finland was mentioned, but I'm sure there are other examples.

Mr. Charles David Mathieu-Poulin: Both we and Circular Materials are part of EXPRA, which is a group of international pros like us who manage EPR systems in provinces or states. That's really a good area where we can share best practices. We often go to Europe to see what's happening. One thing that's very interesting in France, for example, is that they added a second layer between the sorting centre and the recycler that they call a secondary sorting.

We ask a lot of our sorting centres. They receive a lot of things that they should not be receiving. I invite all of you to go visit one if you haven't visited one. It's something I think every citizen should do. Once you see that, you see what we're asking of them. To get the quality of bales afterwards is almost impossible. What they're doing in France is that they have a second sorter. All of the plastics get sorted together at the sorting centre, and then there's an-

other facility that sorts them out in different categories for the different demands of the recyclers, as my colleague mentioned.

There are these ideas that are coming up. This is something we're discussing with Circular Materials: Should we have secondary sorting in Canada? We're talking about technologies again and AI. A lot of it is happening here. Funnily enough, as I mentioned, a lot of Canadian companies are building sorting centres in other areas of the world. One of the most famous ones is in Great Britain, in Coventry, and it's being built by a Quebec company that does sorting equipment.

I think we have the knowledge. As we mentioned, I think we just need the policy and we just need the investment, but we are asking a lot about what's going on everywhere.

Mr. Richard Cannings: Okay.

I'll just turn back to Mr. Langdon, because I couldn't write this down fast enough.

You had two recommendations. I just want to give you maybe 25 seconds now to rephrase those so I can have a clear idea of what you're asking.

• (1625)

Mr. Allen Langdon: The first was to incentivize and de-risk private infrastructure investments in innovation and circular plastic projects through the existing federal funding programs. The second was to expedite the development of a federal infrastructure and innovation fund that would help scale up and commercialize technologies and solutions for the reuse and recycling of plastics.

Mr. Richard Cannings: Okay, thank you.

The Chair: Now we will turn to MP Viersen for five minutes.

Mr. Arnold Viersen (Peace River—Westlock, CPC): Thank you, Madam Chair.

I want to thank the witnesses for being here today.

I'll start with you, Mr. Arjmand. If there is a country that's doing this well, which one would you pick?

Mr. Mohammad Arjmand: I think Germany, Sweden and Finland are doing great in this area, to the best of my knowledge.

Mr. Arnold Viersen: If we were to benchmark one of them, which one would you pick?

Mr. Mohammad Arjmand: I would pick maybe Sweden. I think they are doing great.

Mr. Arnold Viersen: Okay.

Mr. Langdon, you talked about regulations. I know that in my own backyard we have several waste facility organizations that are doing cardboard recycling, plastic recycling and things like that. There are third party companies that come in to do that. Now, what's interesting is around an environmental assessment for their own facilities. When they take the cardboard or they take the plastic away from the waste disposal facility or the landfill, they bring it to another location. They're talking to me about the fact that they're being regulated as if they are a landfill, and they're having to go through all kinds of regulation each year to recertify and things like that. Is this something that you're finding across the country, or is that specific to Alberta?

Mr. Allen Langdon: No, I think in various jurisdictions it's harder and harder to site lots of industrial developments, but particularly recycling infrastructure. One of the challenges since we launched EPR and we had to find new facilities has been finding appropriate locations to be able to site and build the infrastructure to meet that challenge, for sure.

Mr. Arnold Viersen: Would you say that that's a major impediment to this stuff coming online more quickly? I know that I've met with folks who want to recycle plastic and who have a market for the end product, but they are just saying that they cannot find a place that will allow them to do it.

Mr. Allen Langdon: It wouldn't be the top challenge we see. Obviously, it's a challenge for some companies, but I think for us, it really comes down to funding. Are we able to find the appropriate funding to de-risk those investments? Can we find technologies and innovation that allow us to recycle these plastics? There's a wide range of plastics available on the market.

Mr. Arnold Viersen: Mr. Mathieu-Poulin, I don't know if you're the correct person to ask this. It might be for the folks beside you. It's around energy consumption to recycle the plastic, versus the energy that is available in the plastic. I know that, with the waste management in northern Alberta, the plastic becomes a major feedstock for their energy sources, for the waste management more generally. They're using some of that energy to sterilize the composting that they're doing, for example, so that when you get your compost back from the waste management centre, you're not filling your garden full of weeds or something like that.

Can you talk a little bit about the usage of the energy that's available there, and then what it takes to reuse or recycle? Is that a net positive or a net negative?

Mr. Charles David Mathieu-Poulin: I think the research proves that in the majority of cases the carbon footprint of recycled plastic is much better than that of virgin plastic, which means that despite all of the steps, as we mentioned—the transport of it, the sorting of it, the recycling of it, and then the shipment back to it—it depends on the types of plastic, but there is around 75% less of a carbon footprint in recycled plastic.

Where it becomes interesting is in the new technologies, as we mentioned, like chemical recycling technologies, which are going to be looking to break down plastic back to the monomers. Those are going to be very energy-intensive. In that case, there are questions that are being asked right now: If there is so much energy, so much carbon, that goes into breaking down that plastic, are we

moving the environmental gain from recycling plastic back to creating greenhouse gases?

In the vast majority of physical recycling, mechanical recycling, there is value in recycling it before doing any other type of waste-to-energy process to it.

● (1630)

Mr. Arnold Viersen: Just in that one instance, in breaking it back down into its basic polymers, there is a large energy requirement. Is there enough energy in the plastic to consume some plastic to get recycled plastic out of the end? Is that a possibility?

Mr. Charles David Mathieu-Poulin: That's an interesting idea. Again, it depends on where you're doing it. Obviously, it will depend on the type of energy you're using. That's always the case in carbon footprint. If you're using hydro versus oil already.... In the case where you were using oil to produce your energy, taking plastic to do it could make sense, because that's oil. Where you have greener energy, either wind, solar, or hydro, obviously you would prefer using that energy versus burning any plastics to create that energy. In that case, maybe the carbon footprint would actually be net positive even for very energy-intensive technologies for chemical recycling.

Mr. Arnold Viersen: Thank you.

The Chair: That's our time. Thank you.

Now we're going to turn to MP Kelloway for five minutes, please.

Mr. Mike Kelloway (Cape Breton—Canso, Lib.): Thank you, Chair.

This is really interesting testimony. I come from a political science background and not a particular science background, so a lot of this is new to me, but some of it is not. When we talk about how we as a country up our game with respect to the themes that you've brought up, there were four particular areas: change in policy, change in investment, incentivizing and de-risking.

For the witnesses here, and then we'll go to the witness online, I'm wondering if we could just unpack policy in an example of investment and a guesstimate in terms of what that would be. Can you give an example of incentivizing and an example of de-risking? I wonder if we could start here, and then we can finally go to the witness who's online.

Mr. Charles David Mathieu-Poulin: I'll try to remember the order. Let's start with policy first.

I think one good example of what's currently being discussed in Canada is mandatory recycled content in some products. We know that to drive the recycling system, you need demand. For example, if you're mandating people, in some industries, to use recycled content where they can—and it has to be done in the right way and not everywhere—if it is done the right way, then it creates markets for recyclers, and that's what they need to create those investments. That's a good use of policy.

On investment, I think we did mention earlier that the fund is a great idea. I think right now lots of recyclers, especially, don't know where to turn to, specifically. Having, for example, a fund that's specifically for plastic recycling would be a good option.

Mr. Mike Kelloway: With lots and lots of money....

Mr. Charles David Mathieu-Poulin: Yes, hopefully.

Mr. Mike Kelloway: Next is incentivizing.

Mr. Charles David Mathieu-Poulin: That is something we do, for example, through EPR. As I mentioned, producers have to pay a certain fee for the plastic they put on the market. For example, for the plastic that we want to see, we give a lower fee, and for the plastics we don't want to see, we put a higher fee. That's a way to incentivize good behaviour.

I think that EPR in itself is an incentive for good behaviour with plastics, and that's what's happening across the provinces. That's one thing we can do.

Mr. Mike Kelloway: Next is de-risking.

Mr. Charles David Mathieu-Poulin: Regarding de-risking, I think the point that Allen made was good. A lot of people right now are saying that they would love to install an industry in Canada. First of all, virgin resin is a commodity, and the problem right now is that the moment the costs for virgin go down, nobody will want to buy any recycled plastics anymore. In that sense, maybe we can de-risk that investment by giving the same value for virgin and recycled content.

Mr. Mike Kelloway: To the two remaining witnesses, is there anything to add to those four pillars that we're focused on here, or something else that we haven't mentioned yet in terms of importance?

Mr. Mohammad Arjmand: Yes, I can go for the policy-making.

I know there is a regulation in the U.S. right now that for some of the plastics they are using, it is recommended to combine them with a specific portion of recycled plastics, such as, let's say, 60% virgin plastics, 40% recycled plastics. There is a technology behind that, and it's a requirement for some products. That's number one.

Number two, I think that public education is very important. If we make the material from recycled plastic, if there is no market for that, we cannot go anywhere. If there is public education showing that.... If there is a recycled plastic and people are interested in purchasing that, then all pieces of the puzzle will actually follow that. It's very important to make sure we have public education.

The third one is that even if the government does its job very well and the companies do their job very well, if we still don't have public education in terms of separating the plastic at the source, we cannot go anywhere.

• (1635)

Mr. Mike Kelloway: Before we go to the witness who is online.... That was one of the key elements so far. There are so many interesting levels of testimony, but in terms of public education there are two ways of looking at this: Does the strategy drive the culture, whether it be work or consumer, or does the culture drive the strategy? I would say that a good deal of this is around changing culture. You need to have the policy, the investment, the incentive and the de-risk element. However, the culture needs to change in terms of this whole process, whether it be from a consumer standpoint or from a business standpoint. Thank you for sharing that.

I think I have five seconds left. My apologies to the witness who is online.

Thanks, Chair.

The Chair: Mr. Langdon, if you would like to send a written response to have a chance to answer that question, that would be welcome.

Thank you, Mr. Kelloway.

Now we will turn to MP Blanchette-Joncas for two and a half minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

Mr. Mathieu-Poulin, I would like to go back to the federal plastics registry, which we discussed earlier and which will come into force in September 2025, as you know. It's a good idea and we hope that it will not be dropped, but it is a year away and there could be a change in government by then. You never know.

As you know, Canada has not reinvented the wheel. Comparable registries were created in Japan in 2018, in Australia in 2021, and by the European Union in 2018. So some countries have already had this kind of registry for three to five years. As an expert, when did you say that such a registry was necessary to truly achieve our ambitious objectives?

Mr. Charles David Mathieu-Poulin: That's a good question.

It was not beforehand, but rather in response to the registry. The more a government knows about the various types of plastics in use in Canada, the better able it will be to develop effective public policy. So one of the benefits of the registry is that it will provide more information.

Regarding the way the information is collected, as mentioned earlier, are we asking for the right information? There is a great deal of plastic in durable goods, such as in fisheries and cars, that we don't know much about. There is a lot of talk about packaging because that's what we see and have at home as consumers. So another benefit of the registry is that it goes beyond the plastics we have around us. On the other hand, people do not necessarily know how much plastic they have.

I don't think industry asked for this registry. It could nonetheless support sound decision-making and public policy development that is more in keeping with what industry wants.

Mr. Maxime Blanchette-Joncas: My next question will be quick.

Since plastic is a petroleum product, does a country that produces more oil produce more plastic? We know that Canada gave Trans Mountain a \$34 billion gift when it bought its pipeline. Is it possible that that will generate more plastic products, which we are trying to eliminate? As a recycling expert, are you concerned about that?

Mr. Charles David Mathieu-Poulin: The greatest concern is not necessarily the volume of plastic, but rather the price of virgin resin in relation to recycled resin. We talked about that earlier. Any financial assistance given to the oil and gas industry serves to lower the price of virgin resin. That makes it even more difficult for people who produce recycled resin to enter the market. That's why we mentioned eliminating risks earlier.

So it is not necessarily a question of quantity but rather of price. Perhaps the recycled resin industry would have to be given the same assistance as the oil and gas industry receives to produce virgin plastic. It should be noted that both are produced by the same industries.

[English]

The Chair: That's our time, I'm afraid, but I think we do get your point.

Thank you. Two and a half minutes go by very quickly.

Now we'll turn to MP Cannings for his two and a half minutes, please.

Mr. Richard Cannings: Thank you.

I'm going to turn back to Mr. Langdon and ask a similar sort of high-level question.

I think Dr. Arjmand brought this up. We need to have prevention, collection and recovery. Those are the three main tasks about plastic recycling. I'm wondering if, for each of those, you could say what the real challenge is, how much we could accomplish with each of those and what the tasks are ahead of us. What is the single most important thing to fix in each of those subjects: prevention and reducing plastic use, how we collect it, and how we recover a usable product?

● (1640)

Mr. Allen Langdon: On the collection side, I think we're putting in systems across Canada to better collect the material. We're doing it in a way where you'll have uniform material lists. They will no

longer be different from jurisdiction to jurisdiction. They'll be consistent, first in each province and then across the country. People won't have to guess about what can be recycled. That will allow us to accelerate and amplify the kind of public education required to get people to do the right thing and put that material in the recycling box.

From there, we go to the sorting infrastructure. After moving to a consistent and unified recycling system in the collection, we can then move to a more efficient sorting system where the material coming into these places becomes more uniform and consistent.

Finally, from there, we get to the question of whether we need secondary sorting or whether there is other technology needed to recycle some of the plastics. As we're investing hundreds of millions, if not billions, of dollars in establishing these recycling systems across the country, the further investment is where we really need to de-risk. There's going to be a variety of technologies, and not all of them may prove to be the ultimate solution. We need to find the ones that are, and that's going to take some trial and error along the way.

Mr. Richard Cannings: How confident are you that we can reach zero in the near future, in terms of zero plastics in the environment?

Mr. Allen Langdon: I think that's the goal. I think it depends on the timeline. I don't think it's something we're going to achieve in the next five years, but I think we're going to put the foundation in place to have a much more circular economy for plastics, one that gives us a better hope of reducing plastic waste going into the future. Ultimately, that should be an objective, to reduce the amount of leakage of plastic material into the natural environment.

The Chair: Thank you for that testimony.

Now we turn to our next Conservative questioner for five minutes. I'm not sure if it's MP McLean or MP Kitchen.

A voice: It's 4:42 p.m. We have another panel.

The Chair: Oh, so that's the end. I'm sorry. I was just following along. Thank you.

Mr. Robert Kitchen (Souris—Moose Mountain, CPC): Madam Chair, I'm more than happy to ask questions.

Some hon. members: Oh, oh!

The Chair: Well, actually, I think Mr. Viersen has a flight to catch and doesn't want to go late tonight, so maybe you're on the next panel. We will now suspend.

Thank you to the witnesses—Dr. Mohammad Arjmand, Allen Langdon and Charles David Mathieu-Poulin—for their testimony and participation in the study of innovation, science and research in recycling plastic. It was fascinating. I think you can tell we all enjoyed your testimony. If you have anything else you would like to add, feel free to circulate it to the clerk so that we may have additional information for our study.

We will suspend briefly now to allow the witnesses to leave, and we'll resume with the second panel. For members attending via Zoom, please stay connected to this session.

• (1640) _____ (Pause) _____

• (1645)

The Chair: I know some of you have planes to catch, so we'll get started without further ado.

I'll make a few comments for the benefit of the new witnesses. Please wait until I recognize you by name before speaking. For those participating by video conference.... Actually, I'll skip that. It's Lloyd, and I think he knows what to do. Interpretation for those on Zoom.... Yes, I think Lloyd knows that, too.

It's now my pleasure to welcome, from Oceana Canada, Anthony Merante, senior plastics campaigner; and, from Réseau Environnement, Mathieu Laneuville, president and chief executive officer; and Céline Vaneeckhaute, Canada research chair in resource recovery and bioproducts engineering and associate professor at Université Laval.

Up to five minutes are given for your opening statements, after which we'll proceed with rounds of questions.

I start with Mr. Merante. The floor is yours for an opening statement of up to five minutes.

• (1650)

Mr. Anthony Merante (Senior Plastics Campaigner, Oceana Canada): Thank you for inviting me, Anthony Merante, the senior plastics campaigner on behalf of Oceana Canada, to speak about plastics recycling today.

Briefly, my knowledge of plastics stems from my 15-plus years experience in the fields of environmental science and environmental policy at both the national and the subnational levels.

Oceana is a science-based organization that focuses on the reduction of non-essential single-use plastics and the protection of our oceans. My remarks will focus on single-use plastics, their recyclability and associated pollution.

In 2023, Oceana published a landmark report entitled “Breaking the Plastic Cycle”, of which an electronic copy and physical copies are available. It outlined a road map to reduce Canada's plastic packaging waste by one-third through policy interventions that remove non-recyclables and increase recyclability and reuse of common products.

On the state of plastic pollution, Canada generates 4.3 million tonnes of plastic waste annually, while only 8% of that is mechanically recycled. From 2012 to 2019, the amount of plastics entering the Canadian marketplace rose by 20% to 6.1 million tonnes, which

outpaced both economic growth and population growth. In 2019, packaging items such as bottles, containers and bags made up 37% of all plastic products manufactured for Canadian consumption.

The evidence is clear. We are over-plasticizing our lives with single-use, non-durable plastics. Our recycling system is broken and inefficient today. The combination of overproduction and Canada's transition away from collection and reuse systems to linear single-use disposal systems has resulted in a national pollution crisis.

On damages, it is the very durability of plastics, which is touted as an advantage, that lends to their extensive harm. Once plastics enter the environment, they never really go away. Slowly, plastic products break down into microplastics that persist for hundreds of years. In context, a plastic fork used for five to 10 minutes for a takeout meal may see the entire population of the planet turn over twice. The chance of that fork being recycled is next to none currently, but its odds of ending up in the environment are nearly guaranteed. Plastics are found in every corner of the planet, including Arctic sea ice, rain clouds and our food. Plastics and their chemicals are now being found in the major organs of the human body, with links to infertility, hormone disruption and diseases like cancers and Alzheimer's.

Single-use plastic packaging makes up over half of plastic waste annually, and the largest amounts are coming from our grocery stores, beverage bottles, food service ware, pallet wrap involved in shipping and transport, and the rapidly growing e-commerce sector. The leading causes of this waste generation are the loss of circular, returnable and refillable systems, specifically for non-alcoholic beverage and food containers; the use of plastic polymers like polystyrene and polyvinyl chloride that just do not mesh with our current infrastructure; material swapping of infinitely recyclable and refillable packaging like glass and metal for cheap and flexible plastics; the addition of colourful dyes, additives and chemicals to alter the appearance of plastics; and mixed materials on a single product that are discarded by consumers as a whole. As an example, pop bottles are made from PET, and their caps are made of polystyrene. The ribbons could be made of polypropylene, vinyl or polyester film, and the shrink wrap that is binding them is made of polyethylene.

It's estimated that 7.8 billion dollars' worth of plastics go to landfills annually. This plastic pollution is harming not only our environment but also our wallets.

The solutions are simple and clear: prohibit the manufacturing and sale of products that simply cannot be recycled, reused or re-filled; standardize product design to eliminate non-recyclability and to enable circularity; and work with the largest players per sector to develop systems and products that are truly circular and that are not landfill- or incinerator-bound. Of note, 82% of Canadians support regulations like these, regardless of their voting history, and 80% of Canadians feel that it is the federal government's responsibility to lead the charge on plastics pollution. Currently, over 170 nations are developing international plastics regulations. This is a massive market study.

Lastly, advanced recycling, chemical recycling, pyrolysis and gasification are often cited as solutions to recycling the non-recyclable. However, these have been proven to fail when applied at scale and have been highly polluting. For example, the Enerkem biofuels centre in Edmonton is inoperable and was plagued with failures since its opening. These new forms of waste management are lobbied to governments, the public and decision-makers without transparent data and with unsubstantiated claims of success.

- (1655)

Plastics do have a place in our world, but that place is not our oceans.

I'm happy to stop there and take questions from members of the committee. Thank you.

The Chair: Thank you. We're a bit over time, but that was a very compelling opening statement, so thank you for that.

Now we'll turn to Mathieu and Céline. You have five minutes for your opening statement, if you'd like to proceed. Thank you.

[*Translation*]

Mr. Mathieu Laneuville (President and Chief Executive Officer, Réseau Environnement): Thank you, Madam Chair.

Members of Parliament, it's my privilege to be here. I'm Mathieu Laneuville. I'm the president and chief executive officer of Réseau Environnement, the largest association of environmental experts in Quebec. On that note, an Éco Entreprises Québec representative spoke to the committee earlier today. This organization is a member of Réseau Environnement. I'm an engineer, but I also have a certificate in the circular economy from Cambridge University.

I'm joined today by my colleague, Céline Vaneeckhaute, an associate professor at Université Laval and the Canada research chair in resource recovery and bioproducts engineering.

As I said, our association is privileged to be here to report on the challenges faced by our experts. Our association comprises over 2,000 members from the public, private and academic sectors.

Before talking about our recommendations, I want to focus on the issue at hand. This issue is the need to take action with regard to plastics. I think that my colleague, Mr. Merante, spoke at length about the implications of having more plastic than fish in our oceans by 2050. We know that fish ingest microplastics and that we eat these fish. We also inhale plastic particles. This obviously poses environmental and human health issues.

We need to consider whether we want the sea and its inhabitants smothered in plastic waste. Do we want our brains contaminated? Science currently estimates that 0.5% of our brain mass contains microplastics. If we ignore this pollution, we'll be turning the planet into a garbage dump. We need to consider whether we want to wait until fish and humans have been turned into plastic garbage dumps before taking action.

In the 1980s, the alarm bells rang about carbon pollution from oil. We believe that the time has come to sound the alarm again about the impact of oil on plastic pollution. Our human health and our environment are at stake.

The good news is that technical solutions do exist. We just need to apply the principle of reduce, reuse, recycle, recover and dispose, in order of priority.

The main message from our expert members is still the age-old notion of reduction at the source. In our view, the first solution is to eliminate or ban single-use plastics and encourage reusable and bulk options. If it isn't possible to reduce the use of plastic, we recommend recycling plastic. As Mr. Merante said, around 90% of our plastics aren't currently recycled. We have a long way to go.

I'll say it again. There are solutions. One solution is eco-labelling. Right now, to determine whether a product is recyclable, we need to look at the number on its logo. These numbers are 1, 2, 3, 4, 5 or 6. I challenge you to find out which number indicates that the product can't be recycled. By the way, it's number 6. That said, it's hard for people to make sense of everything. We suggest simply having a check mark when the product is recyclable and a cross when it isn't. There are simple solutions here.

We also recommend a ban on labelling compostable plastics whether they're biodegradable, biocompostable or any other related term. This contaminates our bundles and the material and creates a great deal of confusion for the public.

Another way to improve recycling is through information, awareness and education. We need to inform people about sorting methods. In Quebec, for example, Recyc-Québec has developed a mobile application called "Where does it go?". Using a cellphone, we can find out whether to dispose of a product in the compost bin, the waste bin or the recycling bin.

We also need to increase public trust in the recycling system by raising awareness. Right now, many people are opting out because the results make them feel discouraged. We also need to educate young people during their school years.

A key component of our recommendations is green taxation. The previous speakers talked about this, and we'll come back to it later. Virgin resin from abroad should no longer be more affordable than recycled resin on our domestic market. Our economy, health and environment are at stake. We need bonuses for containers made from recycled plastics and maluses for containers made from virgin plastics.

Other ways to improve the recycling system include regulations. California requires a minimum percentage of recycled content in all packaging. Canada could learn from this. We also need to improve the quality of our infrastructure, particularly sorting facilities, to ensure a better quality of plastic and to make it more cost-effective to use our recycled plastics.

Another significant issue for our members is green design. It's probably the key to getting things right. We must use science. I think that everyone around the table today relies heavily on research. Let's use science to find the best packaging for each product category. Let's then regulate packaging according to use and expert findings in life-cycle analyses, from production to consumer use. In our view, the government must set an example. For instance, when will Parks Canada be required to use tables, chairs and furniture made from recycled plastic? This would promote the national economy and the circular economy and create more prospects for our recycled plastics.

• (1700)

Of course, if we can't reduce, reuse and recycle, we can always recover orphan plastics or non-recyclable plastics using chemical technologies. My colleague, Céline Vaneeckhaute, is an expert in this field.

[English]

The Chair: Thank you. That's our time.

[Translation]

Mr. Mathieu Laneville: Thank you.

[English]

The Chair: Hopefully, you will get to address the rest of your testimony during our questions.

Thank you for your opening remarks.

Now I'll open the floor for questions. Please be sure to indicate to whom your questions are directed.

Our first questioner is MP Viersen, please, for six minutes.

Mr. Arnold Viersen: Thank you, Madam Chair.

I want to thank the witnesses for being here today. I noticed you were sitting here for the last panel as well. I didn't get to my next question, but we were talking about the energy that's bound up in plastic and whether that energy can be used to then recycle plastic. Can you address that a bit from your perspective?

Ms. Céline Vaneeckhaute (Canada Research Chair in Resource Recovery and Bioproducts Engineering, and Associate Professor at Université Laval, Réseau Environnement): The question is about the energy in the plastic and chemical recycling, for instance.

Mr. Arnold Viersen: Yes.

Ms. Céline Vaneeckhaute: If you do a pyrolysis, you would use energy to....

Is that the question?

Mr. Arnold Viersen: Yes. I'm just wondering if there is enough energy in plastic to be used to then recycle other plastic. Is it a net positive?

It seems that plastic is a high-energy product, but then it takes a lot of energy to recycle it, particularly to break it down into its basic elements again. Is it a net positive? Can we use plastic to make plastic?

Ms. Céline Vaneeckhaute: If you do mechanical recycling, for instance, you would not break down the molecular structure of the plastic. You would recycle the molecular structure as such, which would consume less energy, so yes, you can recycle it many times again.

If you do chemical recycling, it's more energy-intensive. You would basically break down the molecular structure to monomers. Those monomers can be reused. The advantage of that is that the purity of the plastic you recycle will be higher, but it's more energy-intensive in that sense.

Still, any recycling type would be much more interesting than, for example, incinerating or disposing of the waste in landfills.

Mr. Arnold Viersen: Do you have any idea what the impact of the carbon tax would be on recycling plastic? If it's an energy-intensive thing, the carbon tax is then an added cost. Is that causing an impact at all on recycling in Canada?

Ms. Céline Vaneeckhaute: Chemical recycling would for sure be more intensive. There would be more greenhouse gas emissions from that than from mechanical recycling.

Mr. Arnold Viersen: Thank you.

I'll share the rest of my time with Mr. Tochor.

Mr. Corey Tochor: Thank you to our witnesses. I applaud your work. I appreciate anyone who wants to make our environment cleaner and better for future generations. I'm probably taking a different approach from yours on plastics and the importance of becoming that superpower of recycling plastics. We're probably going to agree on some things and disagree on others.

Madam Chair, we're going to get back to this testimony in a minute. We're going to have a quick vote on a motion and then we'll come back.

A lot of the testimony we've already heard is that in Canada, there are mismanaged files and a broken system. We even heard earlier today that it's in crisis. This is mostly at the feet of the Liberal government, but specifically the Minister of Innovation, Science and Industry.

With that, I move:

That, pursuant to Standing Order 108(3)(i), the committee invite the Minister of Innovation, Science and Industry to appear before the committee for no less than two hours, within 14 days of the adoption of this motion, in relation to his priorities for the return of Parliament and his mandate.

• (1705)

The Chair: Ms. Diab, I'll put you first on the speakers list to speak on the motion.

Ms. Lena Metlege Diab (Halifax West, Lib.): I move to adjourn the debate.

The Chair: That means we go right to a vote.

(Motion agreed to: yeas 6; nays 5)

The Chair: Now we will return to our witnesses.

You are the next speaker, Ms. Diab.

Ms. Lena Metlege Diab: Thank you very much, Madam Chair.

Actually, I would like to get back to the reason that the witnesses are here today.

First, thank you very much for appearing and thank you for appearing in person.

Thank you for providing this. I actually had it in English; thank you for providing it in French.

[Translation]

I want to thank the three of you for all your hard work.

[English]

I understand very well that the environment and human health are at stake here.

[Translation]

With regard to the Réseau Environnement representatives, I know that you didn't have time to finish your remarks. I would like to invite you to do so.

I think that the rest of your recommendations are likely in our documents. However, I would like to hear them so that the analysts can do their job.

Mr. Mathieu Laneuville: We had two items left. In general, we would like to see more research, development and innovation. For example, as you said, we want more research into the impact of plastics—including nanoplastics and microplastics—on the environment and human health. These items are among our members' recommendations. With regard to municipal waste water treatment in Canada, we also want to further limit nanoparticles, plastics and other contaminants—such as textiles that come off in the laundry—so that they don't end up in our waterways.

We have other recommendations for green taxation. One approach is strongly recommended by our members—I know we

were talking about other countries earlier—and it's Norway's approach. Norway stands out for its approach to increasing the recycling rate of plastic products put on the market. For a number of years now, it has been implementing an excise tax on plastic packaging and containers. Producers can receive an exemption from this tax if they show that their products are well supplied and over 85% recycled. This tax can be regressive depending on the results achieved. However, the recycling certificate is issued by the designated management organizations, or DMOs. These organizations already have access to the results of extended producer responsibility, or EPR. This system reverses the dynamic, since the producers seek to comply with recycling streams to obtain their certificate. This approach encourages standard packaging and containers and promotes green design. As it happens, our greatest wish is to see green design flourish.

In terms of other green taxation measures, many Canadian municipalities have incentive pricing for waste. This measure is a common practice in Europe. For example, when people, industries, businesses and institutions deposit their waste, they pay according to the user pays or polluter pays principle. This encourages people to do much more recycling and composting. In Montreal, the municipality of Beaconsfield, for example, is taking this approach. We're seeing convincing results, with nearly 30% less waste going to the landfill. These science-based practices are working well.

Lastly, with regard to green design, we said that we needed to determine the science involved in finding the best packaging for each product category. Our members recommend, for instance, that we maintain an up-to-date road map with clear green design protocols to support our suppliers and companies. As we all know, changing production equipment requires considerable financial investment, expertise and labour. With that, we can keep track of design costs and achieve sustainable results that benefit the economy, the environment and human health. For example, we could have more and more single-layer plastics instead of the multi-layer plastics that often come from other places. We could have more glass. I know that we were talking earlier about recycling plastic. However, glass can often be recycled up to 80%, unlike plastic, which is limited to around 30%. Furthermore, we know that the plastic particles in long-stored ketchup or mayonnaise containers break down after a while and end up in nature and in our bodies. The best approach would be to produce the appropriate container or packaging for each good, and to do so on a scientific basis, backed by a life-cycle analysis.

• (1710)

Ms. Lena Metlege Diab: Thank you for sharing all these recommendations. I hope that the analysts have taken note of them.

[English]

Mr. Merante, I come from Halifax, in the province of Nova Scotia. On our licence plates, it literally says, “Canada's Ocean Playground”. We have over 13,000 kilometres of seacoast because we front the Atlantic Ocean.

When you talked about the national pollution crisis and the effect on our environment, our oceans and, of course, our bodies, we need to take that seriously. I just want to give you an opportunity to tell us what we are doing right, so that we can actually.... Obviously, there are a lot of things that we need to do, but from your perspective, are there any other recommendations?

Mr. Anthony Merante: Sure. I think the government started to take action on fighting plastic pollution with the listing of plastic manufactured items under CEPA. Let's not forget that CEPA is not only for the proactive protection of the environment; it is also for human health, and having that foundation, in my opinion, is correct.

Because of the vast pervasiveness of microplastics, you cannot tell where that plastic came from. You do not know if it was from a tire or from a car. My mom's side of the family is from Halifax. I've seen many a grocery cart thrown into the ocean. Many people cannot imagine what ends up in the water. It affects ecotourism. It affects your quality of life.

Now, on what we could do better, things like the plastic ban targeted products, and we saw many players in the industry take that in good faith. They switched to reusable products and to more sustainable products, but many tried to find a loophole in there. We need a reiteration of the ban that is sectoral and that works hand in hand with the largest players in that sector. I'll give you the example of the beverage sector. Rather than potentially banning items with pop, juice, yada yada yada, you could work hand in hand with the three largest players—Coca-Cola, Pepsi and Keurig Dr Pepper—and collectively have them reduce the overall amount of plastic they have.

A sectoral approach would be my recommendation.

The Chair: Thank you. That's our time.

Thank you, MP Diab.

Now we will turn to MP Blanchette-Joncas for six minutes.

[Translation]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

I want to acknowledge the witnesses here for the second hour of this meeting.

Mr. Laneville, in your interviews, you used the phrase “social acceptability of projects”. In your view, the green economy has a positive impact on human well-being. Can you elaborate on these benefits?

Mr. Mathieu Laneville: Are you talking about the benefits of the green economy?

Mr. Maxime Blanchette-Joncas: Yes.

Mr. Mathieu Laneville: First, at Réseau Environnement, we believe that the green economy is profitable. It's good for our own economy to use recycled plastics rather than raw materials. We cur-

rently use mostly virgin resins from China and India. They go around the world and we process them, rather than recovering our own material. For this reason, we think that the Canadian government must set an example with its own furniture, for example, and must innovate and become a world leader in the green economy.

The world leaders will be the ones capable of collecting, recovering and producing as little plastic as possible. This is a global issue. We want Canada to lead the way and become a model for the green economy. This need will exist all around the world. If regulations aren't created here, they'll be created in other places. The market is headed in this direction anyway, so why not stay competitive?

• (1715)

Mr. Maxime Blanchette-Joncas: Thank you for your response. You're talking about examples. However, I want to get down to the specifics.

You spoke about green taxation. The Bloc Québécois has already promoted green finance on a number of occasions. It's simple. It's about giving companies incentives to stop investing in oil and gas. We all know that money is key. When we look at the money, we see that the big Canadian banks have invested hundreds of billions of dollars in oil and gas in recent years.

This isn't about reinventing the wheel. I'll use the example of Norway. In 2019, it had already announced its plans to permanently move away from fossil fuels through its sovereign wealth fund. Studies also found that, if this fund had disposed of its fossil fuel assets a number of years earlier, it would not only have contributed significantly to achieving the goals of the Paris agreement, it would also have been cost-effective.

I want you to elaborate on the green economy, but especially on green taxation and the potential benefits if the federal government really decides to take the plunge.

Mr. Mathieu Laneville: A good example of green taxation in Canada is the carbon tax, which we can take great pride in. Our members believe that it's one of the best ways to reduce our greenhouse gas emissions, achieve our net zero goals and encourage innovation. The idea is to encourage great consultants, great Quebec and Canadian companies and all the provinces to innovate. This can be done, but it takes a financial incentive. Otherwise, people will keep going back to raw materials and things that may not be as environmentally friendly.

Green taxation rewards the innovators who will drive the future economy, and discourages the stragglers who stick with old practices. Our members also appreciate the fact that green taxation establishes the results, but lets Canadian organizations and companies innovate in their own way. This plays a key role in green taxation.

Mr. Maxime Blanchette-Joncas: Thank you.

When it comes to green design, how could the federal government, as a leader, make a difference?

Mr. Mathieu Laneuville: At this time, not much is being done in the way of green design. Each producer decides what product to put on the market, and the result is a bit of a jumble. Sometimes, products contain a bit of paper, a bit of glass, a bit of plastic and a bit of metal. Obviously, it's quite difficult to then recover this type of product.

Green design helps us to determine the best product for a given type of good. Furthermore, at the end of the production line, we can make good use of the material. The value chain must make sense in economic, environmental and human health terms.

Mr. Maxime Blanchette-Joncas: Thank you.

I would now like you to talk about eco-labelling. In concrete terms, what could the federal government do to take action in that area?

Mr. Mathieu Laneuville: I'll give a very simple example—the famous recycling symbol with a number inside it. We think that is still too complicated for Canadians. It should just be a check mark or an X, which would be simple for everyone. That way, people wouldn't wonder whether the product is recyclable or not. A simple eco-labelling system would clearly make life easier for Canadians. It is often said that Canadians are not doing enough, but I feel that the challenge has more to do with the system than with them.

Mr. Maxime Blanchette-Joncas: Thank you very much.

You talked about the government setting an example. I'd like to come back to that, since it's important. People are watching us and listening to us, but they are also interested in the actions taken and the results. As we know, the Government of Canada has never managed to meet the greenhouse gas reduction targets it had set. It's related. We want to ban single-use plastics, reduce the reliance on plastics and reduce products that are not recyclable.

However, the current government has taken concrete action by buying a pipeline. As a result of this \$34-billion expenditure, the daily production of oil will increase from 300,000 barrels to 890,000 barrels. That's a 200% increase. According to the Impact Assessment Agency of Canada, this will lead to an increase in greenhouse gases, from 21 million tonnes to 26 million tonnes a year. As you know, the government says it's green. And yet, I have personally never met a vegetarian who owns a butcher shop, but perhaps someone will tell me otherwise today.

We are increasing the production of greenhouse gases and, at the same time, we want to fight climate change with good intentions when it comes to recycling plastic. Does that constitute exemplary action based on scientific data?

• (1720)

Mr. Mathieu Laneuville: The answer is in the question.

We feel that the important thing when it comes to plastics is eco-design. That is the crux of the matter. Eco-design is what we need to take away from today. We have to get the best products to market, and the life cycle has to be based on science. That's our recommendation.

Mr. Maxime Blanchette-Joncas: In concrete terms, is a pipeline like Trans Mountain recyclable?

[English]

The Chair: Answer quickly, please, yes or no, because that's our time.

[Translation]

Mr. Mathieu Laneuville: No.

[English]

The Chair: Thank you.

MP Cannings, it's your turn for six minutes, please.

Mr. Richard Cannings: Thank you.

Thank you to the witnesses for being here today.

I'm going to start with Mr. Merante from Oceana.

You were commenting on what we have in Canada, the cross we have to bear, if you will. We have a federal system where the federal government is responsible for certain things and the provinces for others. Often, there's a lot of overlap. In a big project like this, getting rid of plastics in the environment, everybody has to be pulling in the same direction, as they say, and working together. There has to be that co-operation.

Every province has its own regulations. I'm from British Columbia, where, for instance, every beverage container of any sort... If you buy something that's ready to drink, whether it's four gallons or 10 millilitres, you have to pay a recycling fee. You get money when you bring it back. Naturally, all that stuff is pretty much recycled in British Columbia. I know it's different in other provinces. I remember my kids picking up a ton of cans and stuff on the beaches of Newfoundland and being disappointed at how little they got.

Can you comment on that whole system, and what kind of co-operation there is? Is there a real effort now to move in the same direction?

Mr. Anthony Merante: You are correct. It is a multi-jurisdictional patchwork. I think that was also exemplified by Circular Materials earlier today.

I will say, though, that there are good instances where provinces are leading. Then, by contrast, their neighbours are falling behind. Alberta regulates the standard design of beverage containers. For that reason, they have very good recycling and recapture rates. They also add on a handling or deposit fee. Saskatchewan is also extremely good at it. Manitoba does not have it. Ontario just rejected it. They have terrible recycling rates. In Quebec, you can go to any return depot, regardless of material, alcoholic or not, and you can bring it back.

This notion of ecodesign is happening, but it's not national. You've heard asks from industry, the Canada Plastics Pact and national recyclers for a unified or harmonized plan. This is the obstacle in a large country, geographically. There are a lot of instances where, if you want to have co-operative recycling and collection systems, it may actually be more feasible for Ontario and Quebec to share resources with Maine, New York or Pennsylvania, rather than keeping it completely in Canada and shipping it all the way to British Columbia or Saskatchewan. That is something we have to take into account. An international plastics treaty can help with that. CUSMA can help with that, but we need to know what is in our market.

If we want to have recycled content, we need to recapture our own materials and integrate that, but we need to do it in a healthy and safe manner. We're finding that everyday plastic chemicals in a lot of these materials are inhibiting recyclability. Ecodesign is not just about the material. It is about what is unknown in the product right now: dyes, additives and bisphenols. A lot of single-use plastic materials have PFAS, bisphenols and things that are endocrine-disrupting. It's not just in single-use plastic straws. It's in forks, takeout containers and overwrap. We should be more transparent and truthful with consumers about what they are interacting with, especially high-priority materials they are interacting with: clothing, food packaging, baby toys and baby food, very specifically.

There needs to be more transparency. It's not that national harmonization can come through that, but there is a jurisdictional play. I think co-operation would be encouraged.

• (1725)

Mr. Richard Cannings: How much farther do we have to go in terms of reducing the amount of plastic we have to deal with and recycle? I go to the grocery store and buy something in a plastic tub or styrofoam container, but it's also wrapped in plastic—things like that.

Is that regulated provincially, too, or is there something the federal government can do?

Mr. Anthony Merante: That's not regulated at all.

This is, I think, a very important notion for people to understand: If you want recycling to work, you cannot just keep pretending it works. You have to be okay with regulating. The most conservative provinces regulate. The most progressive provinces regulate. It's nothing to be fearful of, because you are just improving the quality of a product you are presenting to the Canadian market. You can sell yourselves as creating safe, viable products for your consumers.

I don't think it's right that we are selling Canadians garbage. That is the reality of our recycling system and our plastics market right now.

The Chair: You have 39 seconds.

Mr. Richard Cannings: Okay. I'll turn to the other witnesses.

I think it was you who brought up labelling. Is there some way we can change labelling that would make sorting easier down the line—putting on bar codes or something? I know there's a little symbol. Maybe you can scan it, but I know that's difficult. Is there

something we can do, other than the check mark you mentioned, to help the sorting later, to automate it?

Mr. Mathieu Laneuville: This is good, but we also—as we talked about before—want to ban compostable plastic and all of that, because it brings confusion to consumers.

Mr. Richard Cannings: I was going to mention that, too, but I don't have time.

The Chair: Thank you. That's your time.

We will start a second round, then, for five minutes.

MP Kitchen.

Mr. Robert Kitchen: Thank you, Madam Chair.

Thank you, witnesses, for being here. I didn't get a chance to thank all the witnesses who were here in our last hour, but I do want to mention one thing, which is that a lot of the conversation in the first hour is also being reiterated and reinforced in the conversations we're having today in this hour, and I appreciate that.

One of the things we talked about a little bit in the last hour was public education. You have all talked about public education, and to me that's probably the number one policy that I would love to hear from people on. That's what we need to start, because we don't have that. I believe today we see the population not paying attention to how they were taught in school to recycle. They're not doing that. I see adults walking around here in the House of Commons and... Granted, it is not plastics, but the reality is that I see people throwing their cigarette butts—just throwing them out. Do they not understand that a cigarette butt is basically a piece of trash that is not rapidly biodegradable and it is destroying...? But they do that.

The same is true with bottles. You see people driving along and they just throw them out. People collect them along the highways to try to raise funds. These are great things that should be done, and we're not doing them. We need to educate Canadians. Canadians are watching this show. I hope they are paying attention and hearing about how we need to start doing that. That is something that needs to be done.

I'm wondering, from your point of view, what the industry can do to try to help with that education.

That goes to both of you, but I'll start with Anthony, please.

Mr. Anthony Merante: I agree with you that it is very common to see people misplace plastic products everywhere. It happens all the time. We walk down a beach, and there's garbage everywhere.

I do think, though, that as elected officials, you should be meeting your population where they are, at that point. Laying the blame on the consumer is not the right approach to take. There is partial blame, and I agree with that 100%, but it is not the vast majority.

I think it would be very hard for most Canadians to walk down the grocery aisle and not find packaging that is confusing and only plastic. Growing up, I used to be able to buy baby food in glass and metal. It didn't matter where I threw that. It got recycled. A lot of things used to be unpackaged. Now I have to figure out whether my flexible plastic—because I've been taught plastic is recyclable—is recyclable, and in my province, it is not. It will get burned or it will go to landfill.

We need to meet in the middle here. The products that are simply very confusing, harmful to our health, single-use or just not durable or viable will just end up in the garbage.

That is where regulation should come into play. You should present durable, quality products to people. On that level, once you do have these quality products on the market...because there's no denying that something like berries—unless they're very fresh and you get them in a nice little plastic pouch or paper pouch—have to come in a PET thing to transport them over long distances from California in the winter. They require that, but we need to have labels that are—

• (1730)

Mr. Robert Kitchen: I'm sorry to interrupt you, but I have only a limited amount of time to get questions in.

Mr. Laneuville, could we have just a quick comment on the same issue?

Mr. Mathieu Laneuville: For us, the first thing is reduction. We can work on the recuperation, but the first thing is to reduce the amount of plastic that we have. For us, there's so much more plastic on the market than should be there, but if it's there, as you said, we must inform the citizens where it goes. It must be simplified. We must bring back trust in the system, because people don't trust it, given the results we have, and we should also have education in schools and teach about where it goes.

Mr. Robert Kitchen: Thank you very much.

Don't get me wrong—I don't believe that's the only thing, but it is something that needs to be done and, from a government point of view, it is something that we should be communicating to Canadians quite heavily on, the aspect of getting that education so people understand that.

Mr. Laneuville, I can't remember the percentage you said, but you talked about basically microplastics in brains. I think you said it was one-third of our brains.

Mr. Mathieu Laneuville: Half a per cent of the weight of our brain is microplastics now.

Mr. Robert Kitchen: It's 0.5%. Thank you. I appreciate that clarification.

Can you tell me which research paper came up with that?

Mr. Mathieu Laneuville: I can give it to the committee.

Mr. Robert Kitchen: Thank you very much.

The Chair: Thank you.

You can provide that to the clerk, and we'll have that information. Thank you very much.

Next up is MP Longfield, for five minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thank you, Chair.

Thank you to the witnesses.

I really appreciated the direction Mr. Kitchen was going in, in terms of what we can work on from the federal side.

I also sit on the environment committee, and we have done CEPA studies. It was great to hear CEPA mentioned this afternoon by Mr. Merante.

Looking at the science of plastics and recycling, I'd like to start with Dr. Vaneekhaute and talk about how the structures of plastics could accommodate recycling if we did the right science.

The University of Guelph has the Bioproducts Discovery and Development Centre, where they're working on bioplastics, but they're using oilseeds like soy or canola as a base. They're also using carbon nanoparticles in the carbon black that's being used, which is naturally occurring carbon that does not come from petroleum. That results in something that's lighter, stronger and less costly, so it has all three things going for it. Some automotive parts manufacturers are now incorporating that in what they supply, like Ford Motor Company, as an example.

Could you talk about what scientific developments the federal government could be funding through things like your research chair or other research you know of that we could be supporting?

Ms. Céline Vaneekhaute: Thank you for the question.

What would be very important and interesting for the future is to look, for instance, into the production of plastic from other waste sources. For example, we have a lot of food waste and sewage sludge that we want to valorize now as well; we need to valorize organic waste through, for instance, processes like anaerobic digestion. In these processes, we can produce methane, but we can also basically stop the process earlier and produce hydrogen gas with volatile fatty acids, and these volatile fatty acids can then be used for fermentation by bacteria that can produce bioplastics. For example, PHA can be produced by that method.

In this way, we can produce bio-based plastics from organic waste materials, so we're not in any competition with food production, etc.

• (1735)

Mr. Lloyd Longfield: In fact, the University of Guelph is taking the coffee grounds from McDonald's Canada, which are very oil-rich, and using them, as you're saying, to create bioplastics that are now used in headlights by the Ford Motor Company, as an example. They're doing it in Leamington, Ontario, so they're creating rural jobs as well.

Instead of going to landfill, the coffee grounds are going into the production of bioplastics. Is this the type of example you're talking about?

Ms. Céline Vaneekhaute: Yes, this is the type of example that we should promote, I think. The challenge there is that if you produce these bioplastics, of course, you want them to also be resistant and things like that, so you have to give them the appropriate characteristics. That is still challenging. In this area, more research is needed to make bioplastics that are compatible with the synthetic plastics we have now.

Mr. Lloyd Longfield: Great. Thank you.

In terms of research, I'm also going to go over to Mr. Laneuville.

When we talk about the right types of plastics, I'm also thinking of the research around eco-industrial zones. Pearson airport has some of the companies there feeding their waste into the inputs of other companies at Pearson. Halifax has another eco-industrial zone, and Regina and Delta, B.C. have them.

Eco-industrial zone creation is something that has science behind it. Is that something you've had any experience with, so that we could support research in that area?

Mr. Mathieu Laneuville: We need more funding for these as well, because we always use virgin resin from China or India, and that's not where we want to go. I think we have the innovation in Canada to put all our force into it and encourage it to go further.

Mr. Lloyd Longfield: Sometimes that base product can be found from your next-door neighbour instead of going to China.

Thank you, witnesses.

Thank you, Chair.

The Chair: That's your time.

Now we will turn to MP Blanchette-Joncas for two and a half minutes, please.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you, Madam Chair.

Ms. Vaneekhaute, I want start off by commending you for your commitment and your work. You are the Canada research chair in resource recovery and bioproducts engineering. So you have expertise in the production of high-quality bio-based products from residues. Is there an alternative today, such as organic or plastic, that could facilitate better recycling and less pollution?

Ms. Céline Vaneekhaute: We just talked a little bit about that. There are already bio-based plastics on the market that work very well, including polyhydroxyalkanoate, or PHA, and polylactic acid, or PLA.

Mr. Maxime Blanchette-Joncas: Thank you.

What is your opinion on research funding for your activities? Do you think it's sufficient?

Ms. Céline Vaneekhaute: I think we could benefit from more support and programs specific to plastics, especially given a policy to reduce their use and optimize their recycling.

Mr. Maxime Blanchette-Joncas: Thank you very much.

I think it is important to provide figures so that people understand us. The 2023 federal budget invested \$2.5 billion in science and innovation. For national defence, which is also an important area, \$26.5 billion was invested. So we see where the priorities are. I mentioned a little earlier that the government had spent \$34 billion to buy a pipeline to extract oil and export it to Asia. That's 13 times more than last year's budget for science and research.

As a scientist, do you find that the federal government is prioritizing science and research in developing innovation to find solutions for the environment, such as recycling?

Ms. Céline Vaneekhaute: I think it would be good to have more support, especially for our students. We hire Ph.D. students. Scholarships have been increased after all, which was necessary, and that's a step in the right direction. However, funding for programs specific to priorities such as plastics and recycling would be welcome.

Mr. Maxime Blanchette-Joncas: That would be welcome, and thank you for mentioning it.

I waged a major battle with my colleagues to increase graduate scholarships. My colleague was talking about the slogan on licence plates in Nova Scotia. I remind you that, in Quebec, the slogan is "*Je me souviens*". We remember that graduate scholarships had not been indexed by a cent for 20 years. The federal government, which says it believes in research, ended up getting that done.

There is a reason why a brain drain has been taking place. There is a reason why we were the only G7 country that had not increased its investment in research and development as a share of its gross domestic product over the past 20 years. So I am relying on the data, on the science—

• (1740)

[*English*]

The Chair: That's your time. Thank you.

The final round will be with MP Cannings, for two and a half minutes.

Mr. Richard Cannings: Thank you.

I'm just going to allow Monsieur Laneuville to follow up. He wanted to say something about the situation with compostable plastics, but whoever feels they can answer that may do so. It is a controversial topic.

Ms. Céline Vaneekhaute: I personally think that the problem with compostable plastic right now is that it's mentioned as compostable, but oftentimes it's actually not compostable in the current systems that we have. Our Réseau Environnement members say that we should not use those kinds of expressions, because they're confusing. It's going to pollute the recycling stream and things like that.

Mr. Mathieu Laneuville: For example, when we have food waste, it's good in maybe 20 days, but for plastic, it's like 80 days, and with the temperatures we have in Canada, it's not fit yet. Maybe we need more time for the technologies to get there.

Ms. Céline Vaneekhaute: The same thing is true for biodegradable or degradable. There are all these synonyms.

Mr. Richard Cannings: I know it's certainly not compostable in my backyard compost. A year later it's still there, fresh as new.

There is also a danger that this would just create more.... I think someone in the last panel mentioned this creates more microplastics. These compostable plastics break down, but they just break down into microplastics. They don't break down into the monomers that they came from.

Ms. Céline Vaneekhaute: I personally think that more research is needed in the area of microplastics in general, and nanoplastics. Where do they come from? How do they end up in the environment? What are the sources? What are the links? What are the impacts, and things like that?

I think that's another field of research that is important to explore further.

Mr. Richard Cannings: Okay.

Mr. Mathieu Laneuville: We have to remember that it's also contaminating the rest of the waste. That's not good for the rest.

Mr. Richard Cannings: If I have a few seconds left, I'll go back to Mr. Merante and ask about soft plastics.

I end up bringing back a lot of plastics in my suitcase to B.C. when I go home every weekend, just because I can recycle it there. Is there an issue as to why it doesn't happen here in Ontario?

The Chair: Please be quick. We are over time.

Mr. Anthony Merante: Simply, I think we need to take a good, hard look at what is necessary and unnecessary and what could be replaced by durable circular materials. Often these things will just be turned into garbage.

Mr. Richard Cannings: Yes.

Thanks.

The Chair: Thank you very much.

To our witnesses Anthony Merante, Mathieu Laneuville and Céline Vaneekhaute, thank you for your testimony and participation in the committee's study of innovation, science and research in recycling plastics. If you have anything additional you'd like to submit to the clerk, we always welcome that.

Before we adjourn today's meeting, the committee will need to set a deadline for the submission of witnesses for the upcoming study of the new capstone research funding organization announced in budget 2024. The suggested date for that would be Friday, September 27, at 5 p.m.

Is that the will of the committee? Does that seem reasonable?

Mr. Robert Kitchen: On a point of order, Madam Chair, can you just repeat the date, please?

The Chair: Yes. It would be Friday, September 27.

Does that seem okay?

Some hon. members: Agreed.

The Chair: That's great. The clerk will circulate the usual request for witnesses by email. That's for our next upcoming study.

Is it the will of the committee to adjourn the meeting?

Some hon. members: Agreed.

The Chair: We seem excited for that. Thank you.

Thank you again to the witnesses.

The meeting is adjourned.

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